



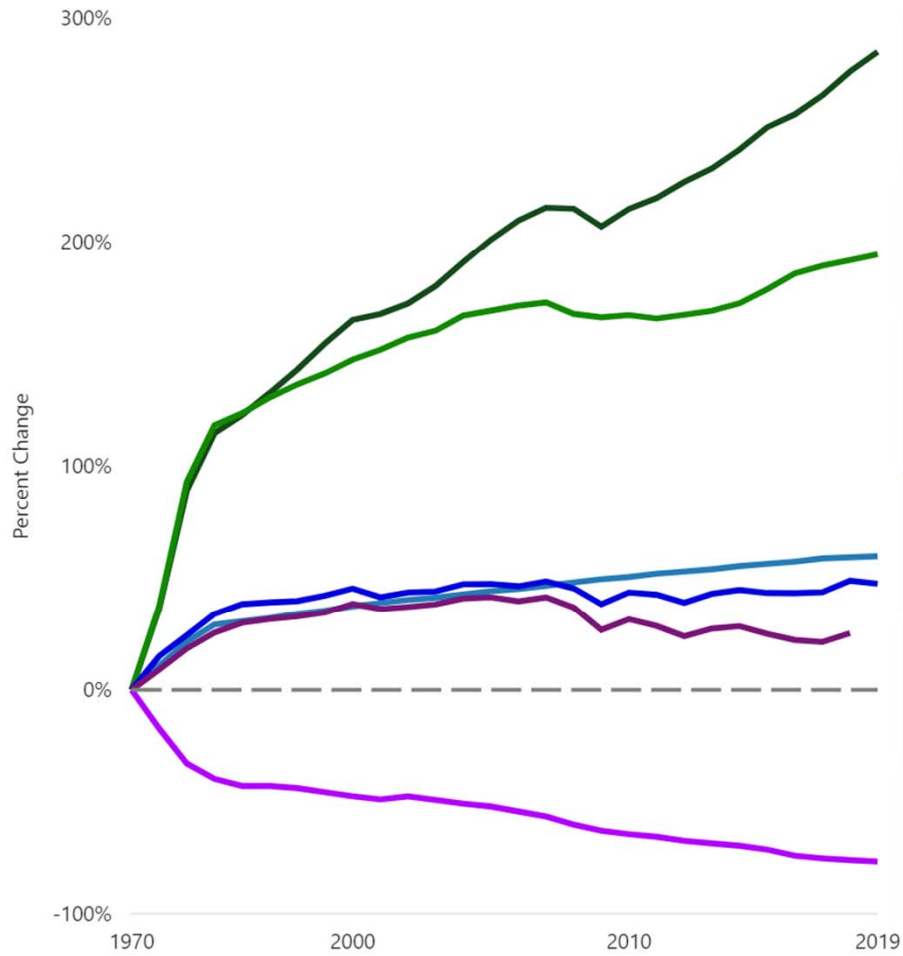
**COVID-19 PANDEMIC**

***WILMAPCO***

# AIR QUALITY CHANGES DURING THE LOCKDOWN

**WILMAPCO PAC**  
August 2020

Comparison of Growth Areas and Declining Emissions  
1970-2019



Gross Domestic Product



Vehicles Miles Traveled



Population



Energy Consumption



CO<sub>2</sub> Emissions



Aggregate Emissions  
(Six Common Pollutants)



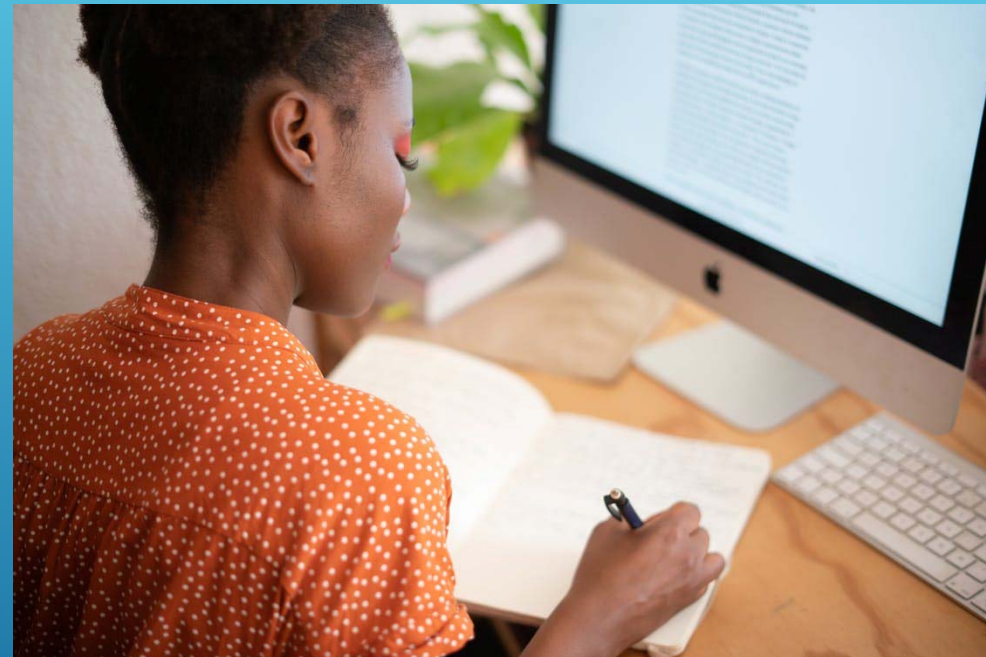
# Selected Lockdown Impacts

**WILMAPCO**

# 50%

Staying at home\*

Traffic level decline\*\*

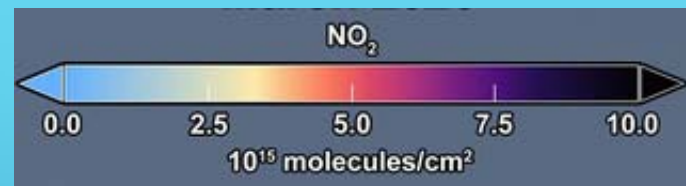


\*Cuebiq, Philadelphia MSA

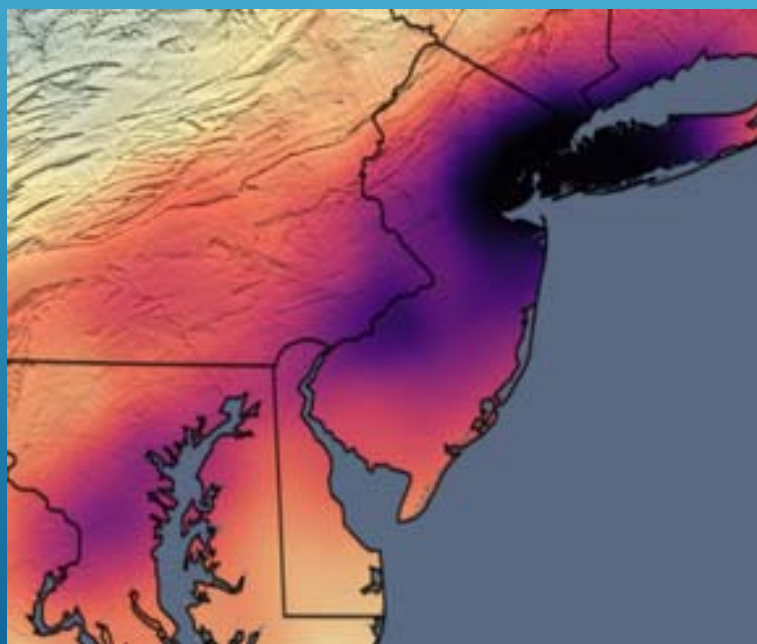
\*\*NPRMDS, Delaware



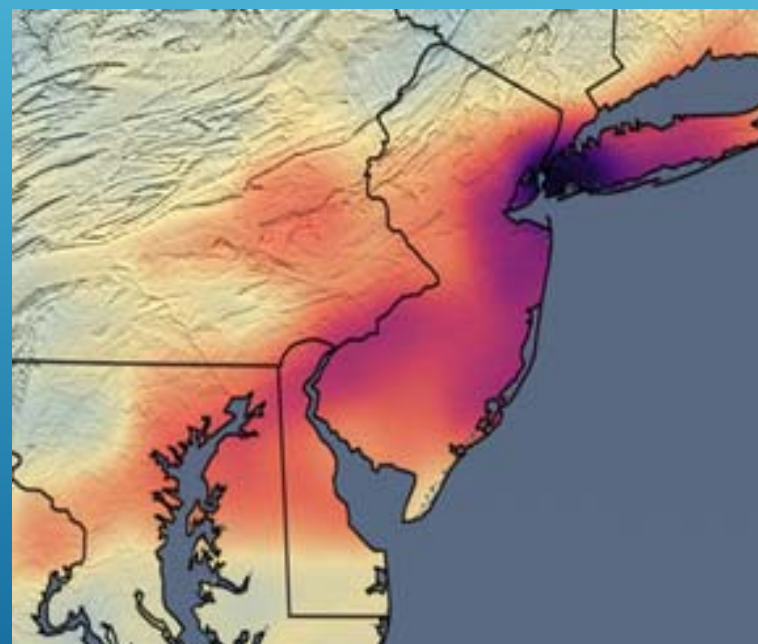
# NO<sub>2</sub> Emissions



March 2015-9 Avg.



March 2020



NASA Scientific Visualization Studio



# Selected Media Headlines

JONATHAN WATTS AND NIKO KOMMENDA

SCIENCE 03.28.2020 08:00 AM

## The Pandemic Has Led to a Huge, Global Drop in Air Pollution

Reductions in traffic and industry have lowered nitrogen dioxide levels—offering an accidental glimpse into what a low-carbon future might look like.

### Despite telework, stay-at-home orders, not much change to air quality in DC area



Brandon Millman | @BrandonMillman  
April 1, 2020, 6:15 PM

THE CORONAVIRUS CRISIS

### Traffic Is Way Down Because Of Lockdown, But Air Pollution? Not So Much

May 19, 2020 · 5:00 AM ET

## Significant Drop in Air Pollution During COVID-19 Pandemic

The Connecticut Department of Environmental Energy and Protection recently released new information about the positive impact on air quality amid COVID-19.

By Kaitlyn McGrath • Published June 5, 2020 • Updated on June 5, 2020 at 7:00 pm





# BACKGROUND

## Air Quality Designations

- Ozone – **Nonattainment**
  - New Castle Co.
  - Cecil Co.
- Fine particulate matter (PM<sub>2.5</sub>) – **Maintenance**
  - New Castle Co.







# BACKGROUND

WILMAPCO

## Particulate Matter

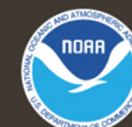
Airborne particles such as **smoke, dust, dirt, soot, and salt**. The sources of these particles are numerous—including vehicles, factories, fires, and any other natural or human activity resulting in the addition of particulates into the air.

## Ground Level Ozone

Ground level ozone is not directly emitted into the air, but forms when **nitrogen oxides (NOx)** emissions react with other **volatile organic compounds (VOCs)** in the presence of heat and sunlight.

Emissions from industrial facilities and electric utilities, motor vehicle exhaust, and chemical solvents are some of the major sources of NOx and VOCs.

## Air Pollution



[weather.gov/airquality](https://weather.gov/airquality)



# BACKGROUND

WILMAPCO

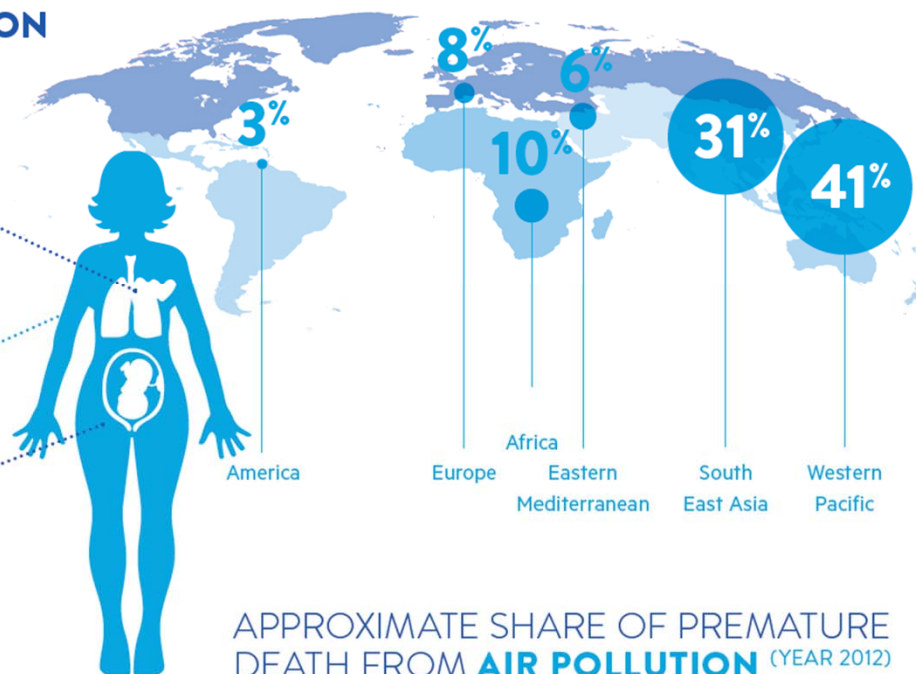
## DISEASES DUE TO:

- OZONE (O<sub>3</sub>)
- PM2.5 AIR POLLUTION

- Chronic obstructive pulmonary disease (COPD)
- Childhood pneumonia
- Ischaemic heart disease
- Stroke

- Asthma
- Breathing problems
- airway inflammation
- Chronic respiratory illness
- Reduced lung function

- Low birth weight

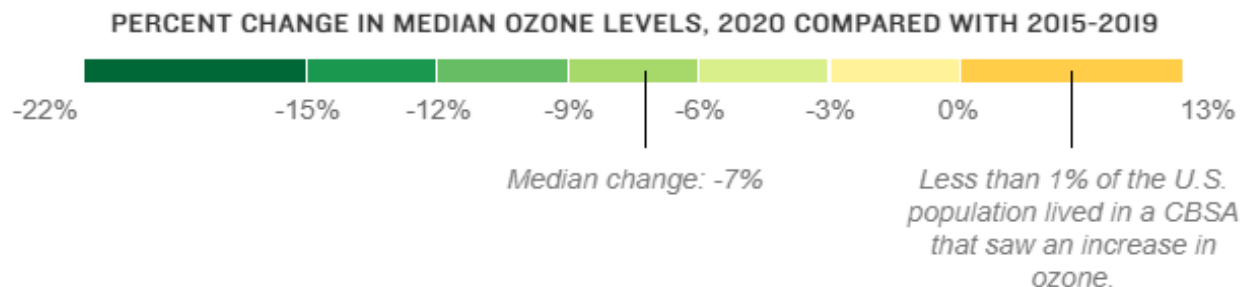


APPROXIMATE SHARE OF PREMATURE DEATH FROM **AIR POLLUTION** (YEAR 2012)

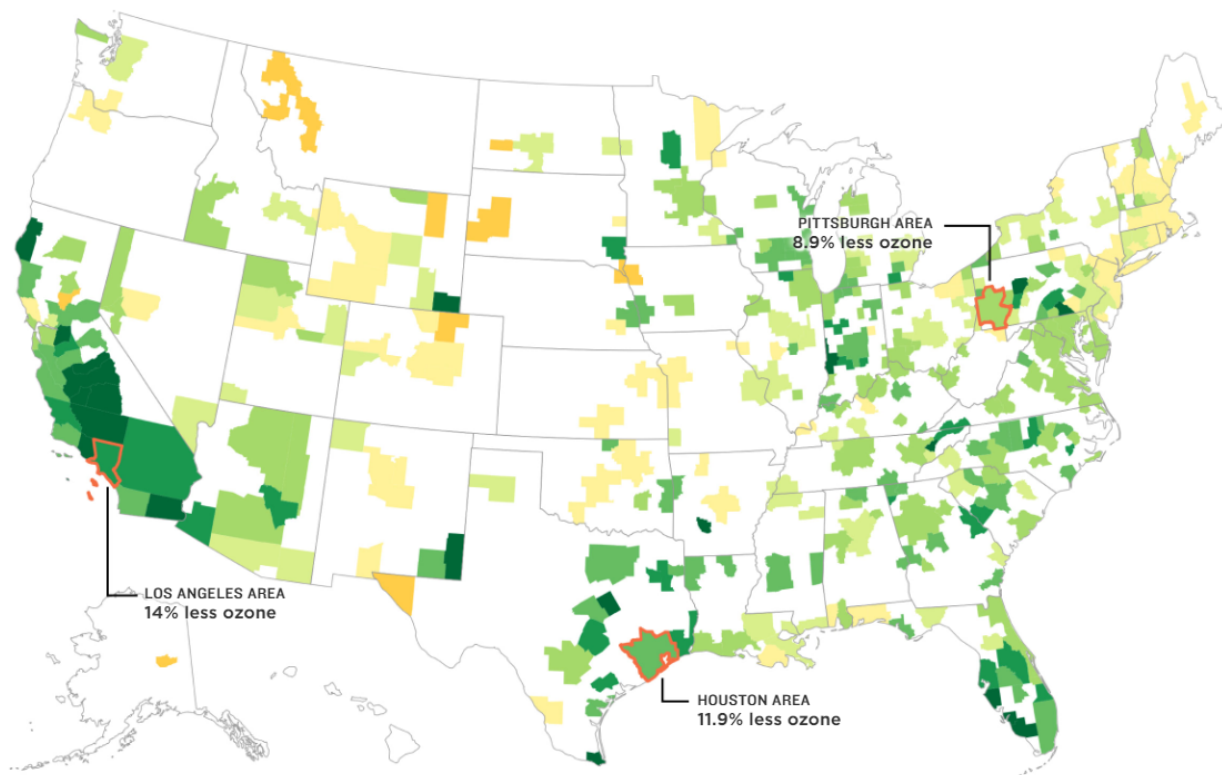




# RECENT NATIONAL CHANGE IN OZONE LEVELS



Daniel Wood/NPR (5/19/2020)





# SELECTED EMISSIONS SOURCES

2014 NEI, EPA

	VOCs	NOx	PM2.5
New Castle County			
Stationary/other	66%	38%	75%
Mobile	34%	62%	25%
Non-diesel Light Duty Vehicles	21%	27%	6%



# SELECTED EMISSIONS SOURCES

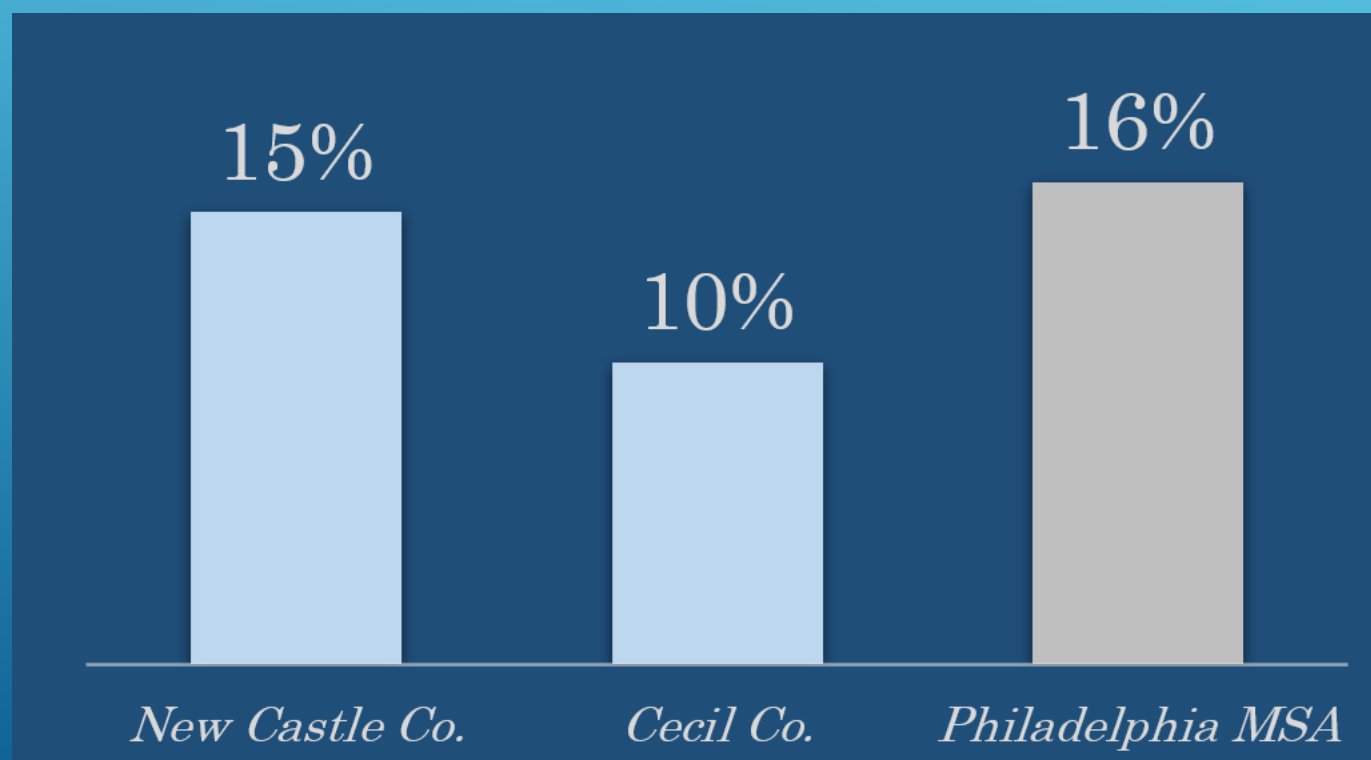
	VOCs	NOx	PM2.5
New Castle County			
Stationary/other	66%	38%	75%
Mobile	34%	62%	25%
Non-diesel Light Duty Vehicles	21%	27%	6%
Cecil County			
Stationary/other	75%	10%	77%
Mobile	25%	90%	23%
Non-diesel Light Duty Vehicles	9%	24%	4%

2014 NEI, EPA



## 2020 OZONE AQI IMPROVEMENT

April 2020 vs. Past 5-year April Average

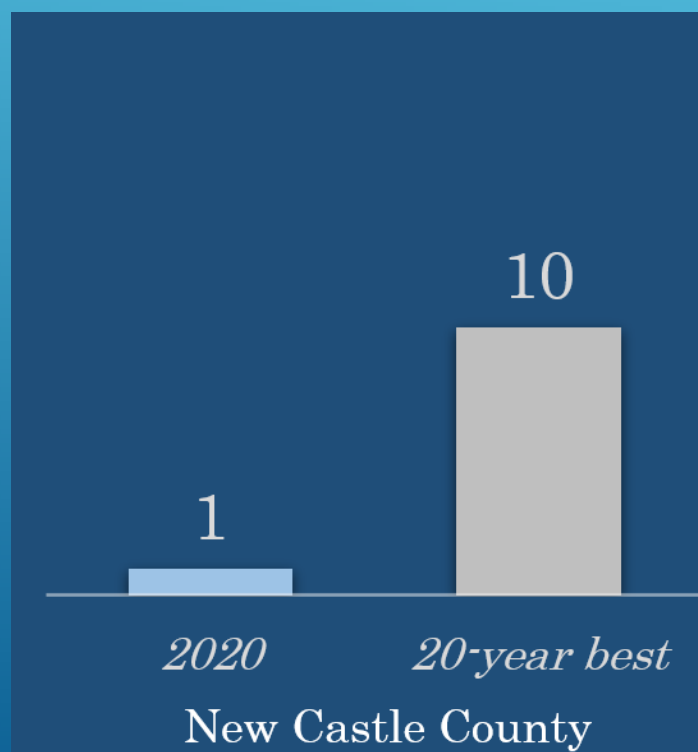


April 2020  
Source: EPA, AirNow



## BAD OZONE AIR DAYS

2020 vs. Previous 20-year Best

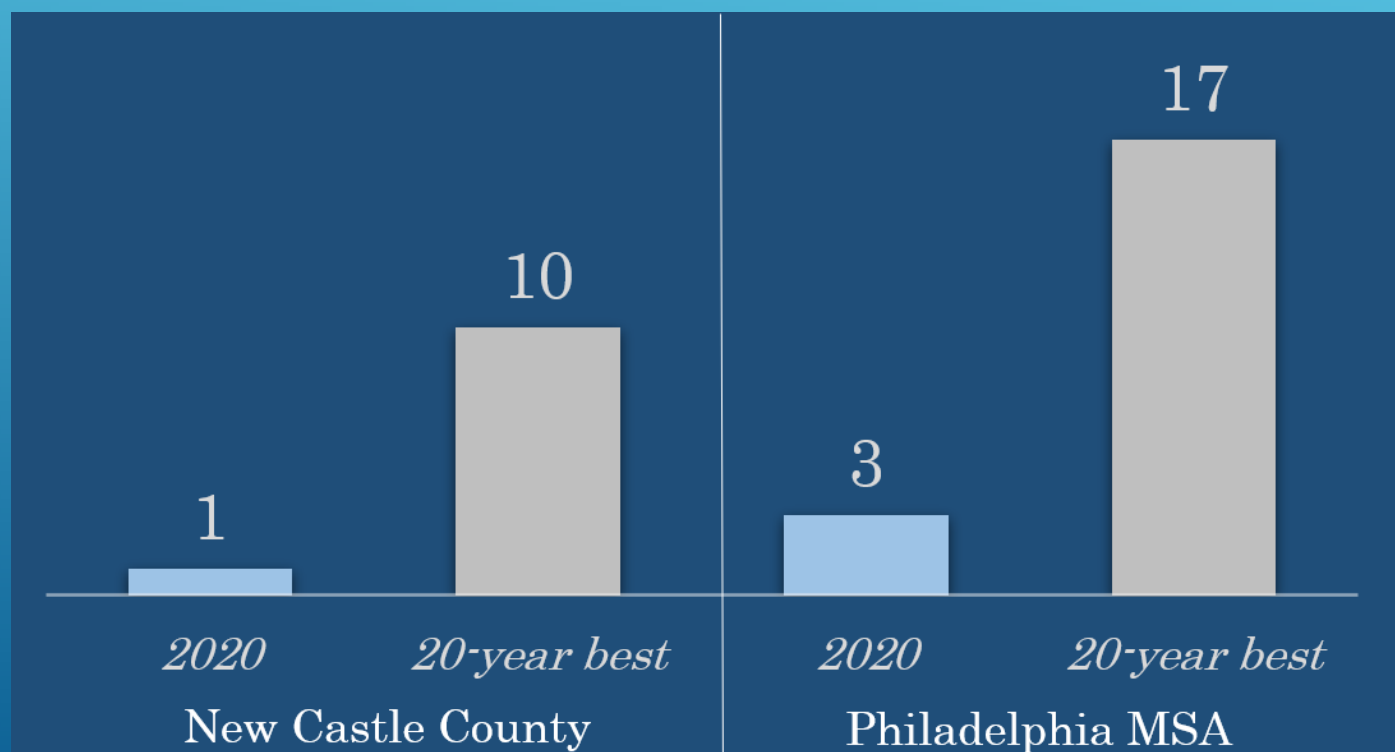


Data thru May 31  
Source: EPA, AirNow



## BAD OZONE AIR DAYS

2020 vs. Previous 20-year Best



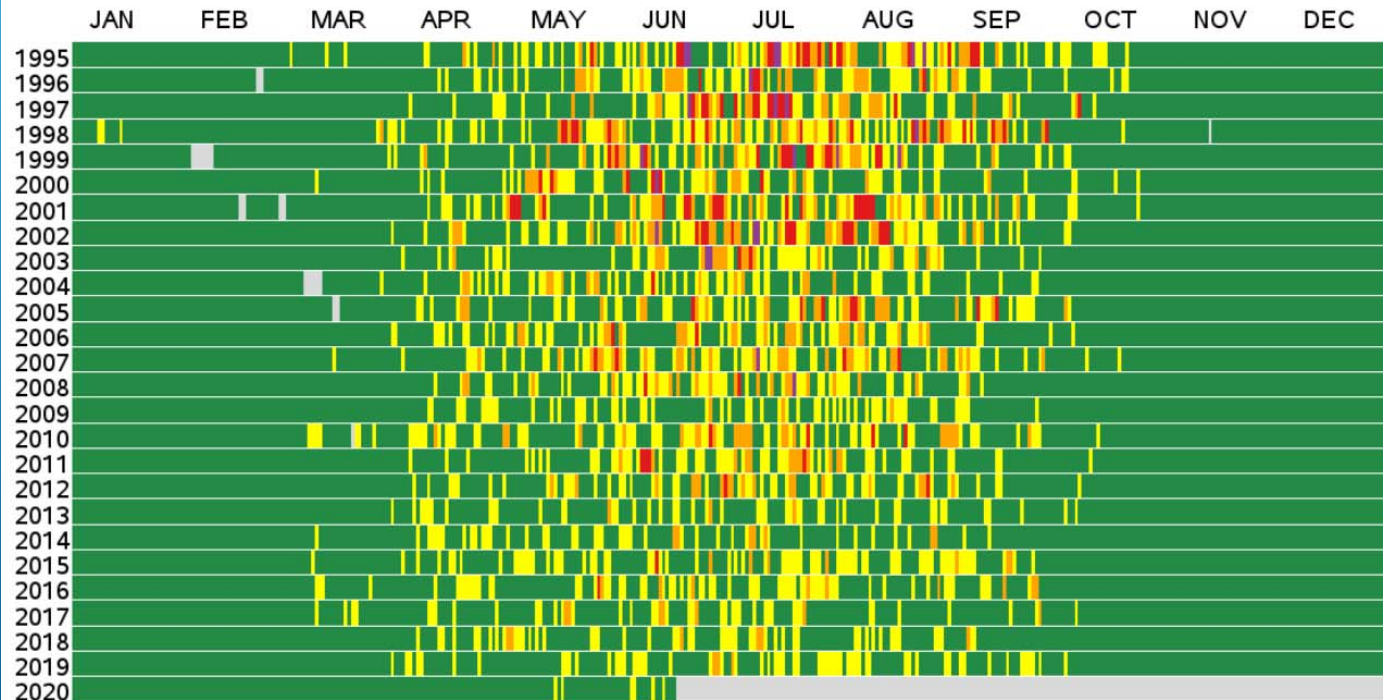
Data thru May 31  
Source: EPA, AirNow





# OZONE - GOOD AIR DAYS

Ozone Daily AQI Values, 1995 to 2020  
New Castle County, DE



## AQI Category

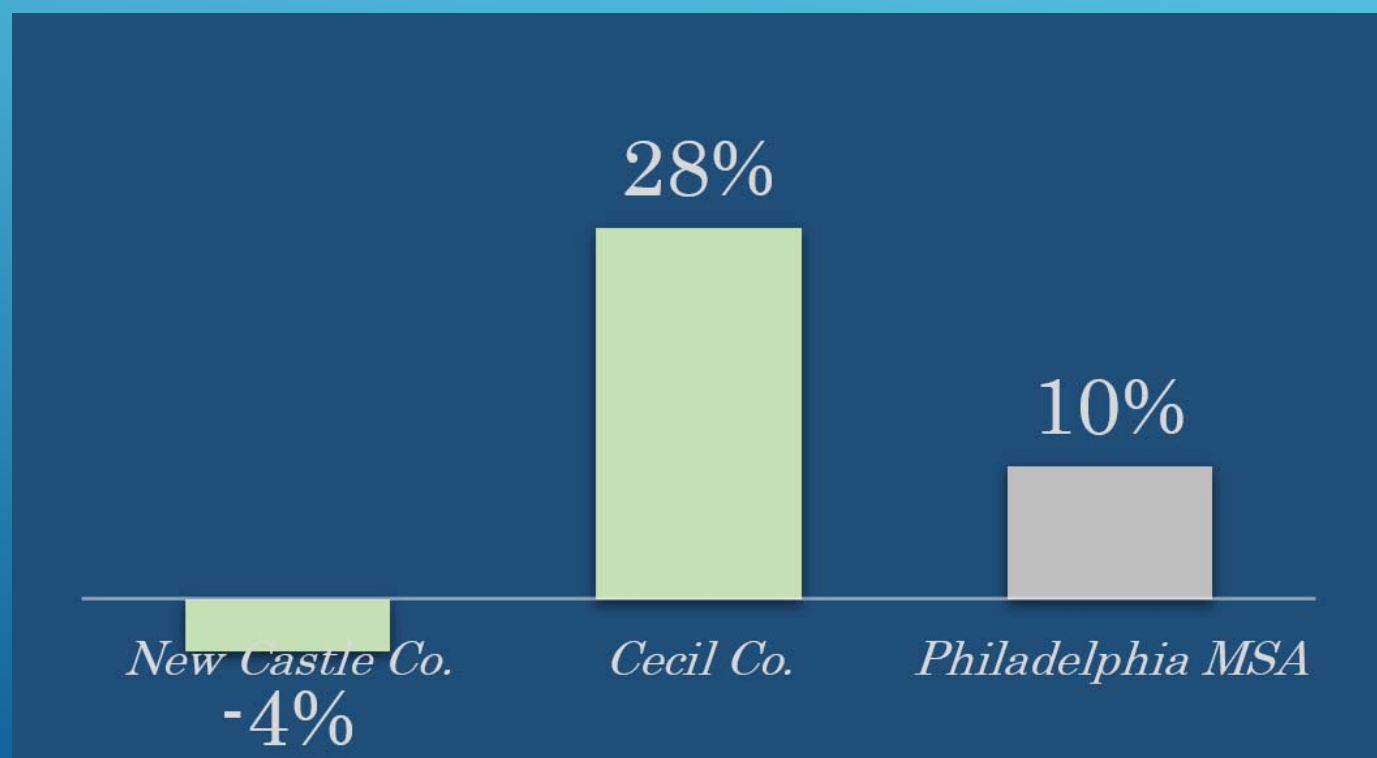
- Good ( $\leq 0.054$  ppm)
- Moderate (0.055-0.070 ppm)
- Unhealthy for Sensitive Groups (0.071-0.085 ppm)
- Unhealthy (0.086-0.105 ppm)
- Very Unhealthy (0.106-.200 ppm)
- Hazardous ( $\geq 0.405$  ppm 1-hour)

Retrieved June 16; Source: EPA



## 2020 PM2.5 AQI IMPROVEMENT

April 2020 vs. Past 5-year April Average

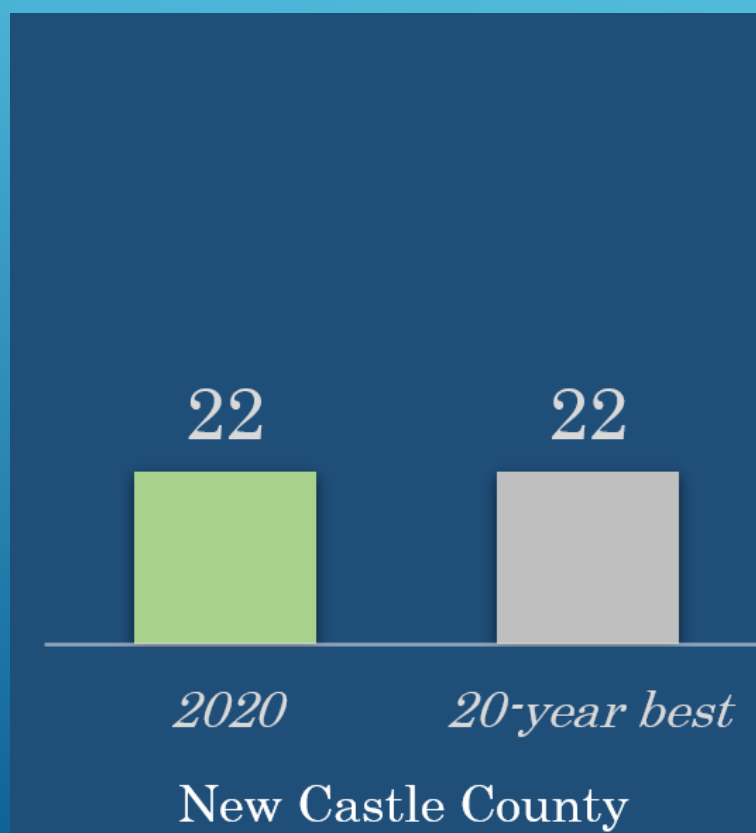


April 2020  
Source: EPA, AirNow



## BAD PM2.5 AIR DAYS

2020 vs. Previous 20-year Best

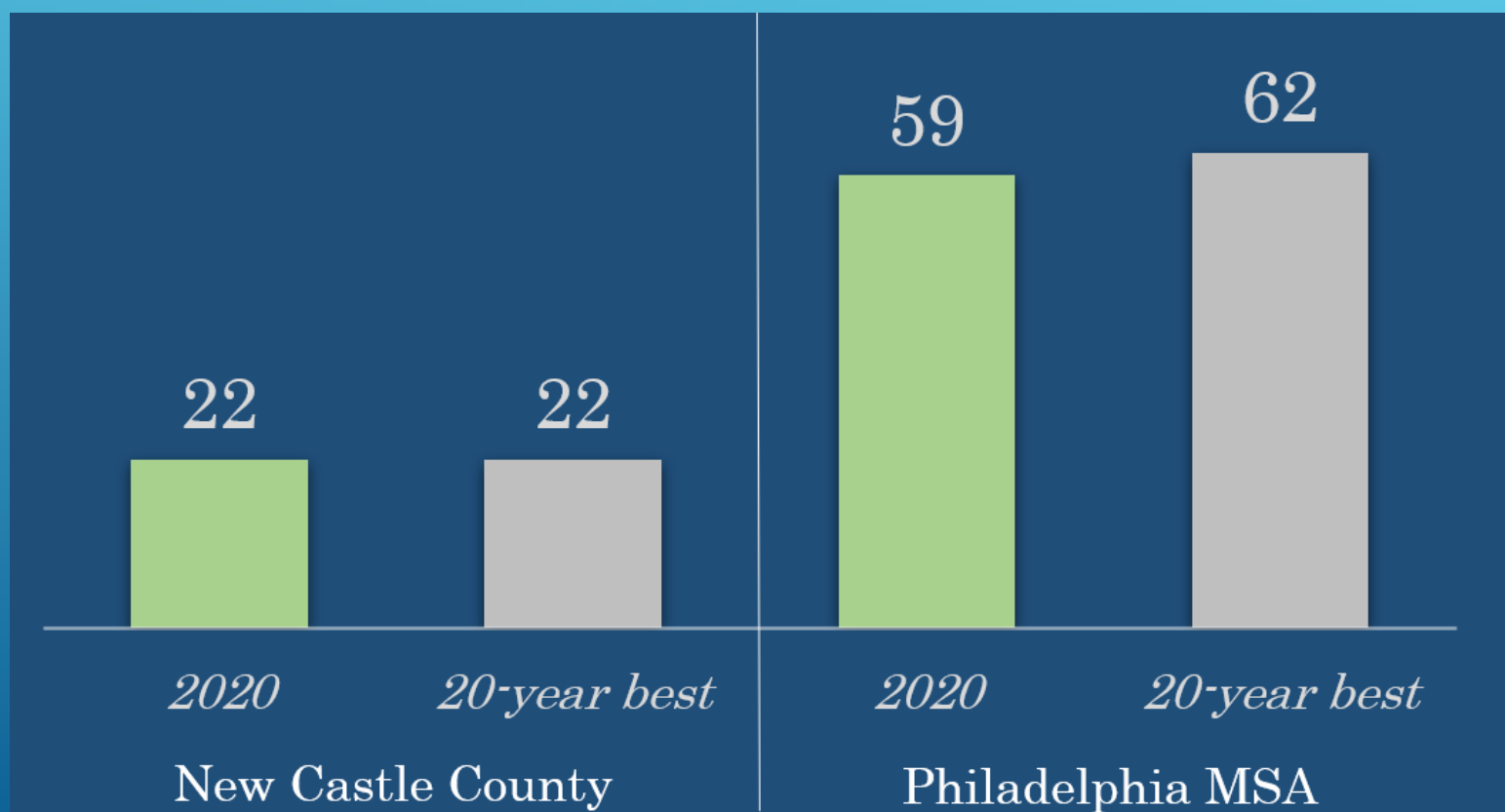


Data thru May 31  
Source: EPA, AirNow



## BAD PM2.5 AIR DAYS

2020 vs. Previous 20-year Best

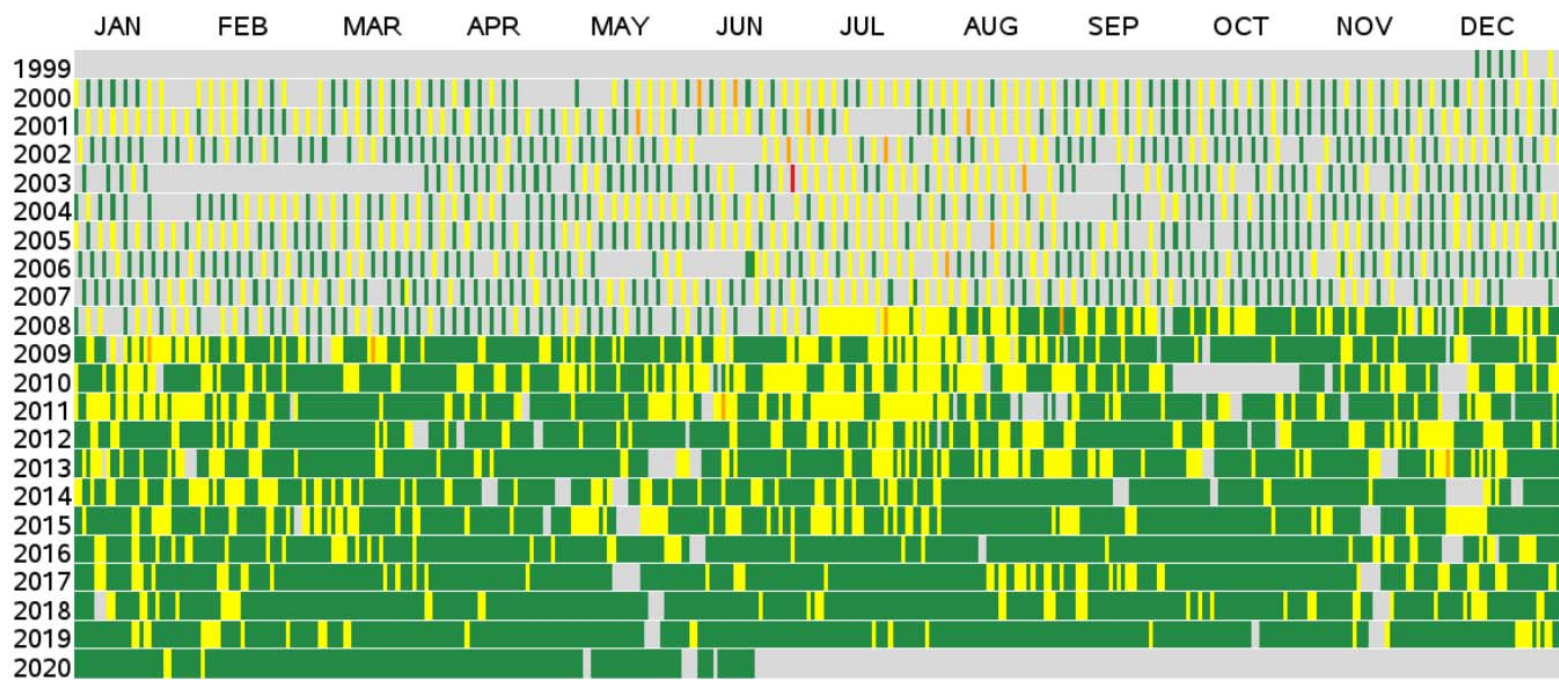


Data thru May 31  
Source: EPA, AirNow



## PM2.5 - GOOD AIR DAYS

PM2.5 Daily AQI Values, 1999 to 2020  
Cecil County, MD



Retrieved June 16; Source: EPA



# COVID-19 PANDEMIC

