

Monthly Newsletter



CI4CJ.ORG

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August-September
2026

- Air Quality in Human Health
- Monitoring Air quality in Philly and Harrisburg
- July 16-18 wildfires
- Confronting climate justice with the community through partnership and action

“African Americans are 10 times more likely to go to the ER for Asthma relative to non-hispanic whites in Pennsylvania.”

Feature Spotlight

Air Quality and Human Health

Good Air quality is the key to good health. Unfortunately, the American Lung Association 2026 report says that 152 million Americans live in locations where the air has been reported as unhealthy. 33 million of these individuals are children (less than 18 years old). Particulate Matter (PM2.5), ozone, and nitrogen dioxide are pollutants that come from transportation, industry, and more recently, wildfires. The Pennsylvania Department of the Environment (PADEP) and the Air Management Service (AMS) are responsible for monitoring pollution in Harrisburg and Philadelphia. Philadelphia and Dauphin counties received F grades for ozone, daily PM, and annual PM pollution measures. Asthma is negatively affected by higher levels of air pollution. Asthma in Philadelphia and Harrisburg is concentrated in zip codes that were redlined in the 1930s. This means that communities of color are carrying a higher burden of asthma. The PA Department of Health estimates that asthma hospitalization rates were 7.7 and 3.5 times higher for Black and Hispanic populations in the state. Asthma emergency department visits were 12.3 and 7.4 times higher for black and Hispanic populations.

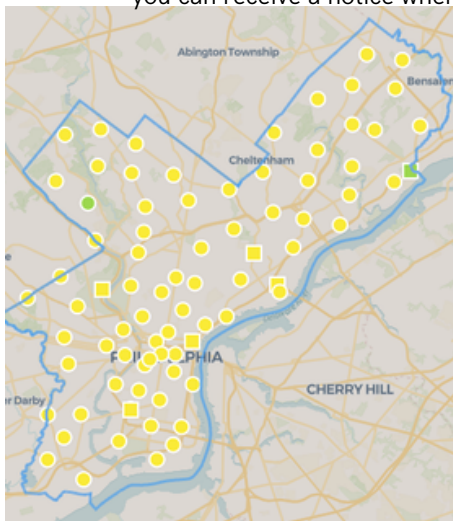
The PA Department of Health states that “Asthma is unclear, but triggers such as pollen, animal dander, mold, cockroaches, dust mites, tobacco smoke, physical activity, certain foods, and medication.” However, many studies in the United States have linked air pollution to asthma. Redlined communities linked to Southern Migration in the 1930s placed many African American communities near pollution sources such as power plants, incinerators, landfills, highways, and railroads. In Philadelphia, this included the old Sunoco refineries, I-95, and I-76 while in Harrisburg, a major transportation city, I-76, I-83 and I-81 surround the city. Chester is another city that runs next to I-95 and has many refineries located in it. Living near pollution sources is bad for the cardiovascular and respiratory systems and may lead to cancer. Living near pollution sources also limits learning because of missed days associated with asthma.



Air Quality Monitoring

In Harrisburg and Philadelphia, the PA Department of Environmental Protection (PADEP) and the Air Management Services (AMS) monitor air pollution. They use high-quality, expensive instruments to measure $PM_{2.5}$, Ozone, CO , and NO^2 . They also provide guidance on the chemical composition of particulate matter. However, due to cost, there are fewer than 10 reference stations in Philadelphia. In West Philadelphia, the monitoring station is near Montgomery Drive, which is not in the Belmont or Mantua neighborhoods, where asthma prevalence is among the highest in the city. In Harrisburg, there is only one reference station, which is outside of areas that have been redlined and where asthma prevalence is high.

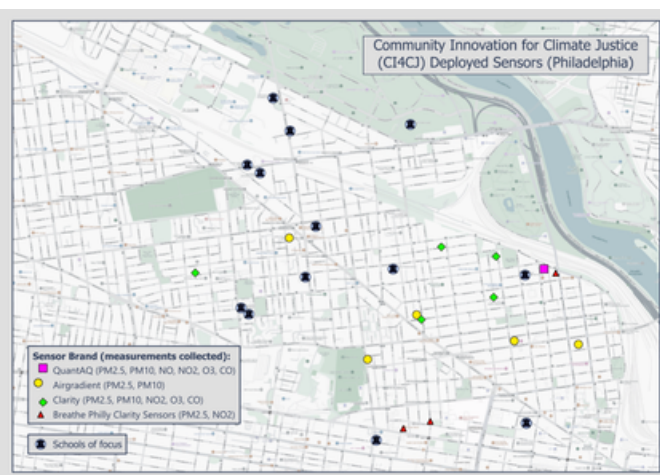
In March 2026, the city of Philadelphia launched the Breathe Philly network, which added another 72 monitors to the city. Clarity IO monitors track $PM_{2.5}$ and NO_2 all across the city. However, in West Philadelphia, where asthma levels are high, there are no monitors. This was not intentional, as many of the monitors are located in parks or playgrounds. During 2025, the Community Innovation for Climate Justice (Ci4CJ) was awarded a grant to increase the number of low-cost monitors in West Philadelphia and Harrisburg. We are using Clarity IO, Air Gradient, and Quantaq air quality monitors, which run on solar energy and do not need wifi. We are measuring $PM_{2.5}$, Ozone, NO_2 , and CO at a number of sites. We have installed approximately 10 air quality monitors in West Philly and only 6 in Harrisburg thus far. We need residents to host the air quality monitors. We are also using the JustAir App, which allows residents in West Philly to check the monitor nearest to their homes for real-time monitoring. It is easy to set up on your cell phone or computer, and you can receive a notice when the air pollution reaches a certain level.



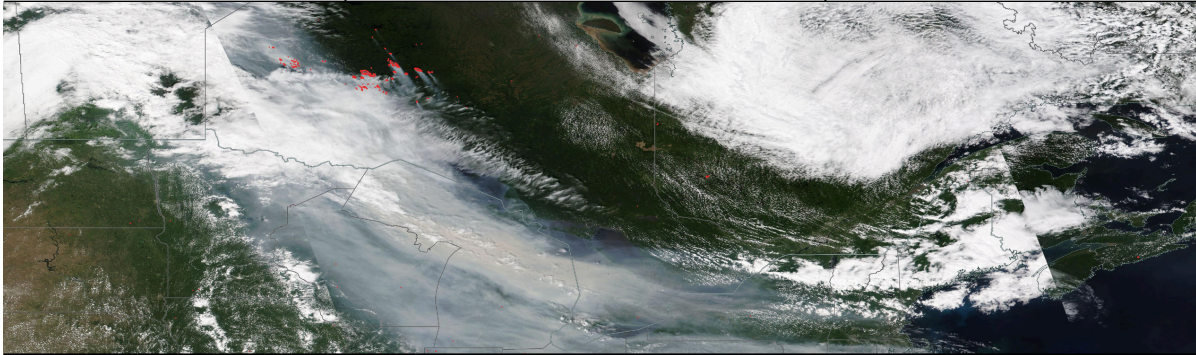
BREATHE PHILLY NETWORK



CI4CJ BROWN STREET MONITOR



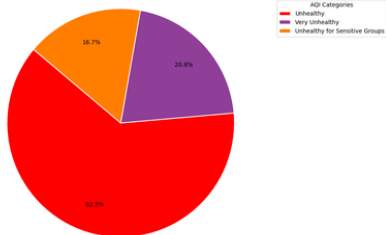
CI4CJ CURRENT NETWORK



July 16-18 2026 Canadian wildfire Smoke invade PA

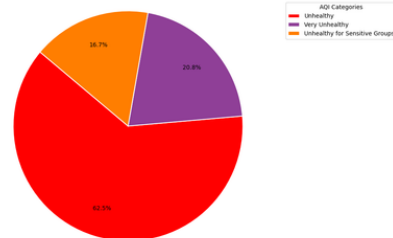
For the second time in four years, wildfire smoke from Canada has reached Pennsylvania. Wildfires, which many have linked to climate change, have burned all around the globe this summer, with Portugal, Spain, Australia, Canada, and the United States having major wildfires and authorities evacuating those in harm's way. Wildfire smoke contains organic and black carbon particles, which are very small, and some studies have linked it to an increased risk of cancer. The Air Quality Index was more than 100, and the air was considered unhealthy to breathe. We monitored air quality during this time and found that, during the 72-hour period, the air quality on 40th and Lancaster and 37th and Brown Street was unhealthy to very unhealthy for 83% of the 72 hours. In Harrisburg, air quality levels reached unhealthy to hazardous levels for 71% of the 72 hours.

PM2.5 Air Quality Distribution
Lancaster Ave. (Philadelphia) Sensor (July 16-18 2026)



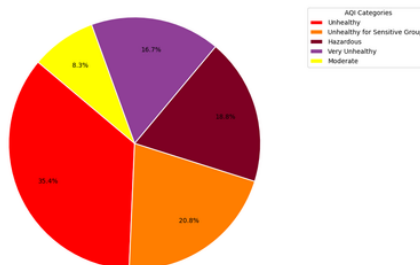
40TH AND LANCASTER

PM2.5 Air Quality Distribution
37th Brown (Philadelphia) Sensor (July 16-18 2026)



37TH AND BROWN

PM2.5 Air Quality Distribution
Allison Hill (Harrisburg) Sensor (July 16-18 2026)



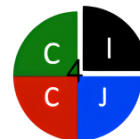
ALLISON HILL HARRISBURG

APP FOR MONITORING AIR QUALITY IN WEST PHILLY

Accessing data for monitors in your neighborhood. Similar to Breathe Philly, we want to make real-time data accessible for the neighborhoods of Philly and Harrisburg. This lets people make decisions about outdoor activities based on the Air Quality Index (AQI). It is especially useful for children or adults who have asthma, and you can receive alerts when a particular AQI threshold is surpassed. We use JustAir to provide hourly data to anyone with access to a cell phone or computer. You can use the map to identify a station near your house; click the station, and the AQI over the last 24 hours will show up. Anyone in the neighborhood can use it. Just go to <https://justair.app> to sign up



Caption: Air quality monitor stations (top) and hourly data



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CONFRONTING CLIMATE JUSTICE WITH THE COMMUNITY THROUGH PARTNERSHIP AND ACTION

Addressing long-term climate justice in Philadelphia and Harrisburg will require greater community and youth engagement. In many cases, the youngest and oldest community members are affected by air pollution, heat stress, and extreme weather. Community members face high air pollution from man-made sources and wildfires, and the frequency and intensity of these events will increase as the planet continues to warm because of greenhouse gases. Someone born today will likely see more intense storms and face temperatures that are 5-10 F warmer than the pre-industrial period in the United States when they turn 74 in 2100. So how can we partner together to confront the challenges?

Short-term partnership

We're still identifying monitor locations in Philadelphia and Harrisburg and may need hosts. In Harrisburg, we need to monitor schools near I-83, and in West Philly, there are still some suspected hotspots. Please send us an email if you are interested in hosting

Long-term partnership

1. **Increase Environmental and Climate literacy.** The key to protecting the community and your family lies in knowing how the combined effects of environmental threats and policy (redlining, gentrification) impact communities. The Justair App used in our study provides real-time monitoring and notifications if needed, based on the station nearest to your house in West Philly or Harrisburg.
2. **Long-term monitoring of threats.** Youth and community engagement are the keys to maintaining long-term monitoring. This project runs for only one year, but high asthma rates require a high-density network. We also need to build a weather network because, due to redlining and the lack of trees, black and brown communities experience warmer environments than those not redlined. This means heat stress is greater and the cost of keeping your home cool is higher. We will need to find funding to sustain the community measurements for multiple years.
3. **Innovation to promote climate justice-** We must engage our youth in solving the challenges posed by the environment on our communities. We must use the opportunity from the climate crisis to improve future workforce opportunities by tapping into their creative and innovative abilities, as we saw with the recent wildfires (see below). We want the youth to help build and maintain the air quality and weather networks, and learn design and coding tools.
4. **Community storytelling** - The voices of the people must be told from every perspective including the art and humanities.



CI4CJ is a 501(c)(3) nonprofit composed of the director, a data manager a talented team of researchers from CCP, ASU and PSU.. Dr. Gregory Jenkins is the founder of CI4CJ, a professor at Penn State with a Phd in atmospheric Sciences from the University of Michigan, a BS in Physics from Lincoln University who was born and raised in the Mantua sections of Philly. He is currently a resident of Harrisburg, PA.



Caption: Students created air purifier and student posters on wildfires at the mantua community association (Aug 15)