

# Site Report For Bradford Woods VFD Station 115

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Report Covers: December 1<sup>st</sup> –December 31<sup>st</sup>, 2018

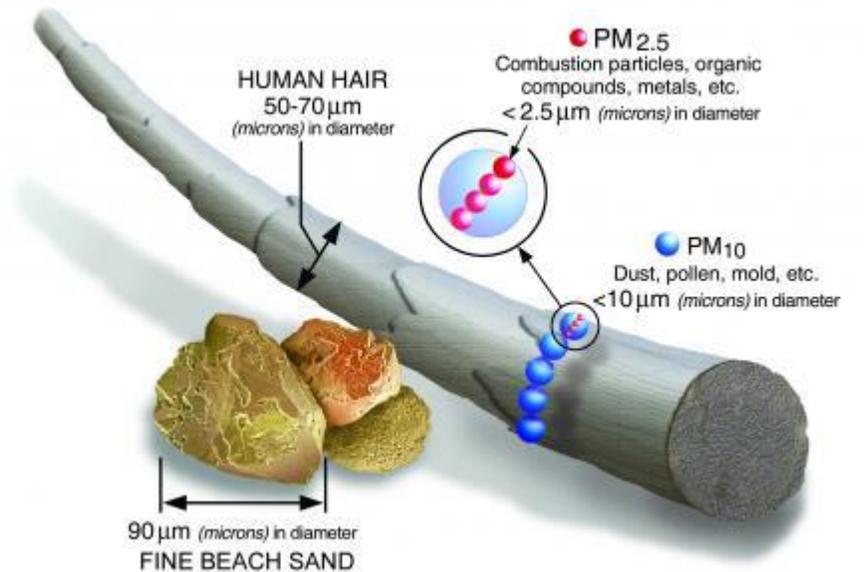
Time Logged: 649 hours (27 days)

During server maintenance Dec. 14-Dec. 16, no data were recorded.

Therefore, the report does not cover those dates.

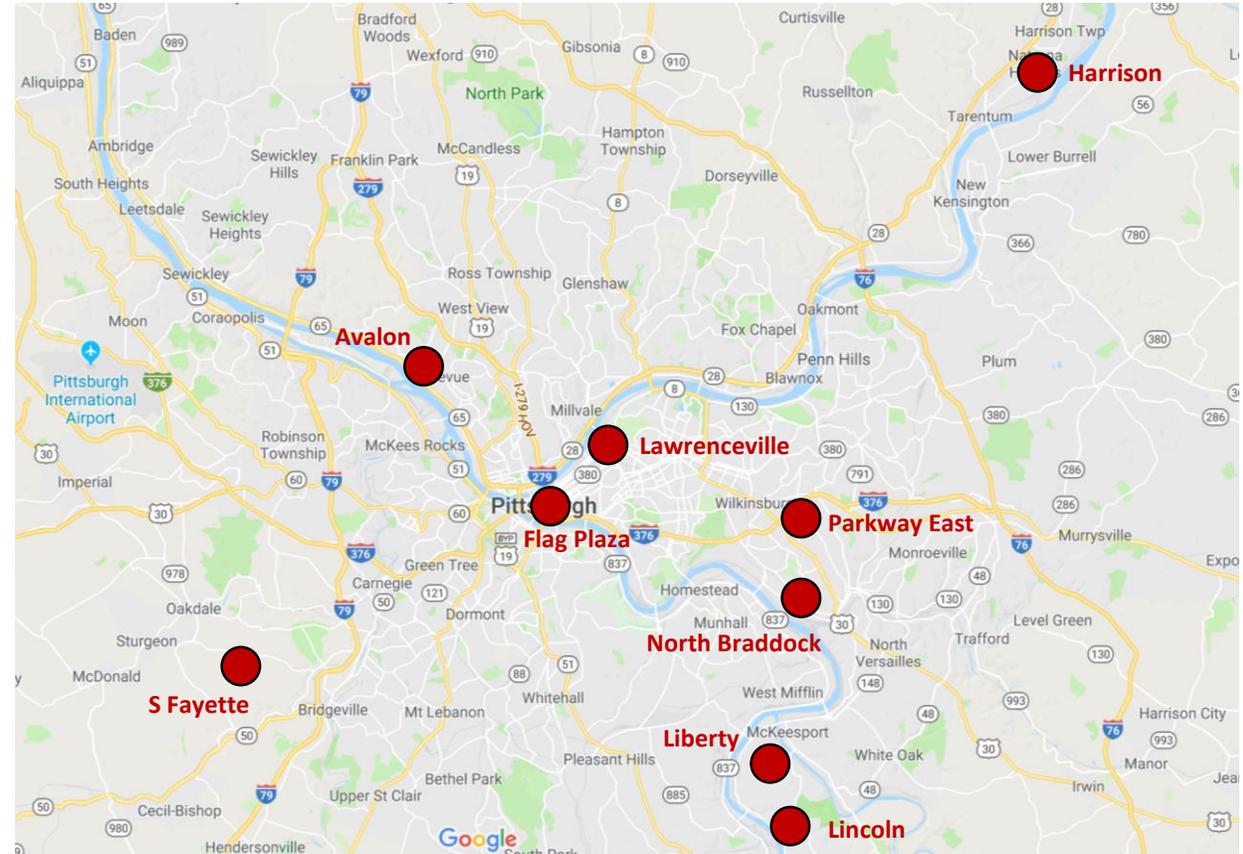
# What is PM<sub>2.5</sub>?

- PM<sub>2.5</sub> is particulate matter (such as smoke, soot, and dust) in the atmosphere that has a diameter of 2.5 micrometers (about 1/30<sup>th</sup> the width of a human hair) or smaller, allowing them to enter your lungs and bloodstream<sup>[1]</sup>
- PM<sub>2.5</sub> has been linked to cardiovascular disease and lung disease<sup>[2]</sup>
- The National Ambient Air Quality Standards (NAAQS) are set by the Environmental Protection Agency (EPA) and regulate what concentrations of PM<sub>2.5</sub> are acceptable.<sup>[3]</sup> PM<sub>2.5</sub> is measured in micrograms per meter cubed ( $\mu\text{g}/\text{m}^3$ ). The standards are as follows:
  - Annual average (over 3 years) of PM<sub>2.5</sub> should not exceed  $12\mu\text{g}/\text{m}^3$
  - 24 hour average (98<sup>th</sup> percentile over 3 years) should not exceed  $35\mu\text{g}/\text{m}^3$
- For more information, visit <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>



# The ACHD Monitoring Network

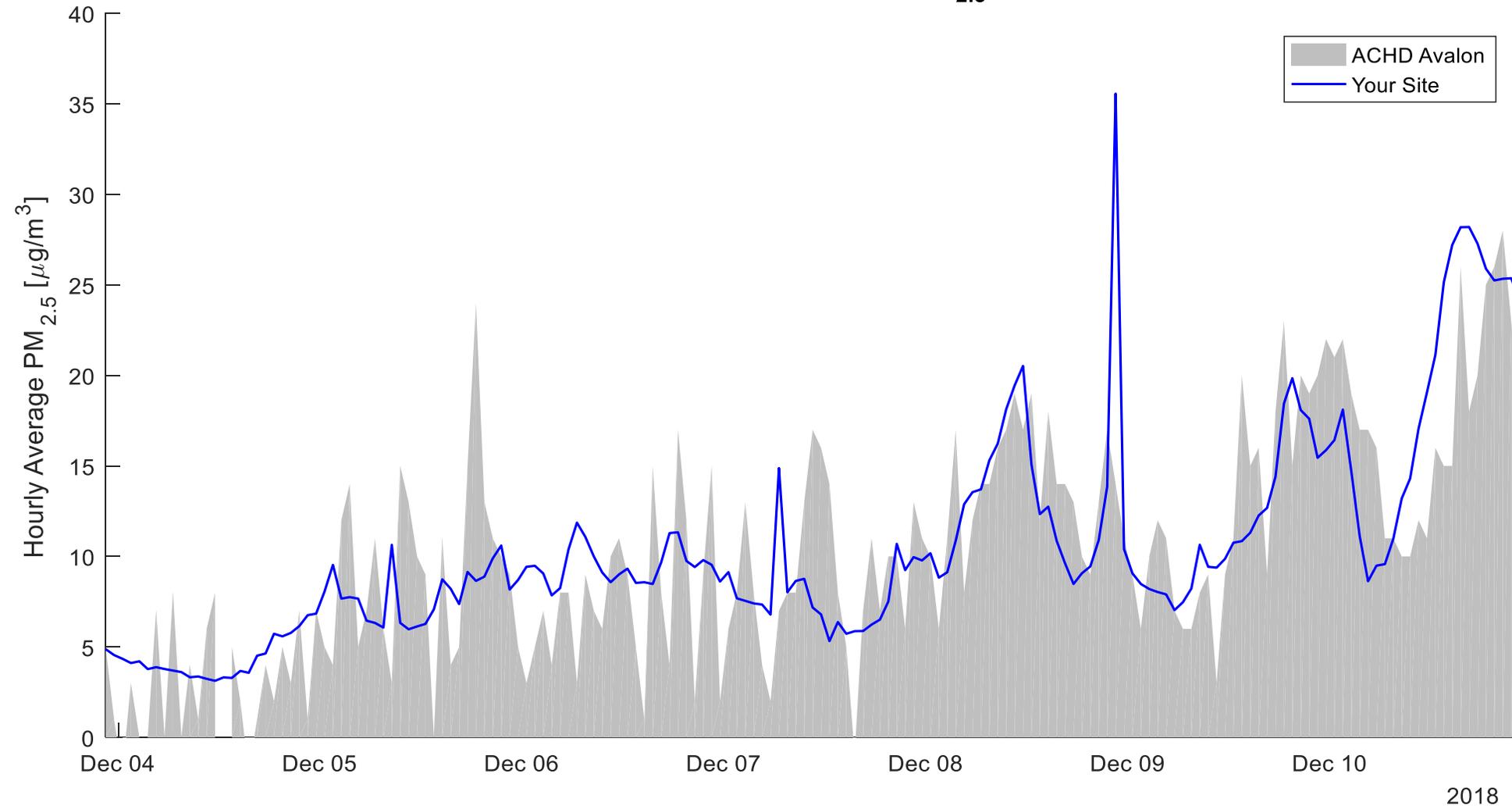
- To monitor Pittsburgh's compliance with the NAAQS, the Allegheny County Health Department (ACHD) maintains a network of air quality monitoring stations, as shown in the figure.
- This network uses highly precise (but very expensive) instruments to measure levels for the air pollutants regulated by the EPA, including PM<sub>2.5</sub> (however, not all of the pollutants are measured at all of the sites).
- While not as precise, our RAMP monitors allow us to measure many pollutants at a much larger number of locations, including your site!
- Further information on the ACHD network can be found at: <http://www.achd.net/air/index.php>



Map of ACHD Monitoring Stations<sup>[4]</sup>

# PM<sub>2.5</sub> concentration over time

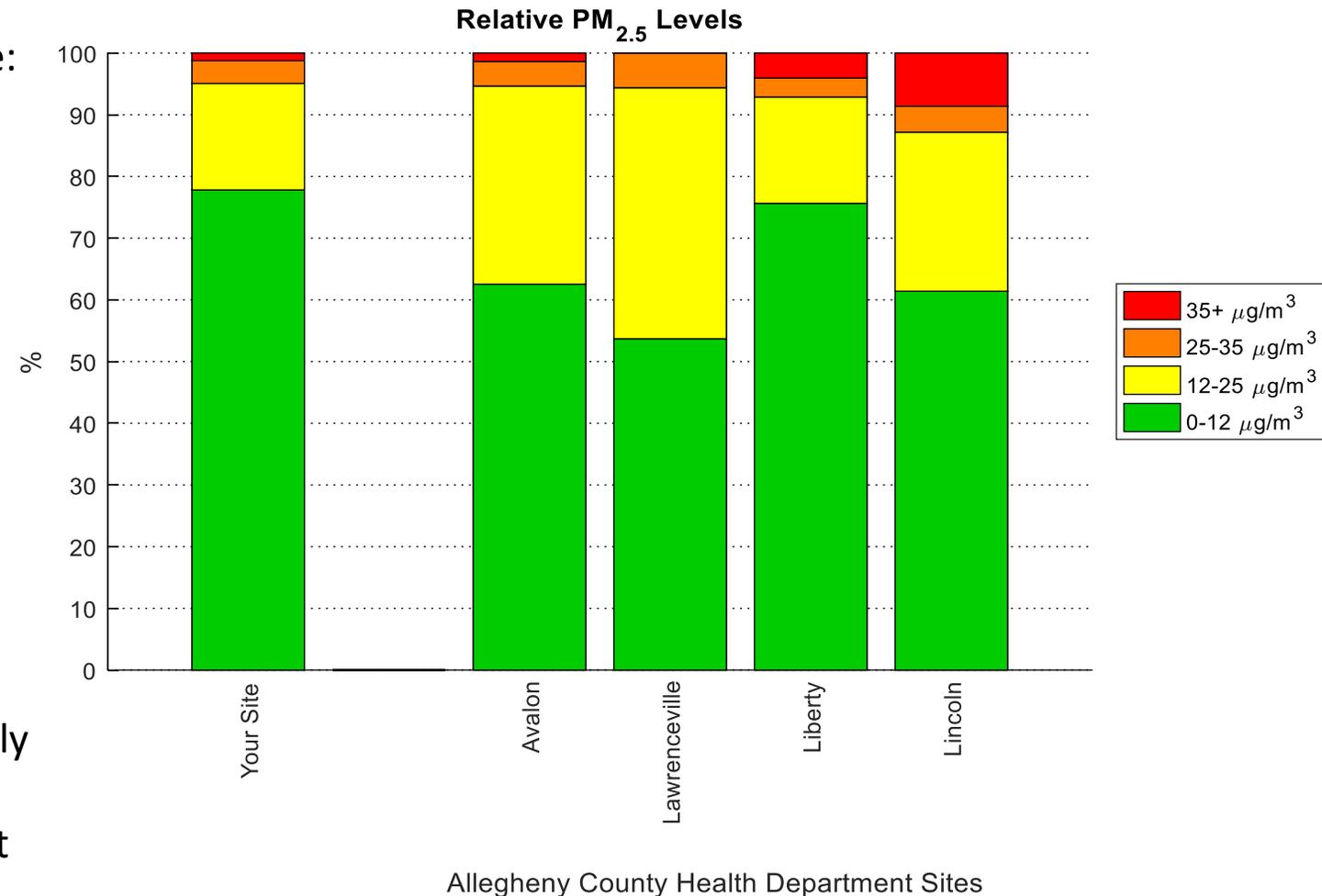
A Representative Week of PM<sub>2.5</sub> Data



- This chart shows the hourly average concentration of PM<sub>2.5</sub> at your site (blue) compared to the hourly average at the nearest ACHD monitoring station for a representative week of the year.

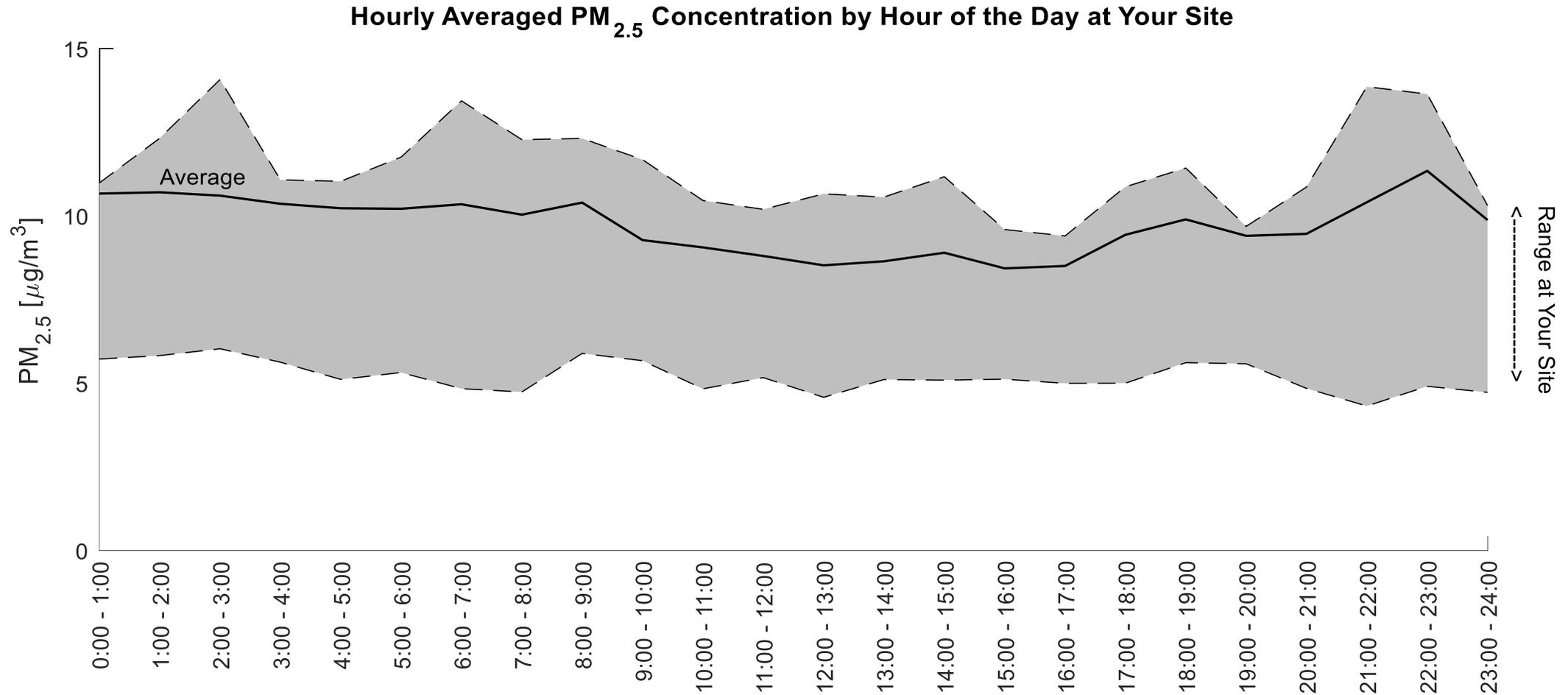
# How your site compares to others

- The bar graph represents the fraction of hours when the PM<sub>2.5</sub> concentration is in a certain range:
  - **low** (0-12 μg/m<sup>3</sup>)
  - **moderate** (12-25 μg/m<sup>3</sup>)
  - **elevated** (25-35 μg/m<sup>3</sup>)
  - **high** (more than 35 μg/m<sup>3</sup>)
- The same results are shown for the ACHD monitoring stations
- A higher percent of “low” concentrations were measured at your site than at all ACHD PM<sub>2.5</sub> monitoring stations.
- However, the site has also seen concentrations above 25 μg/m<sup>3</sup> at a rate similar to all ACHD sites except Lincoln.
- This suggests that while your site has been typically cleaner than all other ACHD sites, during higher-PM<sub>2.5</sub> events it has been similarly polluted as most other sites.



- Note: in this chart, collected RAMP data are averaged hourly, as it is at the ACHD stations

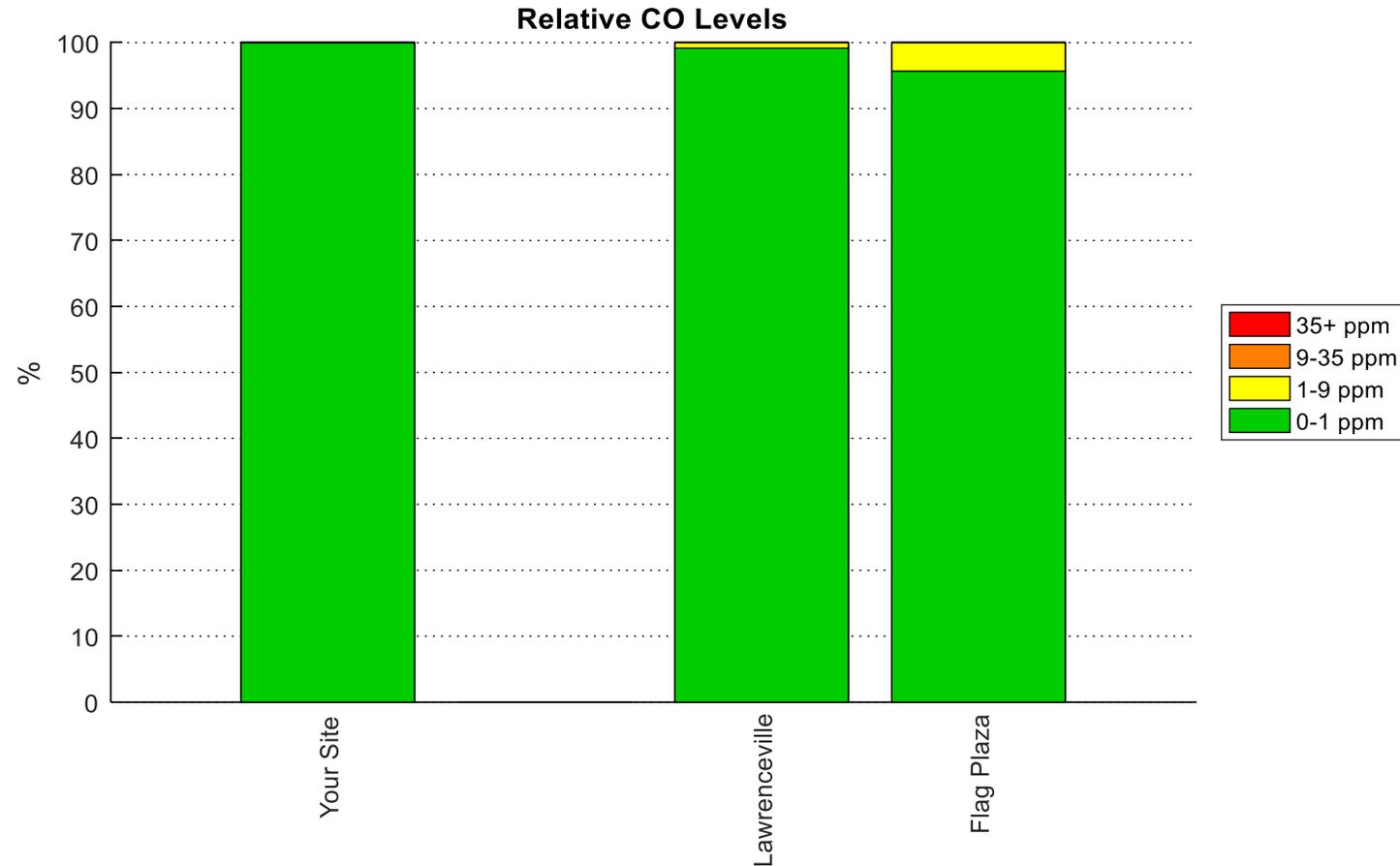
# What is your site's daily pollution pattern?



- The mean concentration of PM<sub>2.5</sub> throughout the day at your site is around 10 µg/m<sup>3</sup>
- Higher concentrations typically occurring in the morning (midnight to 7am)
- The times of the day with the lowest concentrations tend to be in the afternoon (1pm to 5pm)
- However, the differences between those periods were minor this month.
- Note: range shown represents the 25<sup>th</sup> to 75<sup>th</sup> percentiles of the data at your site, averaged hourly.

# Other Pollutants: Carbon Monoxide

- Carbon Monoxide (CO), measured in parts per million (ppm), is mainly produced by cars, trucks, and other gas-powered vehicles outdoors. Indoor CO levels can also be high if you use gas heaters or stoves in a poorly ventilated area<sup>[1]</sup>
- Exposure to extreme levels of CO (600+ ppm) can cause loss of consciousness or death. At lower levels, people with heart diseases can be put under increased stress<sup>[1]</sup>
- The NAAQS for CO are<sup>[3]</sup>
  - CO should not exceed 35 ppm in one hour
  - CO should not exceed 9 ppm over eight hours
- The CO levels at your site were well within EPA limits, never exceeding 1 ppm on an hourly basis.
- Relative to other sites, your site has had lower CO levels than all other ACHD sites.

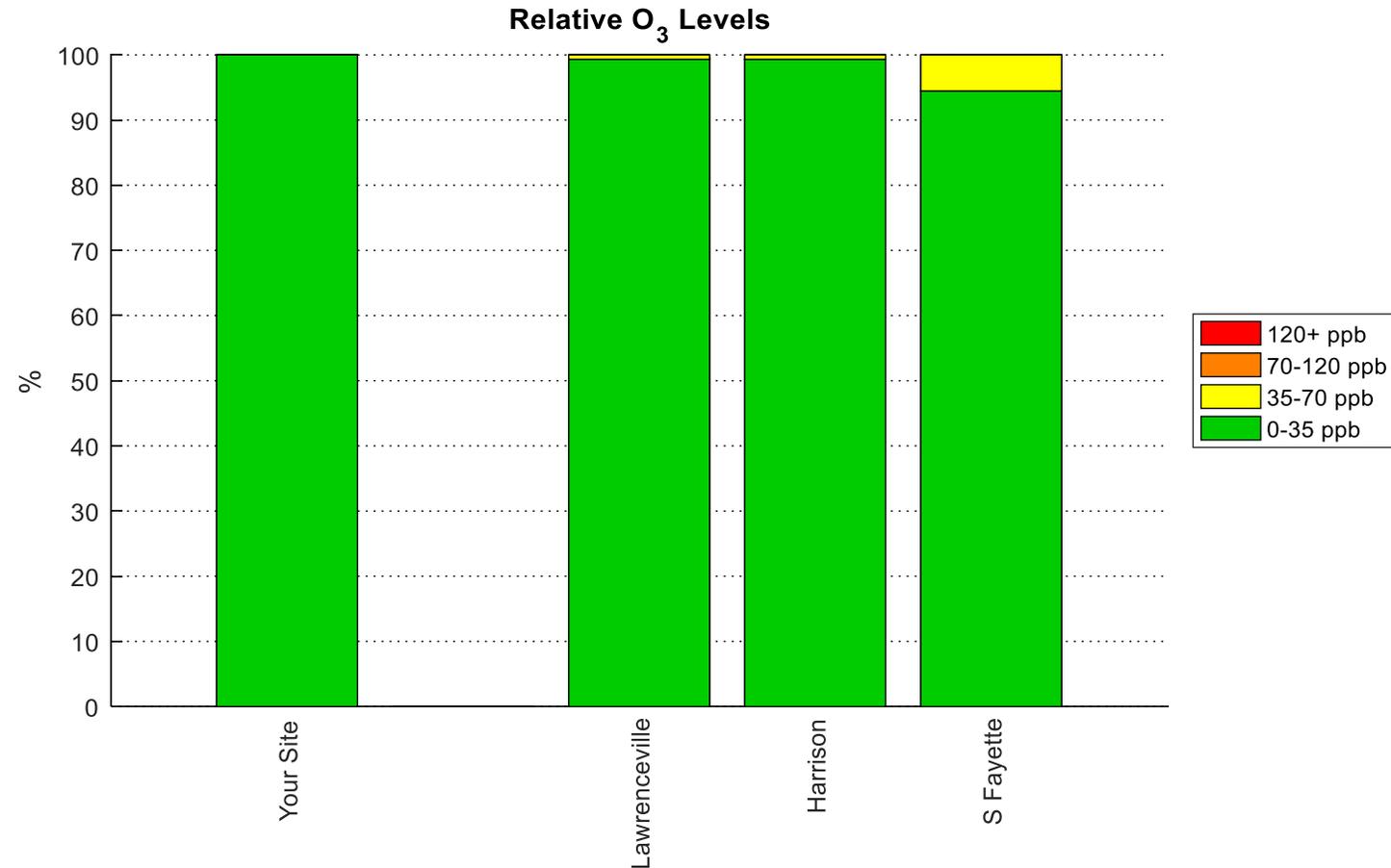


Allegheny County Health Department Sites

- Note: in this chart, collected RAMP data are averaged hourly, as it is at the ACHD stations

# Other Pollutants: Ozone

- Ozone ( $O_3$ ), measured in parts per billion (ppb), can be beneficial when it is high in the atmosphere, but breathing in Ozone at ground level can have many harmful effects, such as causing coughing and chest pain, damaging throat and lung tissues, and exacerbating other health problems like asthma and bronchitis<sup>[1]</sup>
- The NAAQS for  $O_3$  are<sup>[3]</sup>
  - $O_3$  should not exceed 120 ppb in one hour
  - $O_3$  should not exceed 70 ppb over eight hours
- The  $O_3$  levels at your site were well within EPA limits, with maximum hourly level of 35 ppb.
- The  $O_3$  levels at your site were slightly lower than levels observed at all other sites during the monitoring period.



Allegheny County Health Department Sites

- Note: in this chart, collected RAMP data are averaged hourly, as it is at the ACHD stations

# References

- [1] EPA website: <https://www.epa.gov/criteria-air-pollutants>
- [2] Dockery, D. W., Pope III, C. A., Xu, X., Spengler, J. D., Ware, J. H., Fay, M. E., ... Speizer, F. E. (1993). The New England Journal of Medicine as published by New England Journal of Medicine. Downloaded from [www.nejm.org](http://www.nejm.org) on August 16, 2010. For personal use only. No other uses without permission. Copyright © 1993 Massachusetts Medical Society. All rights reser. *N Engl J Med*, 329(24), 1753–1759. <https://doi.org/10.1056/NEJM199410063311401>
- [3] EPA website: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>
- [4] Allegheny County Health Department Air Quality Program; Draft Monitoring Plan for 2019. <http://www.achd.net/air/publiccomment2018/ANP2019draft.pdf>.

**If you would like any additional information about anything presented in this report, please contact us:**

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