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NATURAL RESOURCES

Near-Roadway Ambient Air Monitoring Update-2020

Stephen Hall
Air Pollution Control Program
Chief of the Air Quality Analysis Section

AQAC Meeting-St. Louis, October 27, 2020

Presentation Overview

- AQA Section Staff
- Near-Roadway Air Monitoring Trends
- NO_2 Observational Analysis
- Ozone Observational Analysis
- Photo Chemical Assessment Monitoring (PAMS)
- Website Resources

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Air Quality Analysis Section

Stephen Hall, section chief

- Data Management Unit – Nathan O'Neil, chief

  Jeanette Barnett — Jeanne Brown
  Erin Henry — David Davison
  Jeffrey Stevens — Terry Stock
  Brenda Wansing — John Pelton

- Monitoring Unit – Patricia Maliro, chief

  Jerry Downs — Eric Giroir
  Michael Maddux — Brandi Prater

- Small Business Compliance Assistance

  Bob Randolph

- File Room

  Amber Werdehausen

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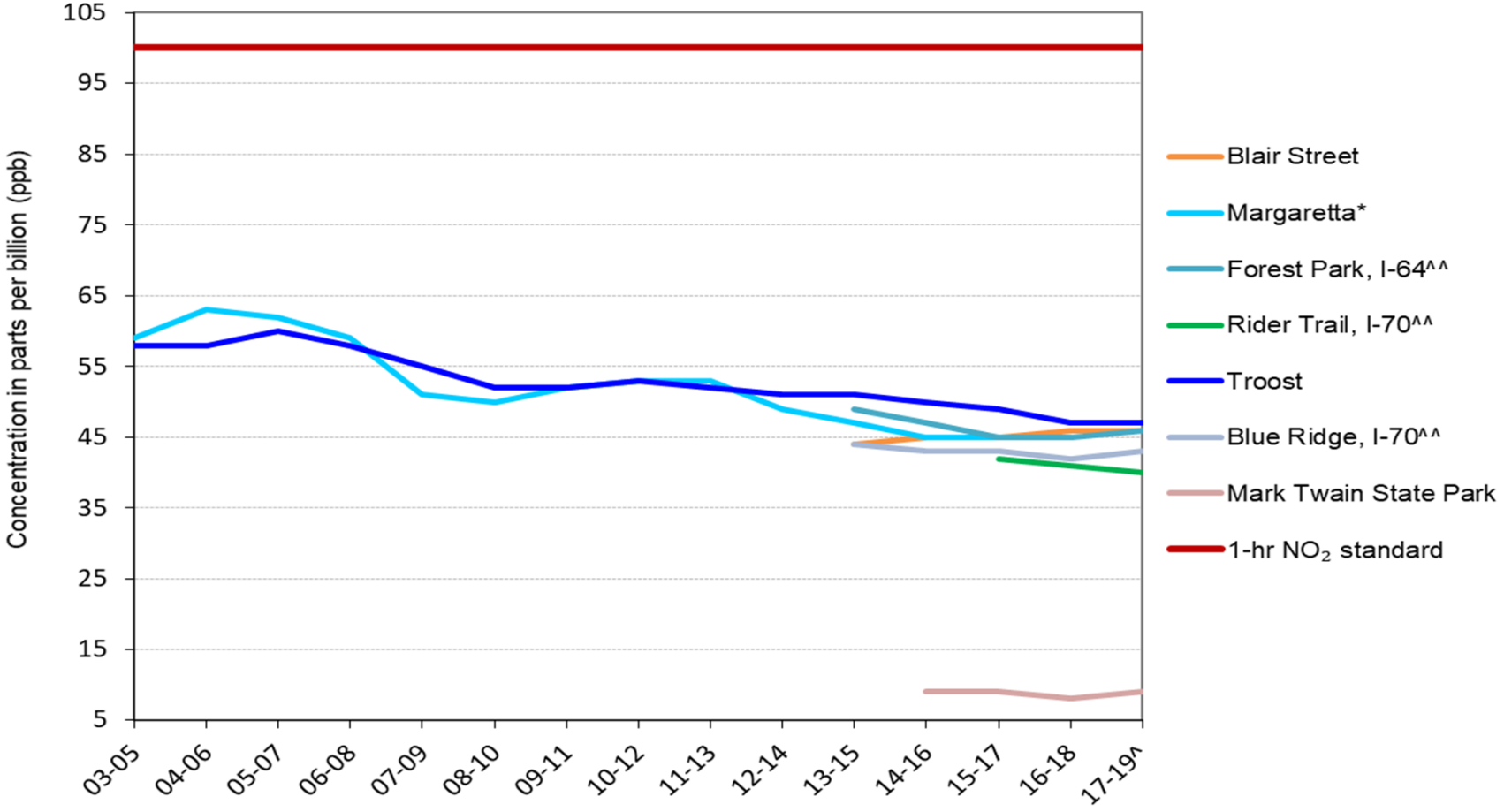
Missouri Trends in Nitrogen Dioxide (NO_2) Design Values, 2003-2019



^Quality assured data through December 31, 2019.
^^Near roadway monitor
*Margaretta was discontinued on 12/31/2018

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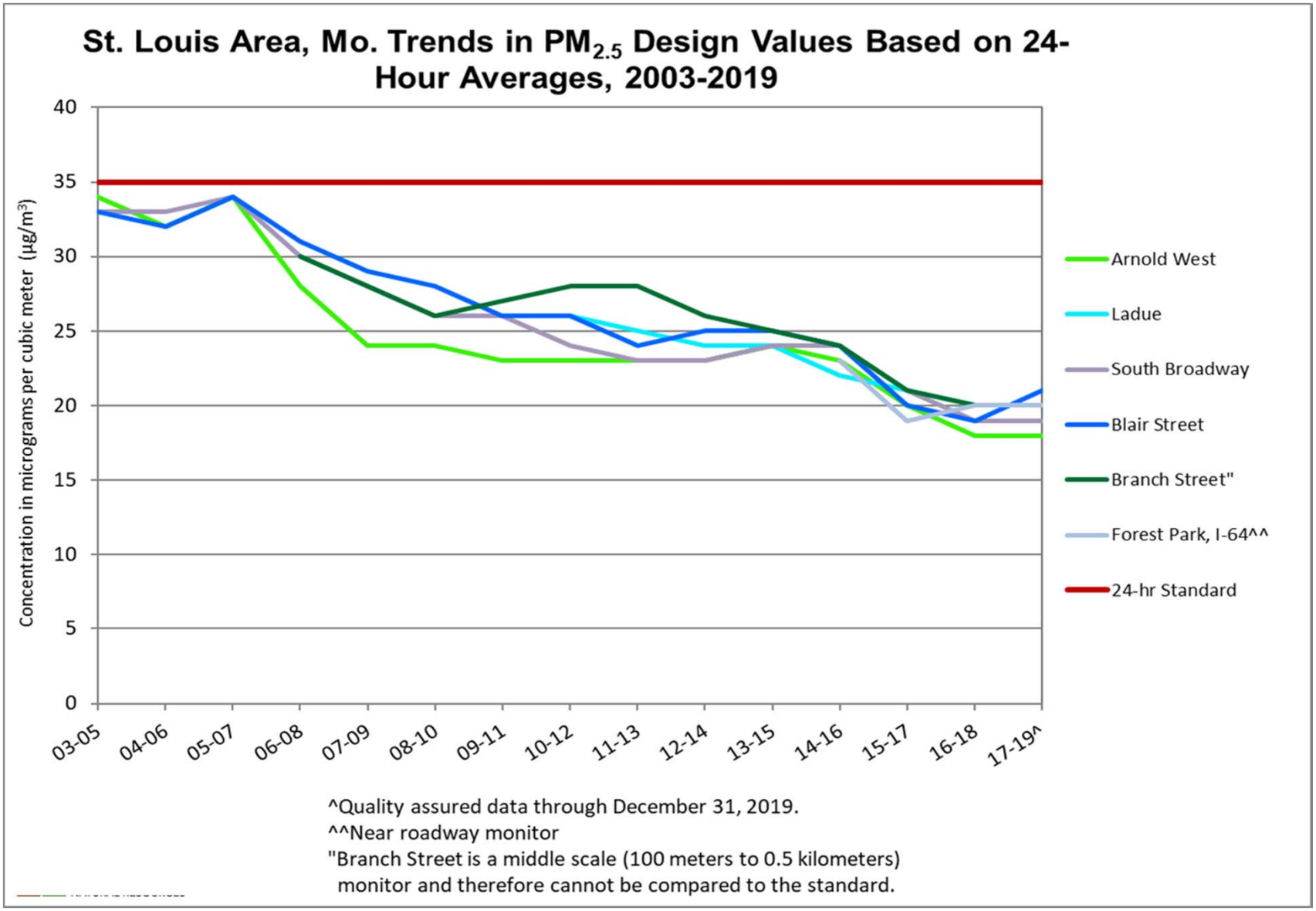

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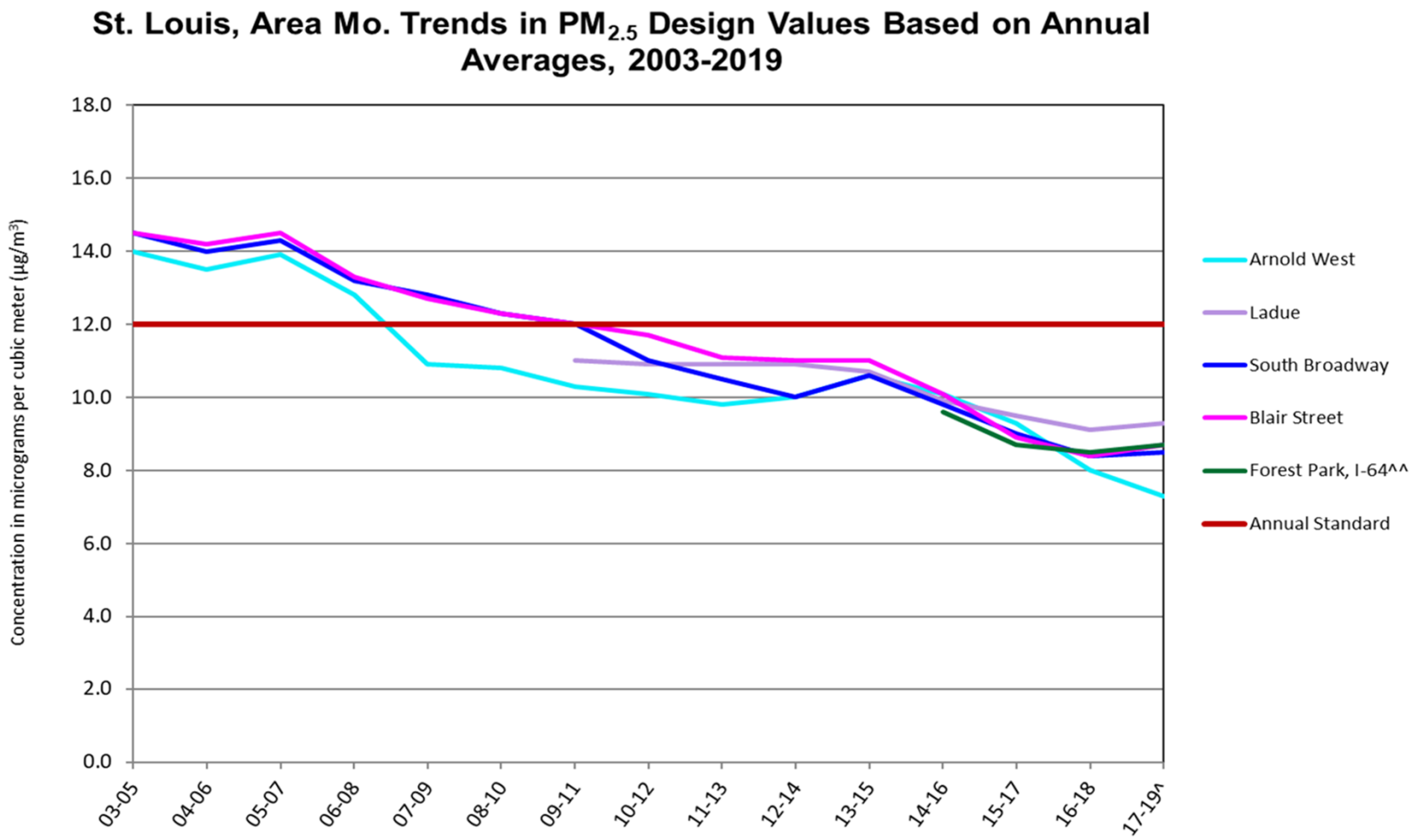

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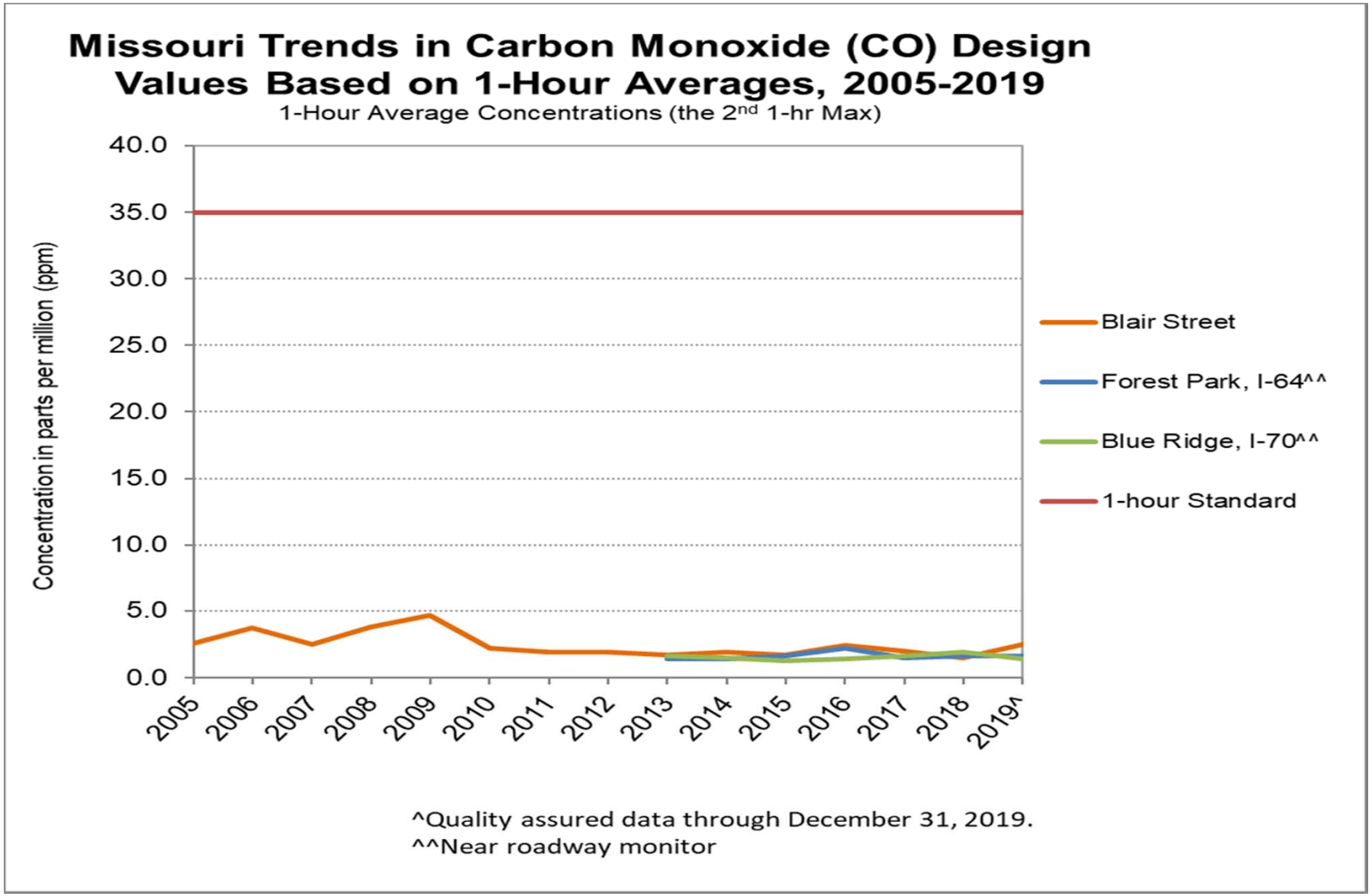

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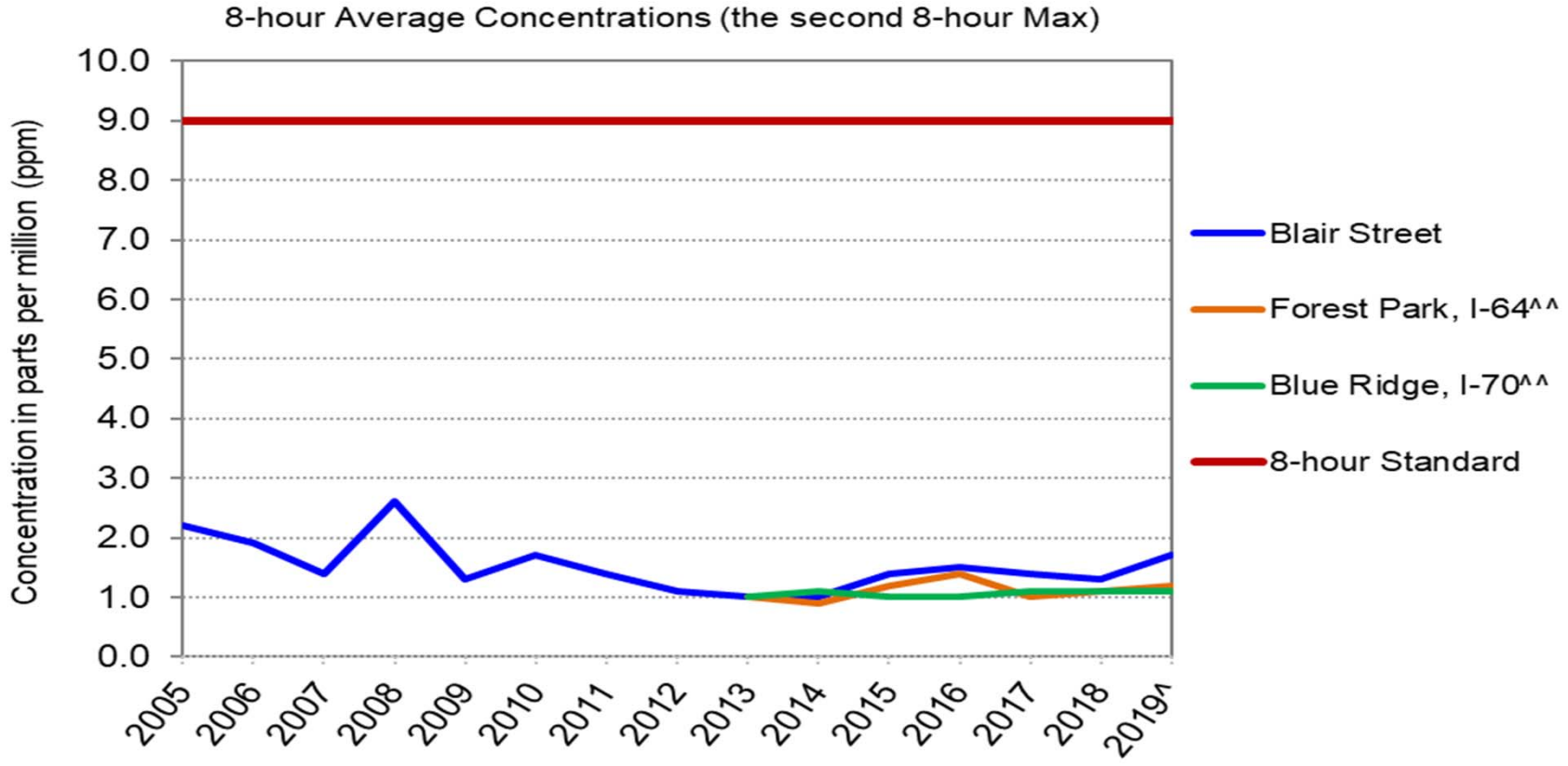
Missouri Trends for Carbon Monoxide (CO) Design Values Based on 8-hour Averages, 2005-2019



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^^Near roadway monitor

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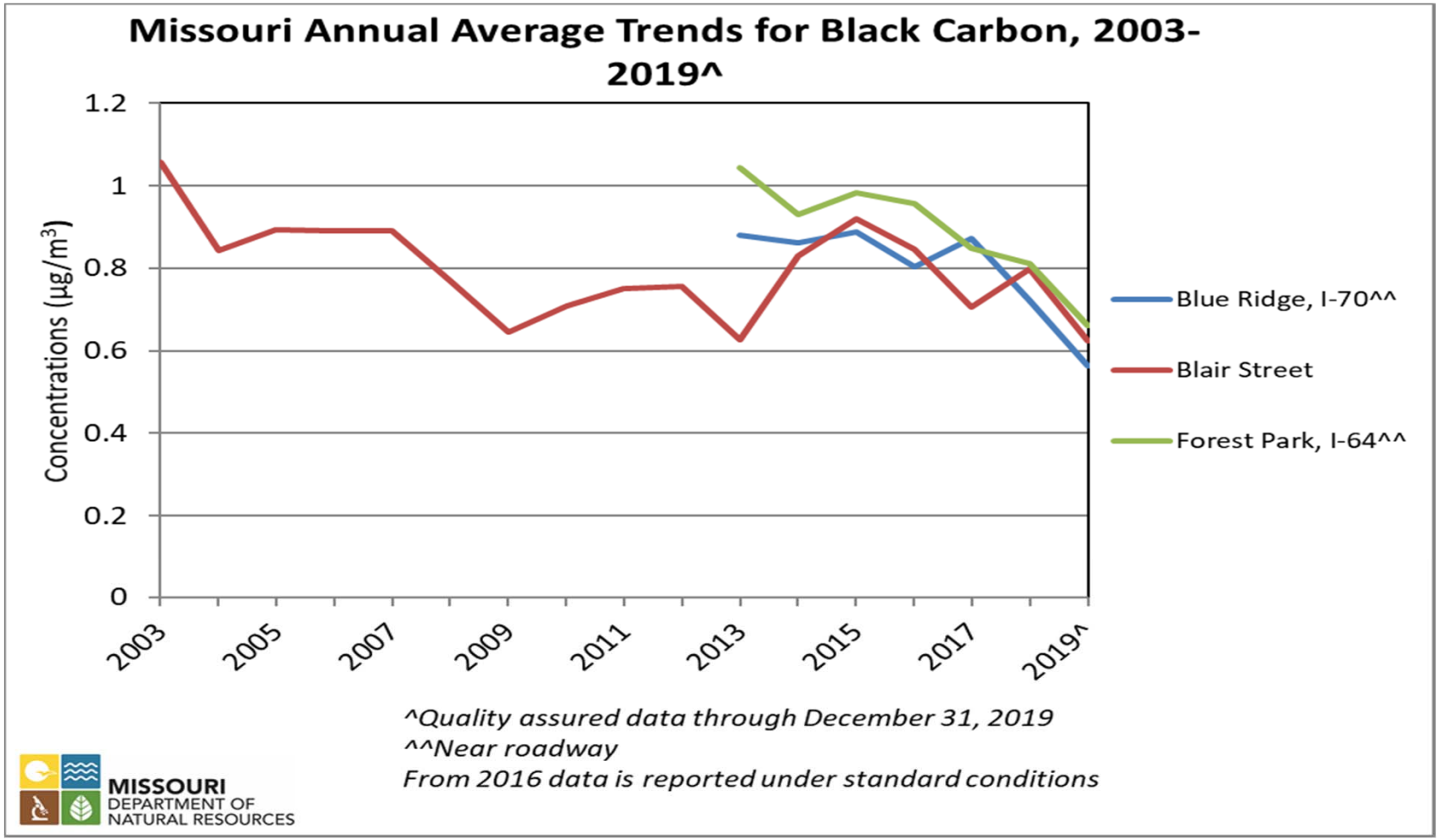
Black carbon annual trends graph



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NO_2 Observational Analysis

Rider Trail I-70 near-roadway air monitoring site, St. Louis area

Possible effects on air quality of the COVID-19 stay-at-home order, issued for St. Louis City and County beginning on March 23, 2020 through May 4, 2020

And after stay at home orders: May 5, 2020 through July 31, 2020

Reports posted at:
https://dnr.mo.gov/env/apcp/airpollutants.htm

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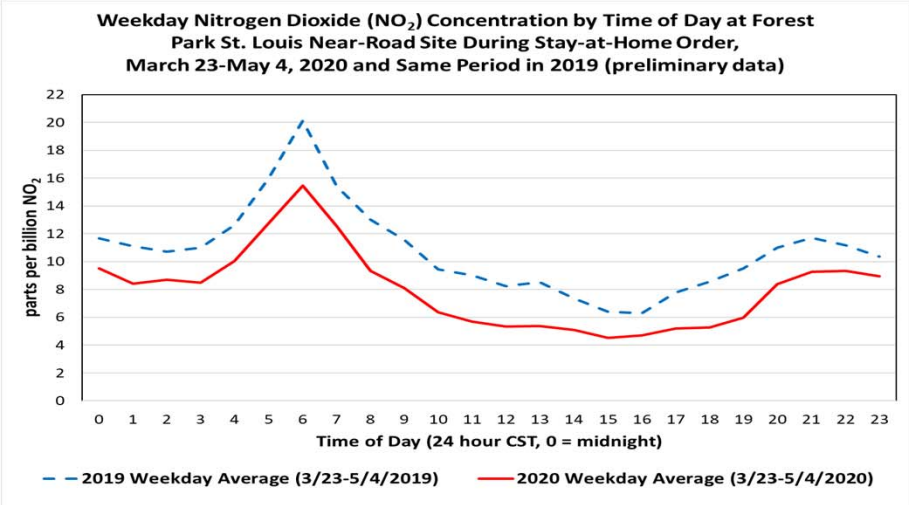
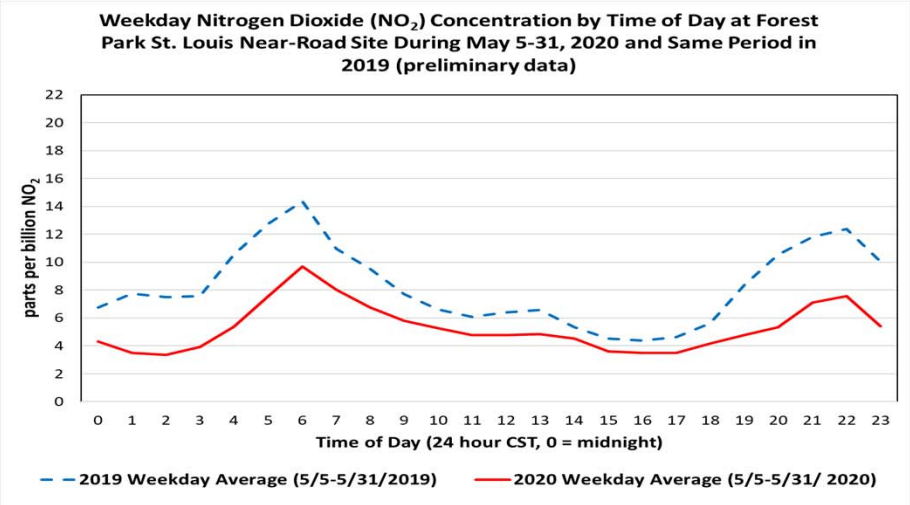
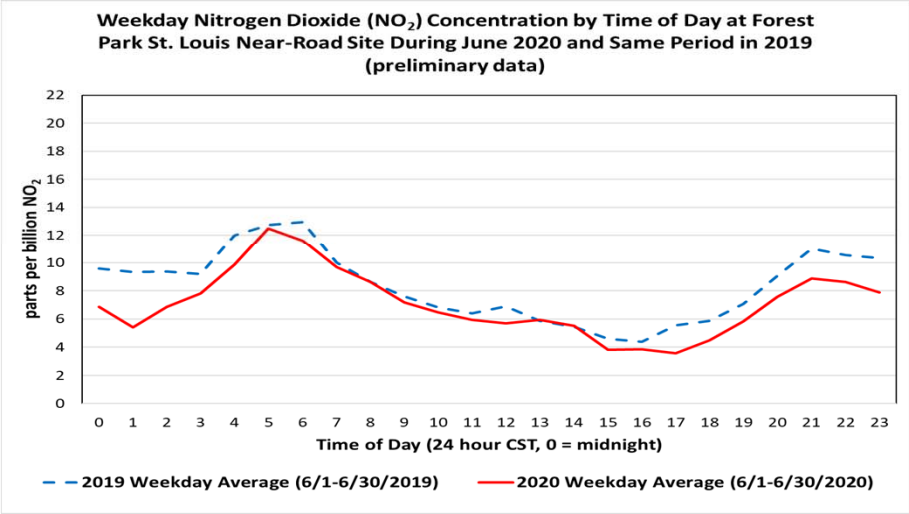
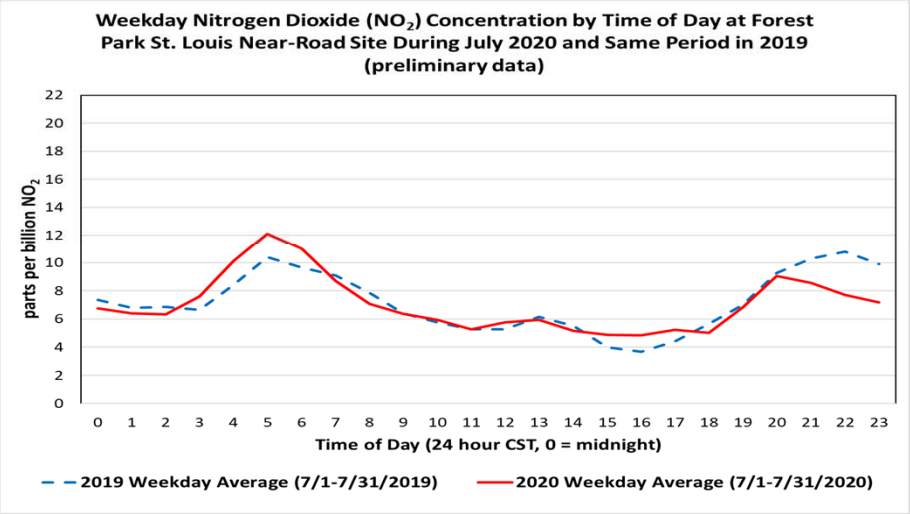
Forest Park Weekday NO_2









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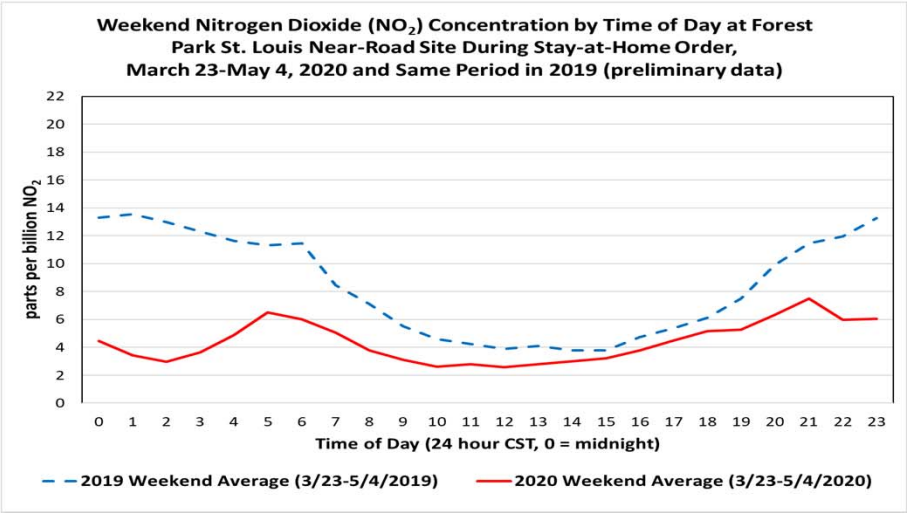
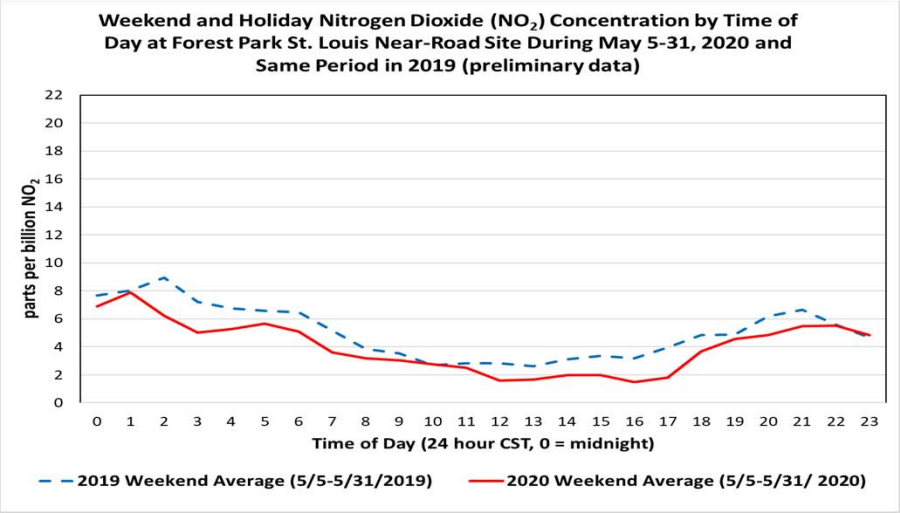
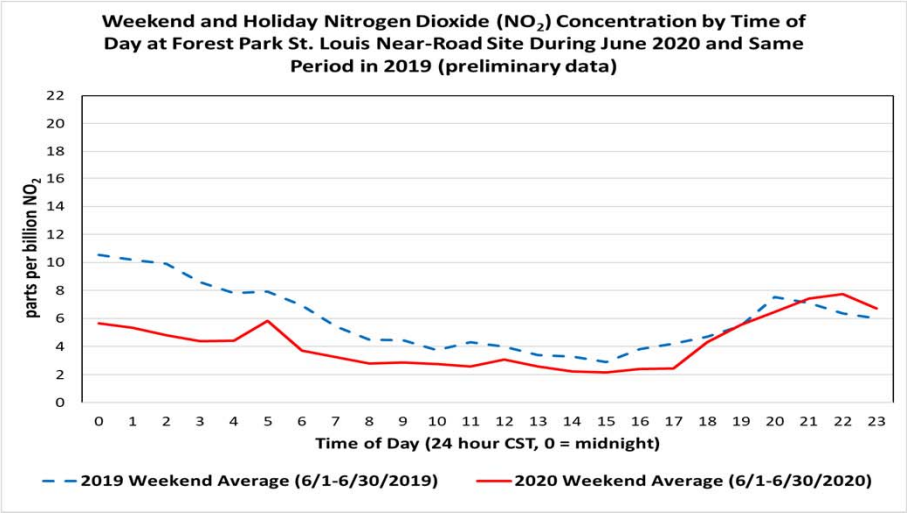
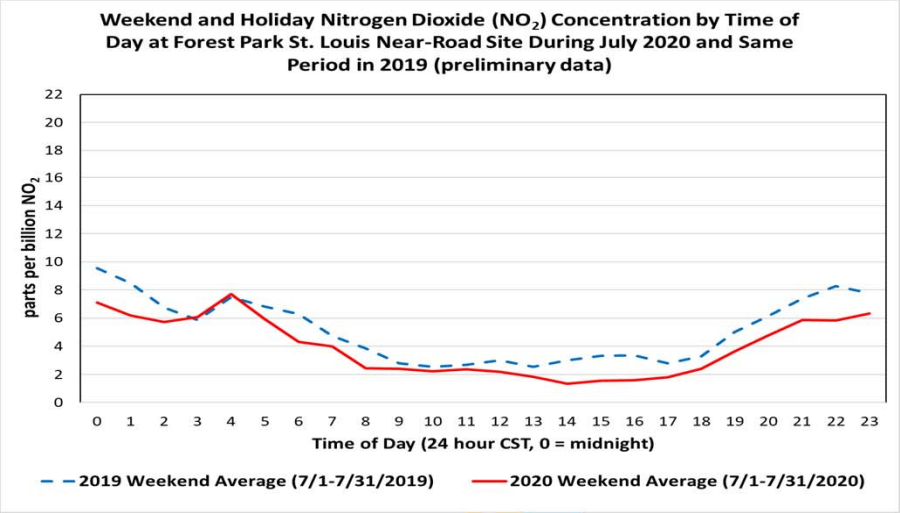
Forest Park Weekend NO_2









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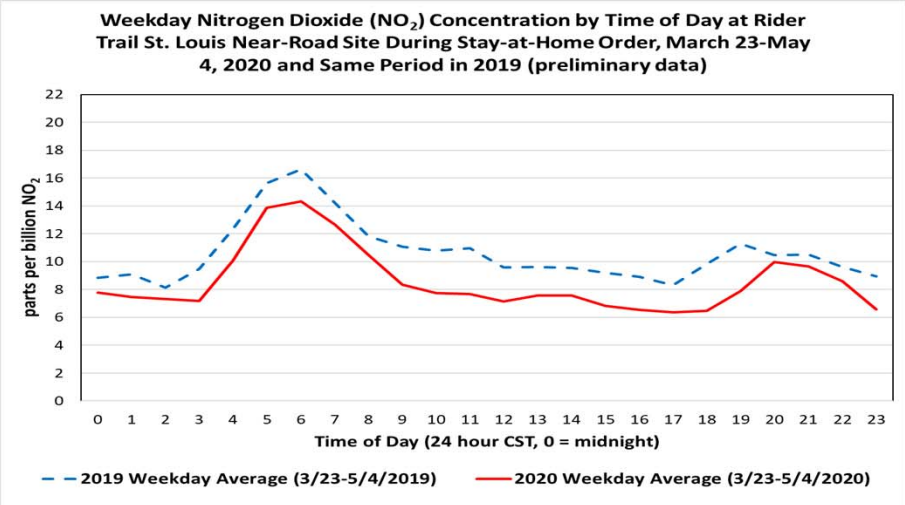
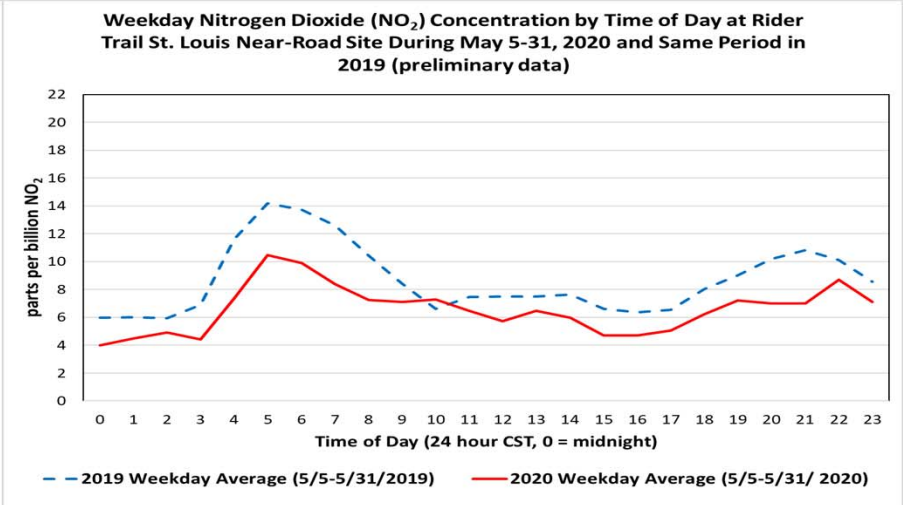
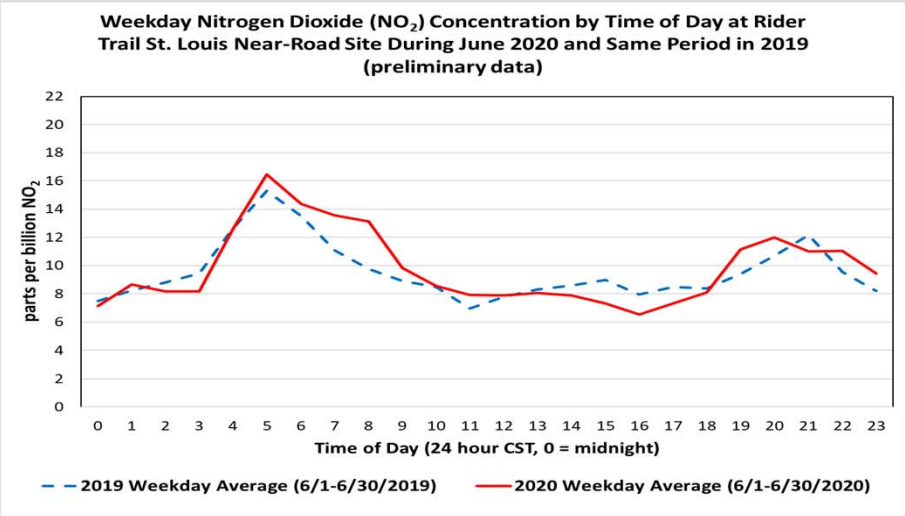
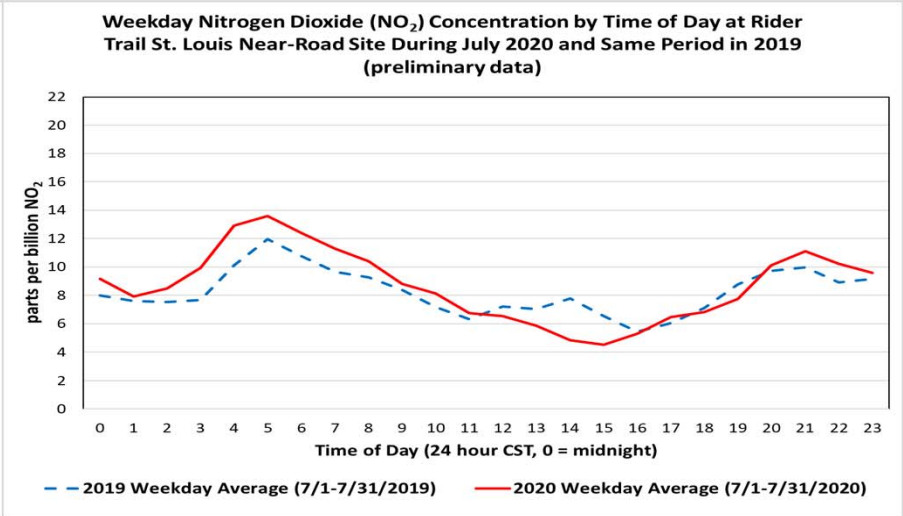
Rider Trail Weekday NO_2









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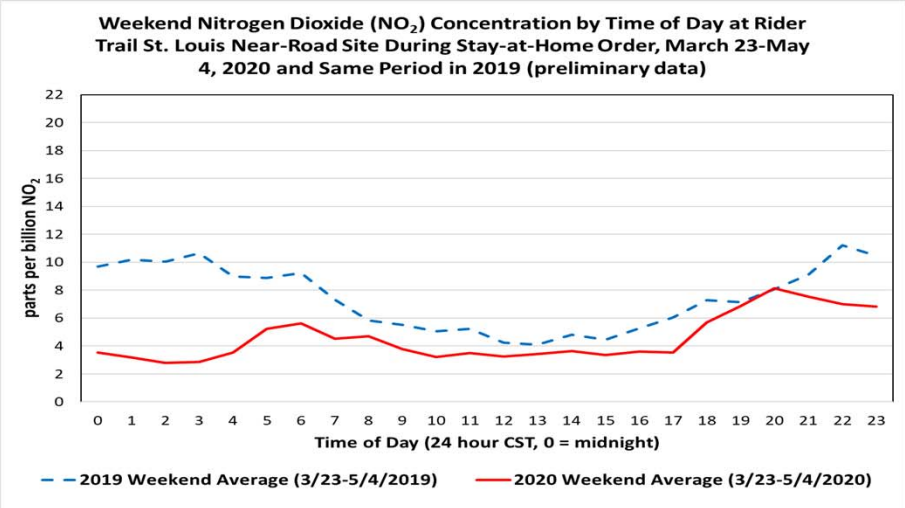
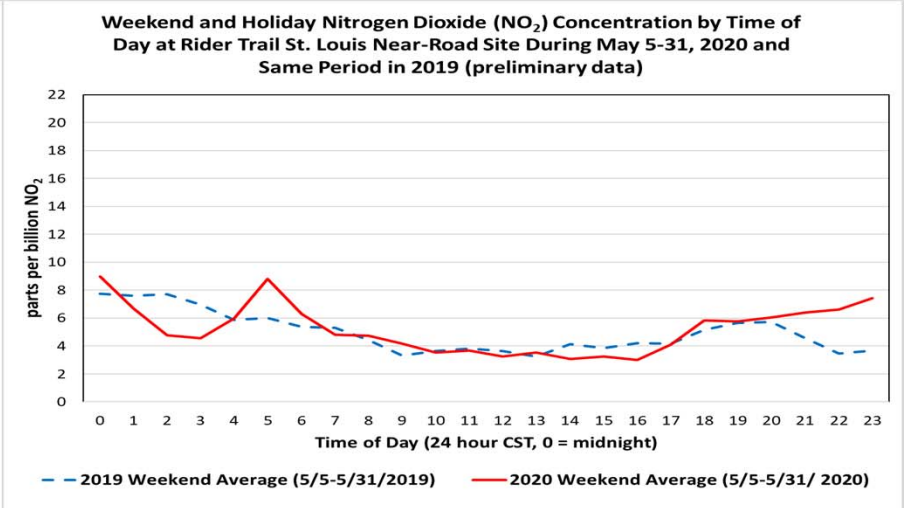
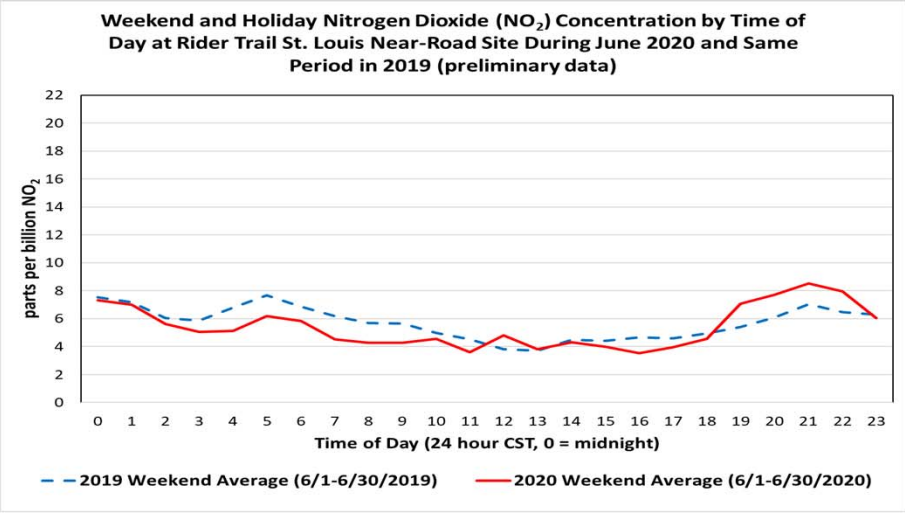
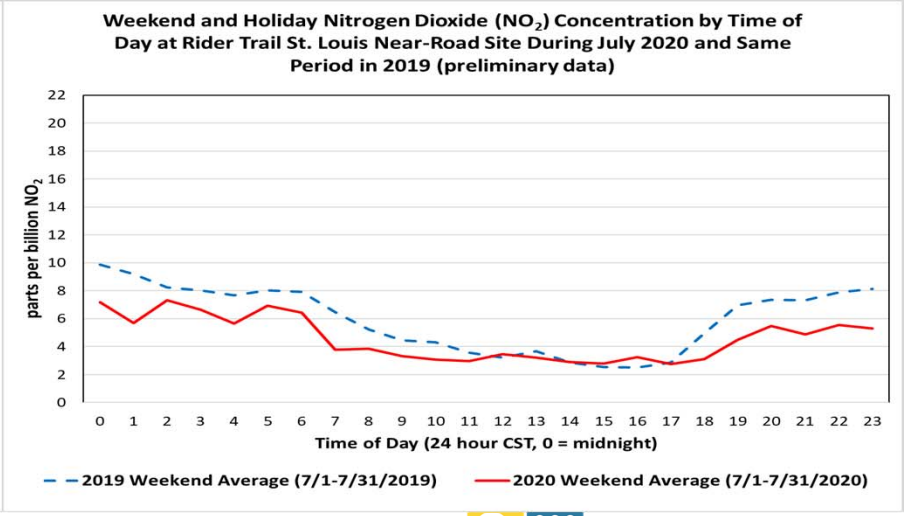
Rider Trail Weekend NO_2









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Ozone Observational Analysis

West Alton air monitoring site, St. Charles Co.

Possible effects on air quality of the COVID-19 stay-at-home order, issued for St. Louis City and County beginning on March 23, 2020 through May 4, 2020

Many factors affect ozone formation:
-Precursor pollutant concentrations
-Solar radiation
-Ambient temperature
-Relative humidity
-Atmospheric stability...

Site flooded- 2019

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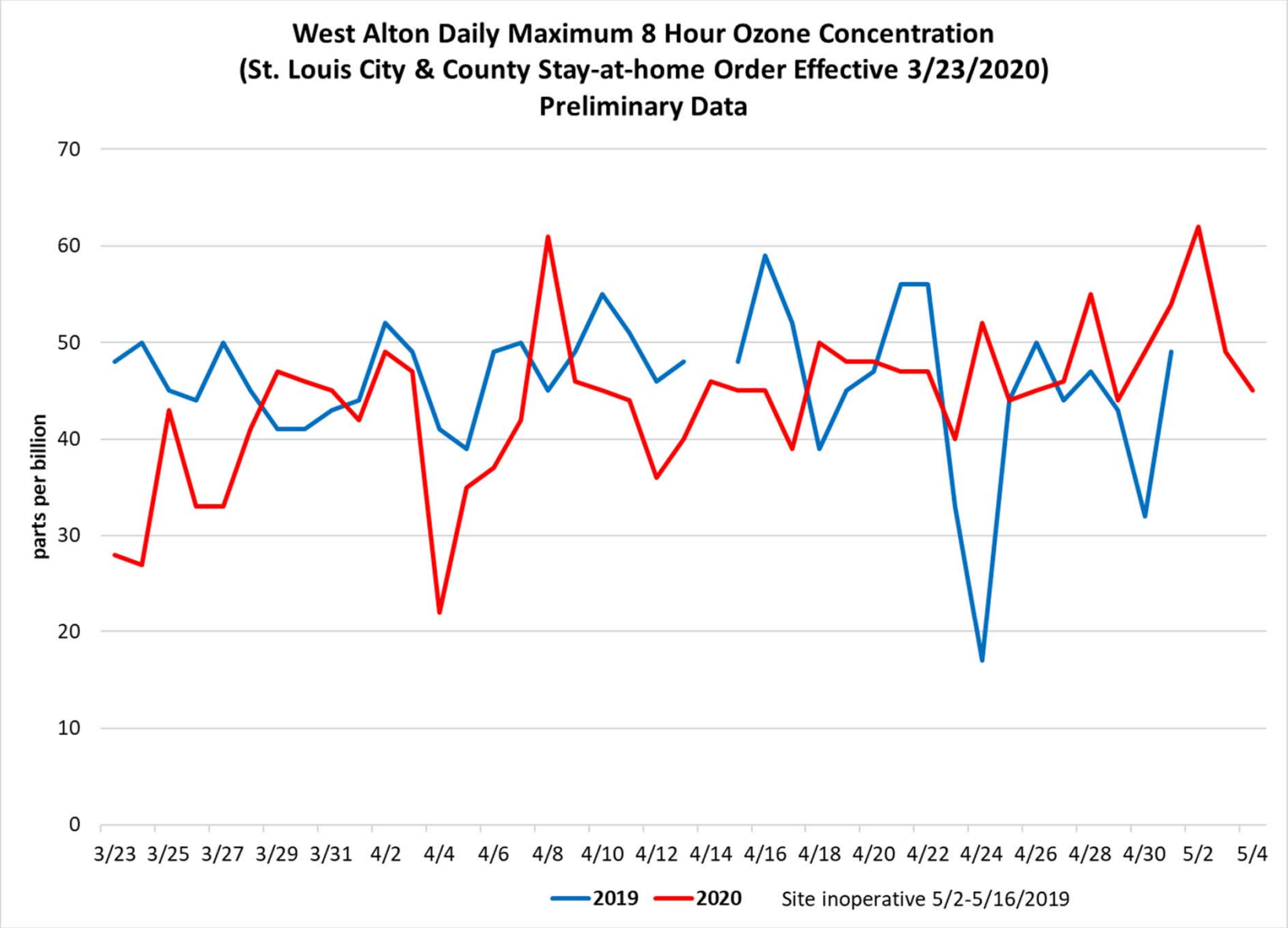

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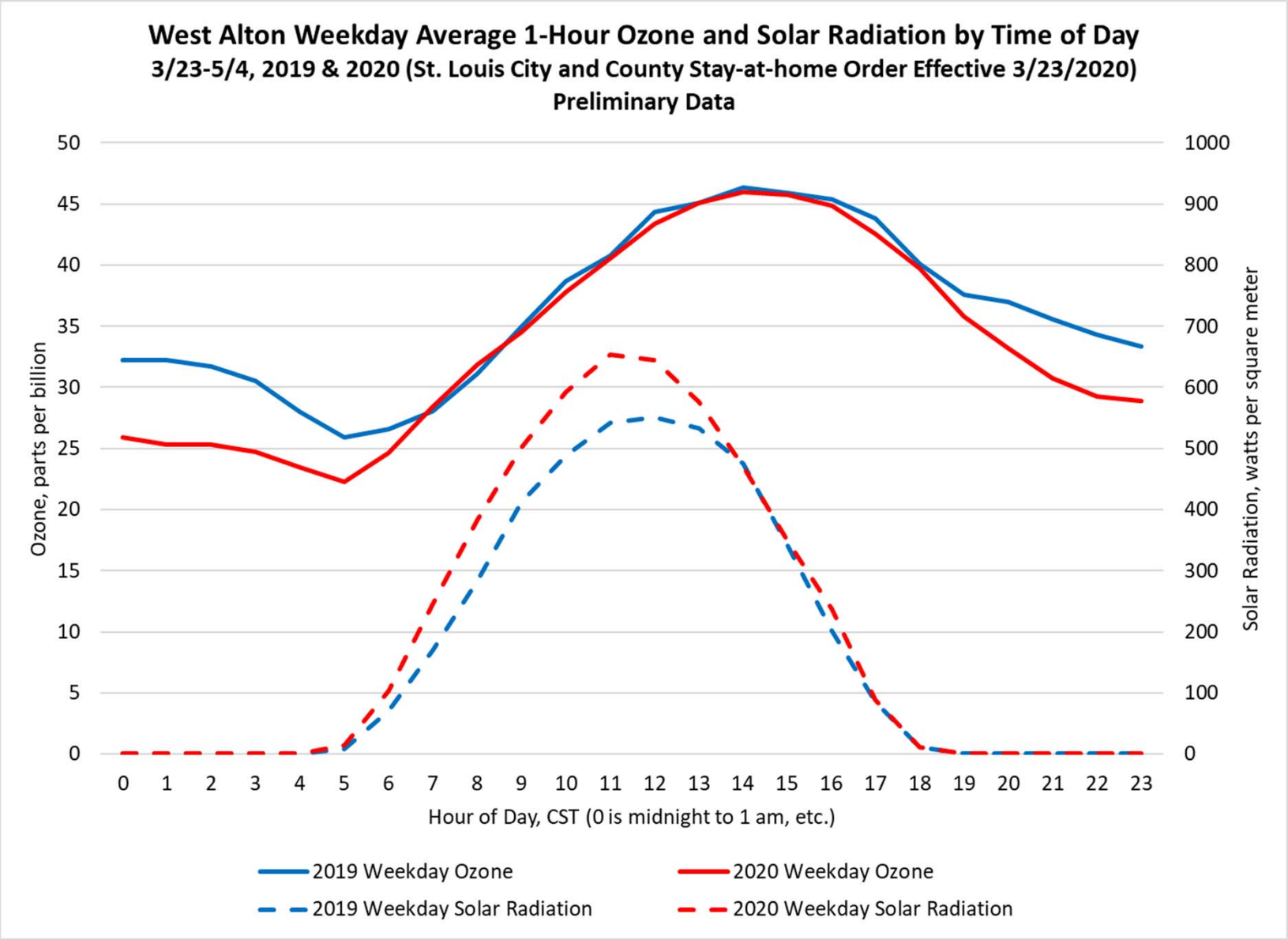

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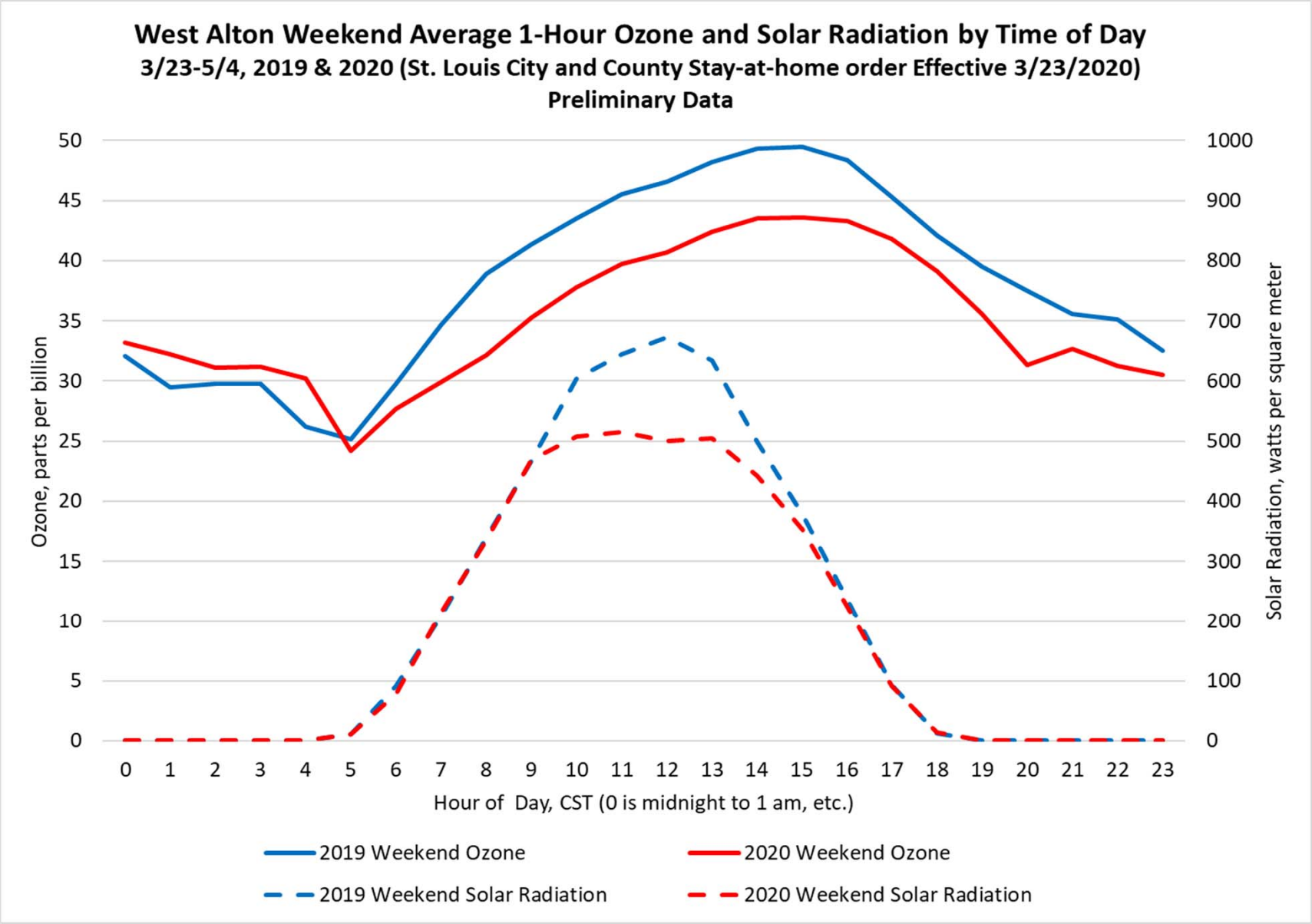

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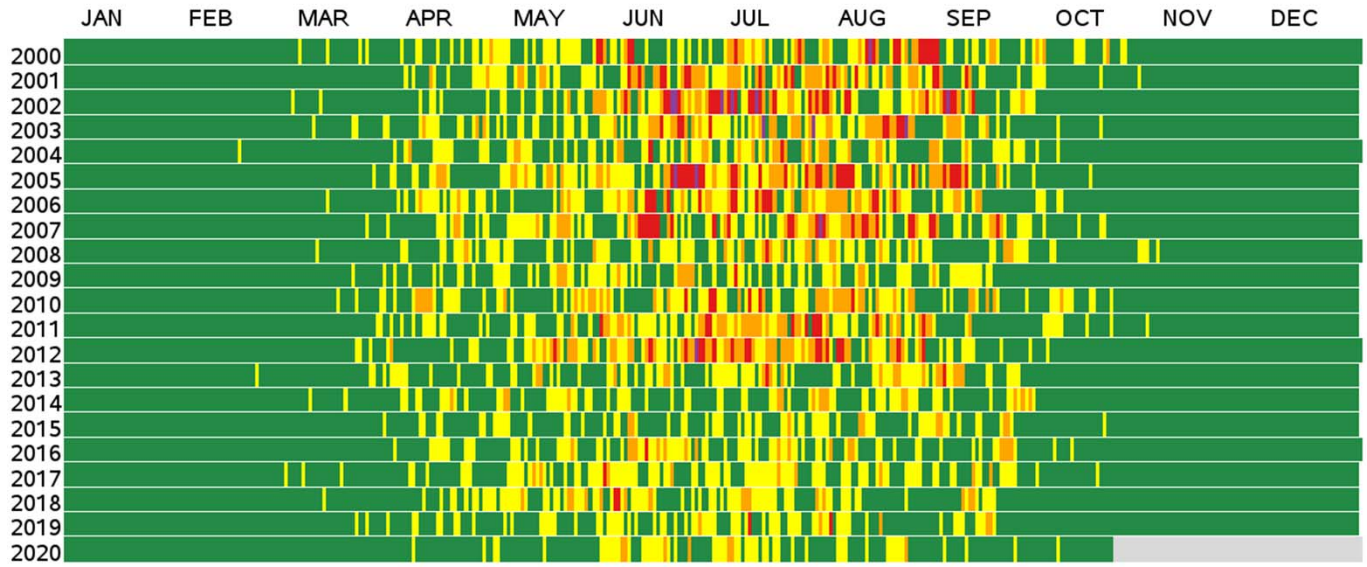
Ozone AQI Trends St. Louis MO-IL



AQI Category

- Good (<=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 (>=0.405 ppm 1-hour)

Source: U.S. EPA AirData <https://www.epa.gov/air-data>
Generated: October 23, 2020

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Photo Chemical Assessment Monitoring (PAMS)

New project beginning June 1, 2021

Location- Blair St., St. Louis City

Some of the new data elements:

- Hourly average speciated volatile organic compounds
- Three 8-hour averaged carbonyl samples per day on a 1 in 3 day schedule
- True NO_2
- Meteorological Data- Mixing height, and more…

- Why? This monitoring data will help us understand what ozone precursor pollutants are driving ozone formation during specific episodes/events.

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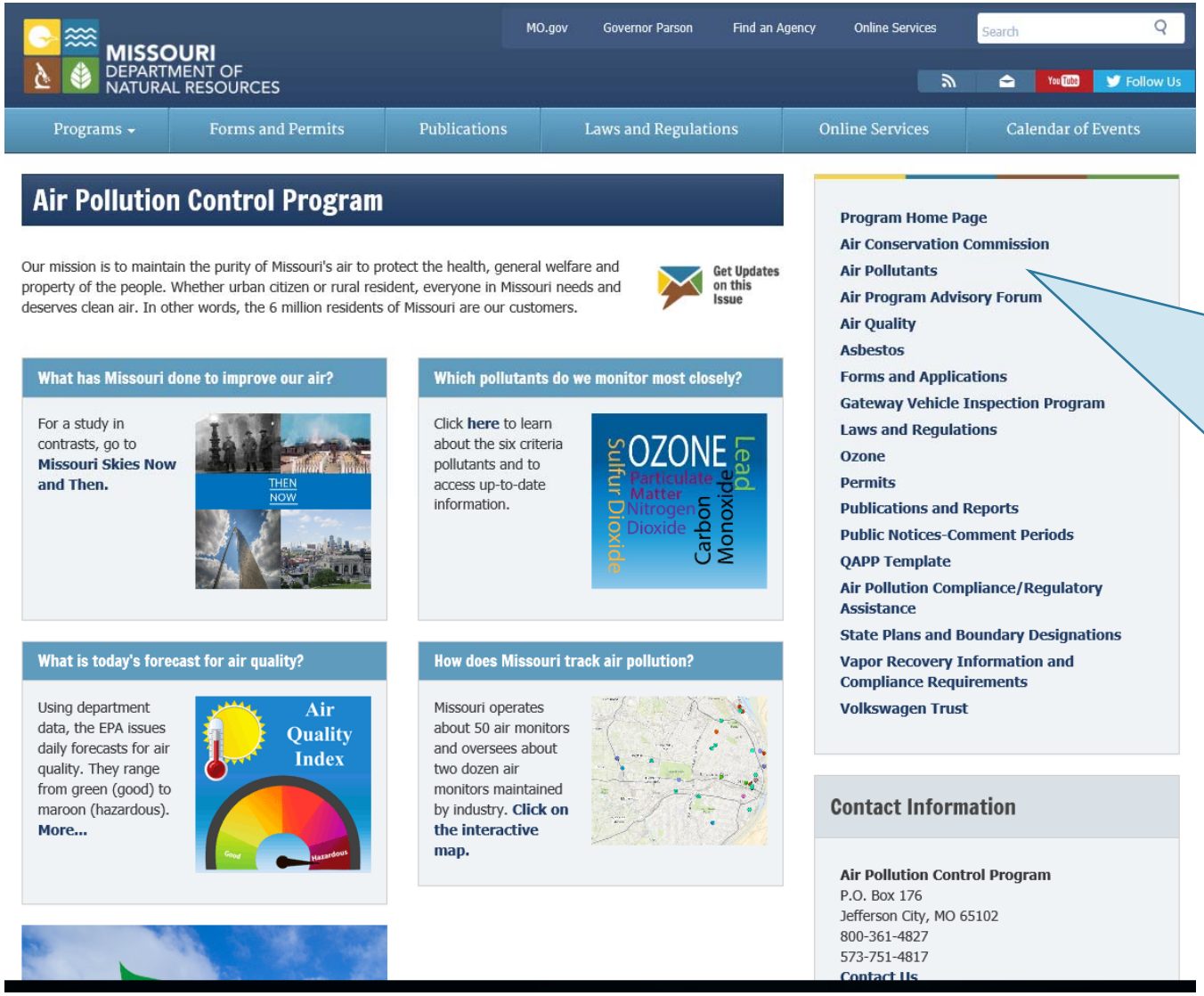
Website Resources



Monitoring Information- 'Bookmark' https://dnr.mo.gov/env/apcp/

- Design Value Reports
- Preliminary hourly data reports
- Monitoring Network Plans and More
- More improvements coming…
- New Drupal Website expected in late 2020

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Questions?

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