DATA ANALYTICS CAPSTONE PROJECT

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INTRODUCTION

- There are always controllable and uncontrollable factors when discussing environmental impacts to our health and daily lives.
- As National Earth Day recently passed, I wanted to understand how the environment, particularly air quality, has been impacted in the last few years as we hopefully are reaching the end of the COVID-19 pandemic.
- How has air quality improved or diminished over the last four years?
  - Have policies or behaviors implemented during the pandemic impacted the environment, specifically air quality?

DATA SOURCE

Dataset:

- The Data was obtained from the United States Environmental Protection Agency.
- https://aqs.epa.gov/aqsweb/airdata/download_files.html

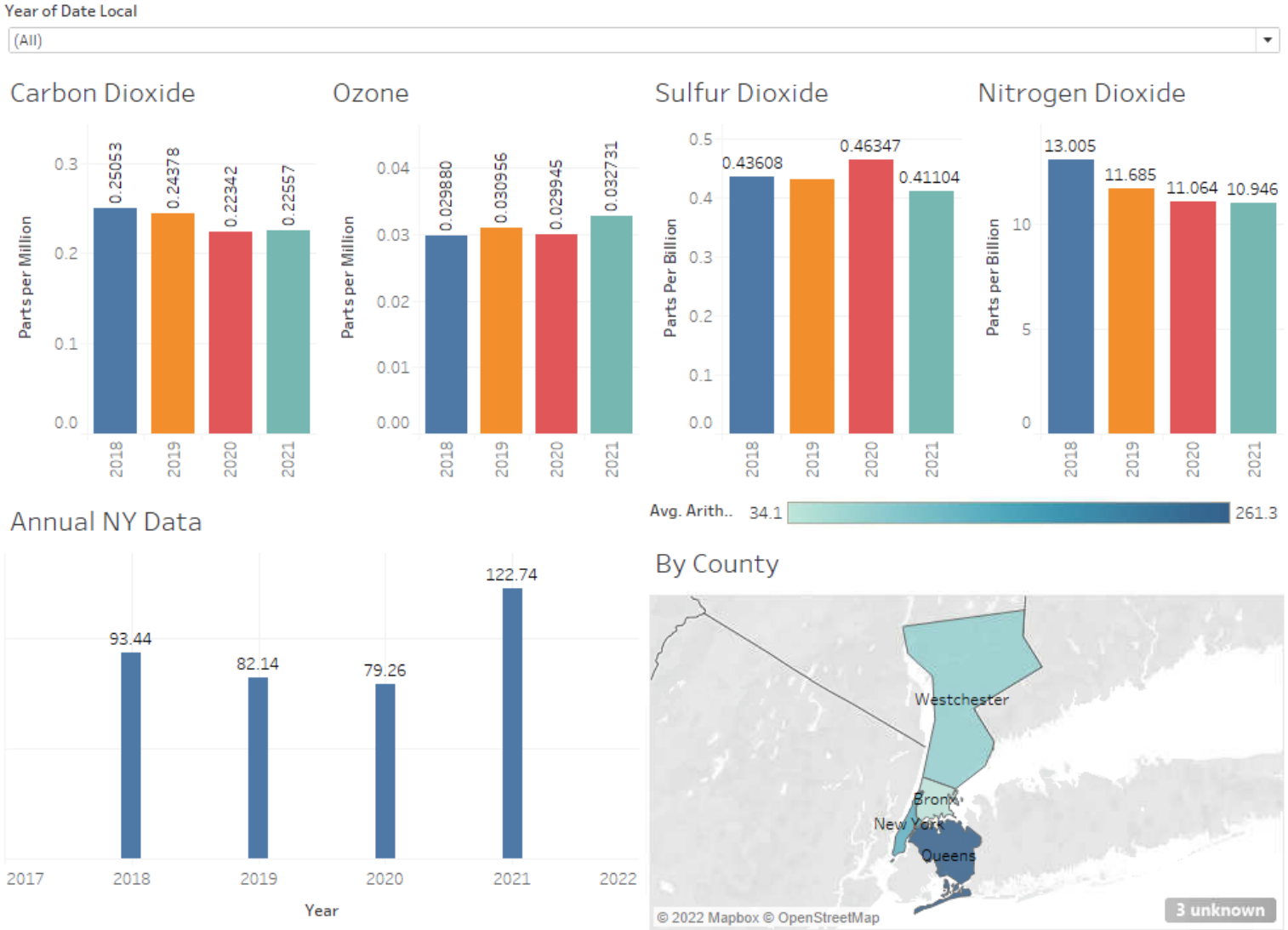
Actions Taken:

- Annual Dataset for 2018, 2019, 2020, and 2021 combined to create a full dataset.
- Dataset was filtered for New York State.
- Rows:11,365
- Columns: 46

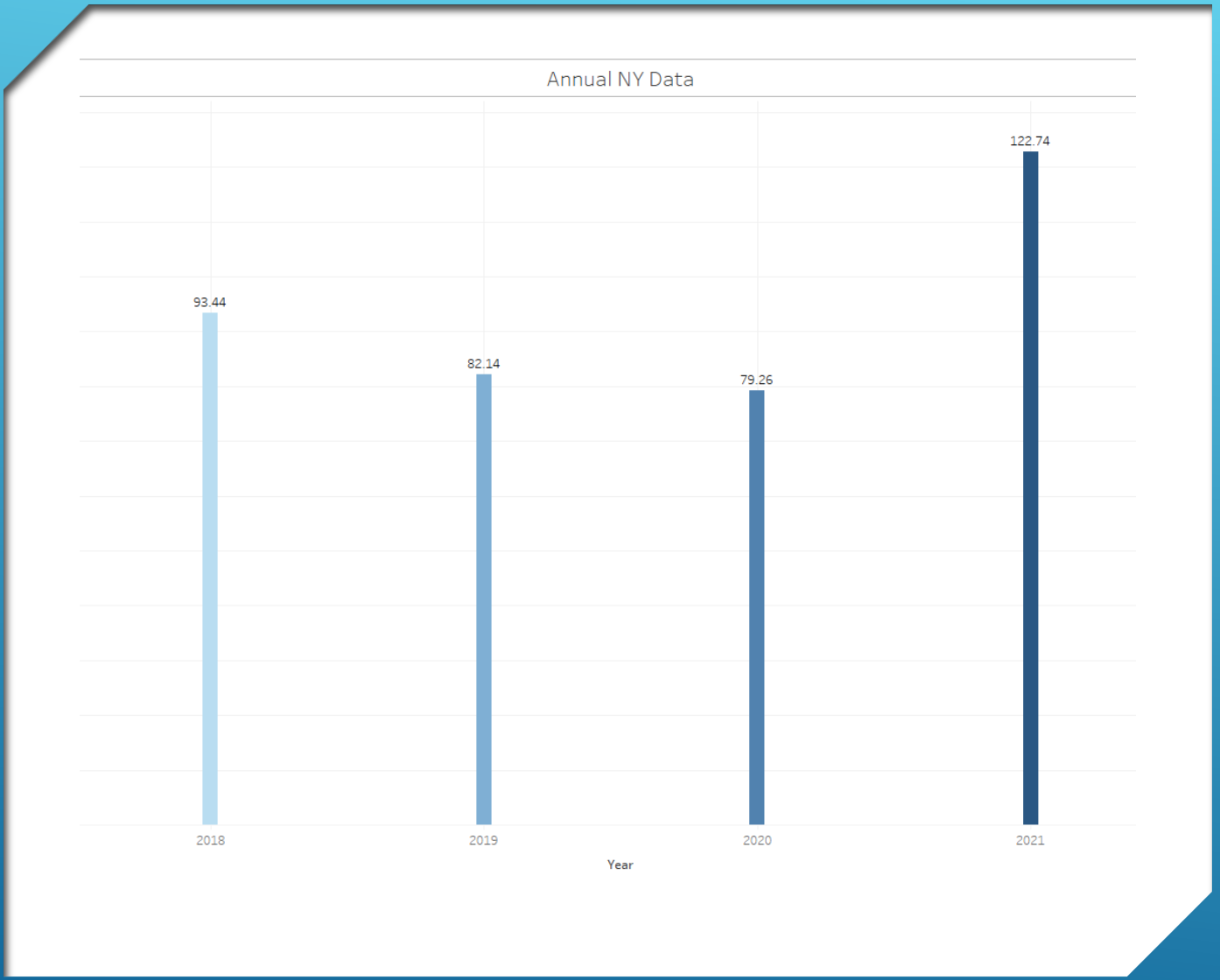
Tools Utilized

- Python Pandas and IO
- Tableau

New York Air Quality

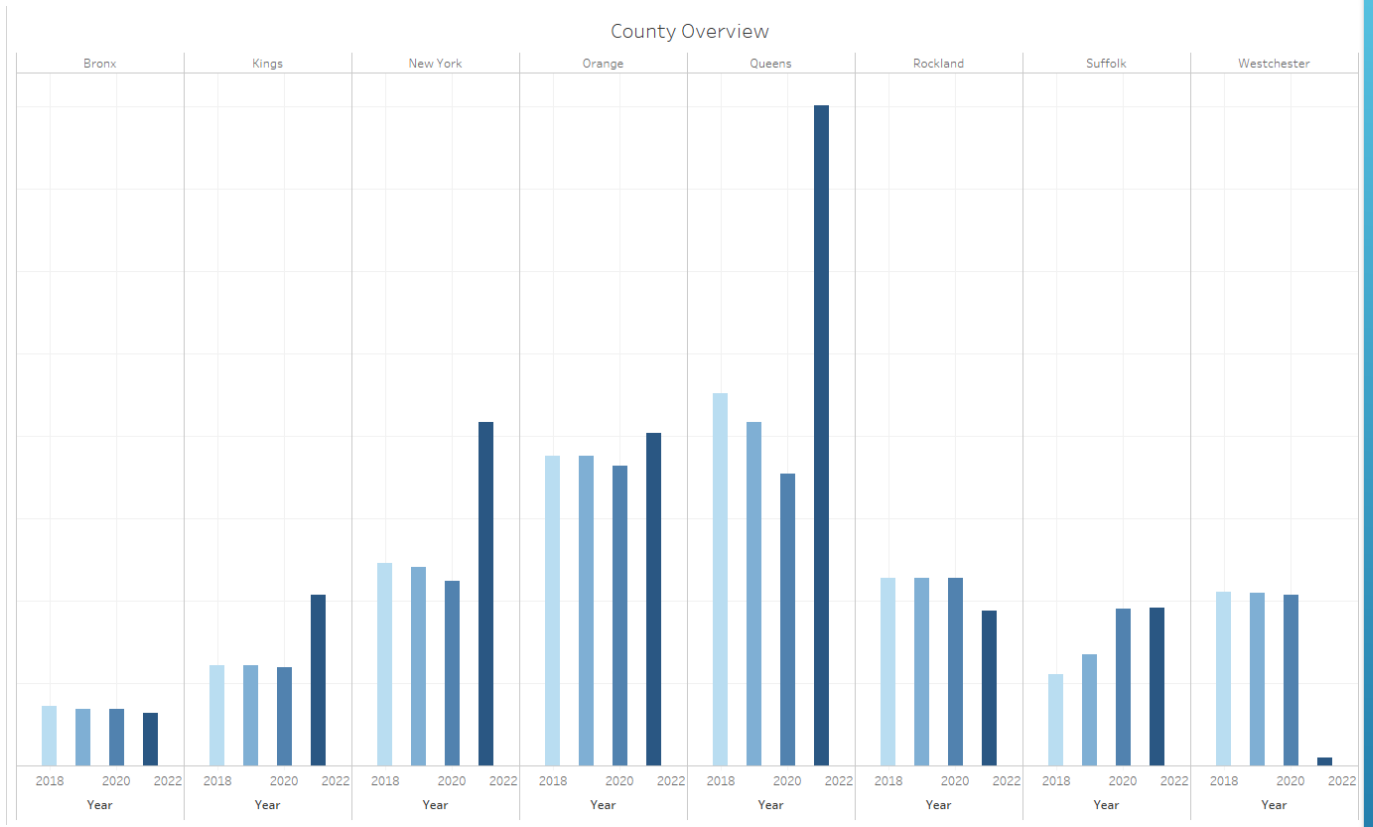


DASHBOARD



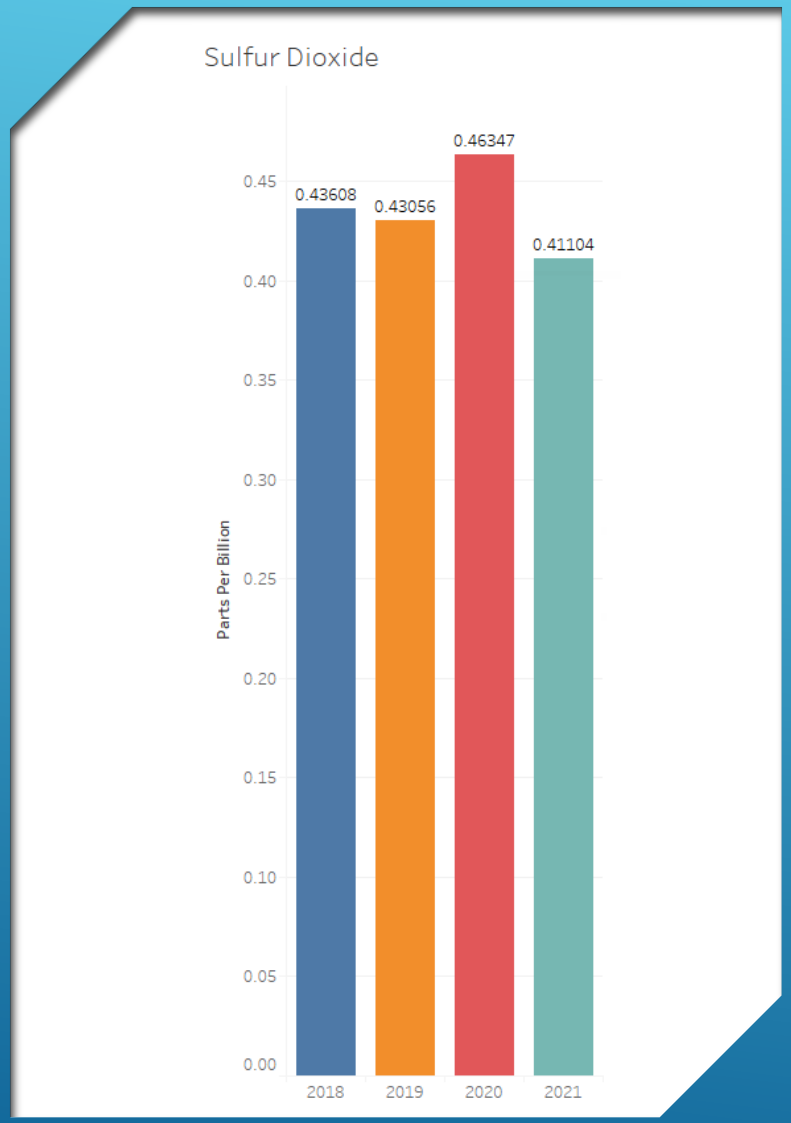
ANALYSIS

- As expected, there was an improvement to air quality in 2020 as the world began to implement lockdown measures.
- This was a continued improvement from the previous years.



ANALYSIS

- Air quality was showing a steady improvement in many counties from 2018 into 2019.
- However, we not only see air quality diminish in 2021 across multiple counties with NY but there was a spike showing that air quality was worse than that of 2018 and 2019.



- "Sulfur dioxide (SO_2) is **a gaseous air pollutant composed of sulfur and oxygen**. SO_2 forms when sulfur-containing fuel such as coal, oil, or diesel is burned. Sulfur dioxide also converts in the atmosphere to sulfates, a major part of fine particle pollution in the eastern U.S."

  -American Lung Association

There was a spike in the emission of sulfur dioxide in 2020 as New York State along with the rest of the world experienced a lockdown.

Even though there as an improvement to overall air quality, the increase of demand for diesel using trucks, ships locomotives for increased shipping requests would account for this contrast in spike.

However, sulfur dioxide is only but one major contributing factor to unhealthy air quality. Air pollutants such as Ozone and Nitrogen Dioxide are also factors to consider when understanding the diminished air quality of 2021.

UNHEALTHY AIR POLLUTANT

CONCLUSION

- Future analysis can be conducted to compare travel and traffic patterns to 2021 air quality data as employees began to go back to into the office, as families took their first vacation, as the state and country began to venture back to restaurant dinning and shopping centers.
- As behaviors change so does the quality of air and amount of air pollutants, we breath when walking our dogs or going to the gym.
- However, this is an opportunity to consider the same alternates you may have considered pre-pandemic such as ride share, walking, biking, etc.
- My conclusion leaves you with food for thought. What steps can you take to help improve the environment around you thus help our Earth?