



COMMUNITY REPORT

Grand Rapids 49507 Air Quality Project

November 2023

In 2022, [JustAir](#), in partnership with [The Community Collaboration on Climate Change](#) (C4), received a grant from the Environmental Justice Data Fund to: (1) provide accessible, localized air quality data in Grand Rapids' 49507 ZIP code, (2) engage and educate 49507 residents to better understand their breathing environment, and (3) empower residents to advocate for cleaner, safer air.

The 49507 ZIP code is a community of color facing disproportionately adverse social determinants of health within greater Grand Rapids. This one-year project piloted a local, partnership-driven model of community air quality monitoring.

Working closely with C4, JustAir deployed seven air quality monitors across the ZIP code, launched a public air quality dashboard and developed an opt-in text alert system. Through three community workshops, partners leveraged data and residents' insights to build environmental, behavioral, and structural recommendations to achieve cleaner air in 49507.

This work would not have been possible without strong leadership from the community and organizational partnerships. The project's fiduciary partner was Michigan Black Expo Inc. (MBEI).

Project Partners

C4, Scales Consulting, Greater Grand Rapids NAACP, and JustAir. Each partner org is Black- and/or BIPOC-led and is dedicated to advancing environmental justice.

Collaborators

Urban Core Collective (UCC), West Michigan Environmental Action Council (WMEAC), City of Grand Rapids, Grand Valley Metro Council, Kent County Health Dept., Downtown Grand Rapids Inc., Michigan Dept. of Environment, Great Lakes, and Energy (EGLE), and more.

PROJECT TIMELINE

OCTOBER 2022
Project kick-off and coalition building

JUNE 2023
Monitor deployment & community workshop #2

OCTOBER 2023
Air Quality Coalition meeting #2

NOVEMBER 2023
Community-facing project report & recommendations



MARCH 2023
Monitor site selection at Community workshop #1

AUGUST 2023
Air Quality Coalition meeting #1

OCTOBER 2023
Air quality data analysis & community workshop #3

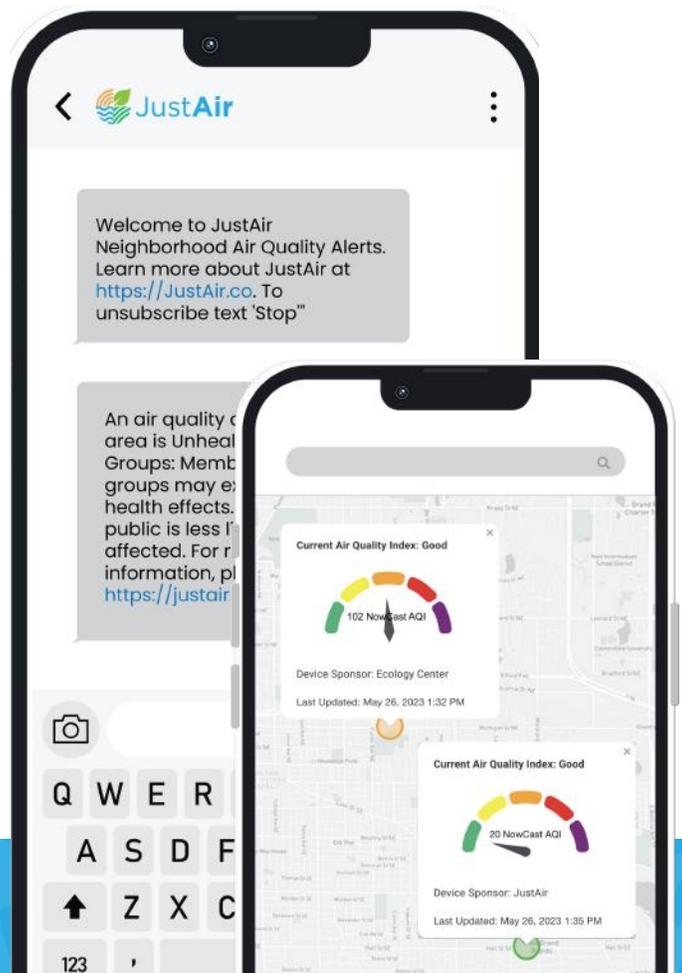


Residents were active and important participants throughout the entire project.

Not only are this project's leaders active stakeholders in Grand Rapids, but the grant also supported paid, part-time employment to C4 climate ambassadors, who supported project strategy and canvassed for community workshops. Project leaders co-hosted three community workshops (in March, June, and October 2023) to attain residents' input on monitor locations, share air quality information and resources, and interpret data. In total, the three workshops had an attendance of over 100. Local, minority-owned businesses were hired to provide food, childcare, media, and other services at the workshops.

Community leaders & project partners:

- Leveraged community input to deploy seven air quality monitors throughout 49507;
- Launched a publicly accessible [JustAir Air Quality Dashboard](#);
- Hosted **three community workshops**;
- Signed up 80+ residents to receive **air quality text alerts** to increase safety;
- Increased **air quality awareness** through 10+ media stories on the project;
- Brought community-based **air quality stakeholders** together for two strategic meetings to assess data trends and opportunities to further attain clean air in Grand Rapids;
- Developed this **community-facing report** to showcase data, trends, and strategies to improve 49507 air quality.





The project was community-driven and developed local green workers' skills.

At the March 2023 community workshop, residents and stakeholders identified locations within the 49507 ZIP code that could benefit from localized air quality monitoring. Based on their lived experience, factors such as density and proximity to suspected pollution sources, and discussion with their peers in a roundtable format, residents identified high-priority areas for monitoring.

Based on this input and additional health research data, project partners worked with C4 Ambassadors to scout priority sites, confirm locations, and install monitors. C4 Ambassadors were hired as paid contractors, gained new skills, maintained the monitor network, and contributed to partners' knowledge of monitoring practices. Looking ahead, scaling this project can provide career opportunities in environmental justice tech across the Grand Rapids region.

Air Quality Data & Findings

Air quality monitors in 49507 started collecting data on June 1, 2023.

The data in this report was collected over 135 days of readings (June - October) from six stationary air quality monitors - more than 229,000 air quality readings in total. A seventh monitor was installed in early November and will monitor air until November 2024. Findings were drawn from both monitor data and resident feedback, ideas, and local knowledge.

This data primarily focuses on readings of particulate matter 2.5 (PM 2.5), tiny solid particles in the air 2.5 micrometers or smaller. PM 2.5 comes from vehicle exhaust, industrial emissions, construction, and natural sources like wildfires - all areas of concern residents brought up through engagement.

Data is displayed using Air Quality Index - or AQI - which is the Environmental Protection Agency's national scale for measuring air quality. AQI breaks air quality data into six color-coded categories from *Good* to *Hazardous*.





Of the 135 days monitored:

- 79
 79 days (58.5%) maintained *Good* or *Moderate* air quality across every monitor (100 AQI or less for the entire day)
- 56
 56 days (41.5%) featured periods of *Unhealthy*, *Unhealthy for Sensitive Groups*, or *Very Unhealthy* air (101 - 300 AQI) in the monitoring network.
- 0
 There were 0 days of hazardous air (300+ AQI)

During the monitoring period, there were two notable occurrences within the data set: a) wildfire smoke from Canada sustained throughout the summer (spiking in late June), due to extreme weather events made more likely by global climate change, and 2) the 4th of July holiday. These events sourced the worst air quality days across the 49507 ZIP code. If you exclude these events, the highest AQI days at each monitor were varied and there were few *Very Unhealthy* days.

MLK PARK

19 days with 100+ AQI



PLASTER CREEK PARK

28 days with 100+ AQI



WOODLAWN

16 days with 100+ AQI



FULLER & KALAMAZOO

20 days with 100+ AQI



BURTON & DIVISION

25 days with 100+ AQI



HALL & PHILLIPS

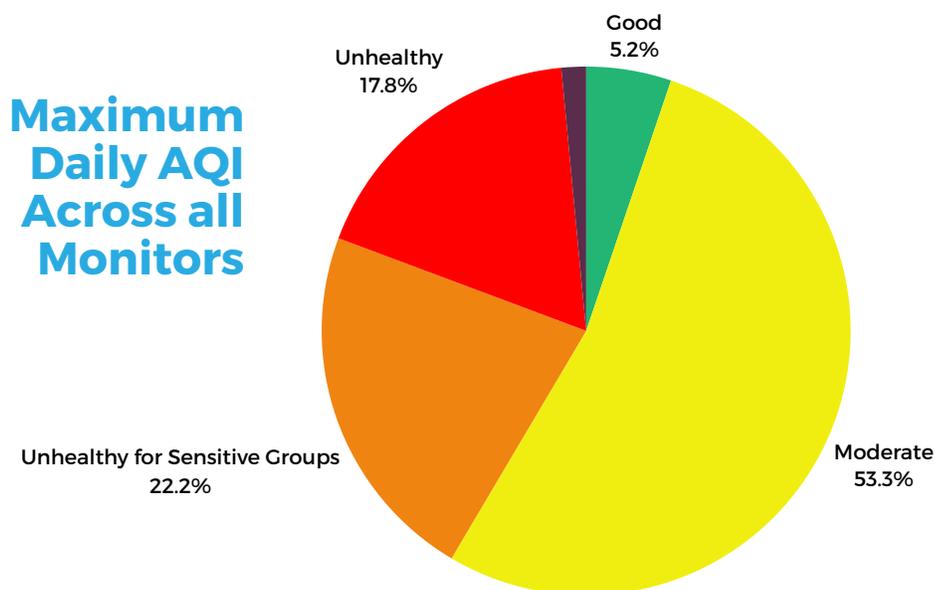
29 days with 100+ AQI



Across all six monitors, the average AQI remained 'Good.'

The three monitors located in or near parks (with comparatively high green space) had the lowest average AQI (healthier air). The three monitors closer to traffic and industry had higher average AQI (unhealthier air). The times of day with highest AQI were not consistent across monitors, but tended to fall between 10pm-1am, and 6-8am. More monitoring and analysis is necessary to draw further conclusions on the air quality factors behind these varying times of day but temperature, humidity, wind speed and direction, and human activity like commuter traffic may contribute.

Though average AQI across the monitors is within the Good range, there were frequent spikes and residents breathed air that was Moderate, Unhealthy for Sensitive Groups, Unhealthy, or Very Unhealthy nearly every day (94.8% of all days).



WHAT DO MONITORS IN 49507 MEASURE?

Particulate Matter (PM 2.5 & 10)

PM is tiny particles suspended in the air. PM 2.5 means the particles' diameter is 2.5 micrometers or smaller (i.e. 0.00025 centimeter).

Ozone (O3)

Ground-level ozone is formed when nitrogen and volatile organic compounds, emitted from various sources, react to heat and sunlight to form harmful air pollutants and smog.

Nitrogen Dioxide (NO2)

NO2 is a gas that is produced by combustion processes.

Monitors also measure temperature and humidity.

With tens of thousands of air quality data points collected so far, there is more data- and community-driven analysis needed. This snapshot of the community's air quality data is meant to provide a high-level view of air residents breathe every day in the 49507 ZIP code. This initial analysis provides the community a starting point that can be used to guide additional research, advocacy, and action.



Recommendations for Cleaner, Safer Air

Based on air quality data, resident observations, and consultation with local clean air stakeholders and leaders, project partners identified specific recommendations to improve air quality in the 49507 ZIP code. Recommendations fall into three types of clean air action: behavioral, environmental, and structural (see examples below).

BEHAVIORAL ACTION

Doing what you can to stay safe:

- Checking air quality regularly
- Staying indoors when air quality is poor

ENVIRONMENTAL ACTION

Improving the environment

- Enriching urban tree canopy
- Building green buffer zones between residents & industry

STRUCTURAL ACTION

Long-term policy change

- Updating zoning ordinances
- Increasing fees for air quality permit violations

Recommendations for Behavioral Action

Partners recommend three types of behavioral change individuals or communities can take to stay safe and reduce air pollution:

- **Educational Action:** Residents and leaders should continue to increase their understanding of air quality, utilizing the JustAir Air Quality Dashboard to stay informed on hyper-local air quality data;
- **Personal and Family Action:** Utilize N95 masks and public transportation on poor AQI days, and use quality indoor air filters, air sealing, and monitoring at home to increase indoor air quality;
- **Community Care Action:** Plant trees and support natural solutions to keep air clean, and advocate or organize with groups to advance local clean air policies.

Recommendations for Environmental Action

Monitor data illustrated that air closer to robust green spaces, like parks, had lower average AQI readings. The city and community can support further investments in trees, green space, and other nature-based solutions in 49507 to absorb particulate matter and increase air quality.



Recommendations for Structural Action

There are several structural recommendations that were derived from this project, which can be grouped into the three areas below. Municipal and county-wide government, elected officials, and other policymakers should consider taking the following actions to advance this work.

Awareness

- Connect JustAir's data and insights into larger public health, emergency management, and environmental datasets and dashboards to inform research and policy;
- Utilize JustAir data within a municipal dashboard, communications, and alerts;
- Form an ongoing community clean air group to further engage the community and officials on air quality education and interventions.

Transportation

- Prioritize school clean air by developing anti-idling zones;
- Advance the electrification of school and public buses;
- Conduct pre- and post- air quality analysis (with additional monitoring) where roundabouts, bike infrastructure, bus routes, and other clean air initiatives have been implemented.

Zoning

- Put conditions on zoning for heavy trucking or industry near residences and schools;
- Rezone specific areas to prevent further industrial encroachment;
- Conduct pre- and post- air quality analysis (with additional monitors) where industry regulations and other zoning changes have been implemented.

Next Steps for Clean Air in 49507



This project is ready to be scaled.

Collaborators are actively seeking opportunities to maintain and expand the existing air quality monitoring network they have built together. Residents and community stakeholders have provided valuable feedback on where future monitoring and data collection efforts could benefit residents' health and advance policy interventions for clean air. It's clear the one-year pilot is ready to be scaled to reduce pollution, improve resident health, and advance local job creation.

Partners will continue to convene the Community Air Quality Coalition to pursue further opportunities to attain clean air for Grand Rapids, especially in the 49507 area. For now, monitors remain active and residents can access their data on the [JustAir website](#).



Learn more about the project by scanning the QR code. Reach out to info@justair.co or c4projectcoordinator@gmail.com to discuss collaboration and expansion opportunities.



Acknowledgements

This work would not have been possible without residents, community-based organizations, local businesses, and government agencies who are committed to clean air. Special thanks to C4 lead ambassador, Robert Simmons, and local vendors, including Forty Acres, Larue's Healthy Kitchen catering, All Marcus Productions LLC, Associated Language Consultants, and Child Care On The Go.



Special Thanks to our Collaborators

Urban Core Collective, West Michigan Environmental Action Council, City of Grand Rapids, Grand Valley Metro Council, Kent County Health Department, Downtown Grand Rapids Inc., and Michigan Department of Environment & Great Lakes, and Energy

**Report Compiled by JustAir Solutions
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