

Community Science

Local Experiences

Megan Green - Air Quality Division

Mecklenburg County Land Use and Environmental Services Agency

MECKLENBURG COUNTY

AIR QUALITY

CLEARING THE AIR IN THE HISTORIC WEST END

A Report by the Historic West End AirKeepers and Clean Air Carolina



February, 2019

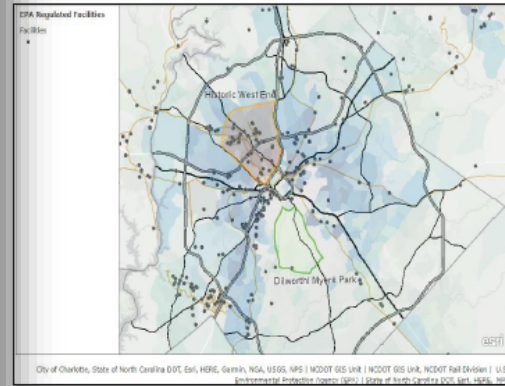


Figure 1. Map of Charlotte neighborhoods and permitted facilities. 2017

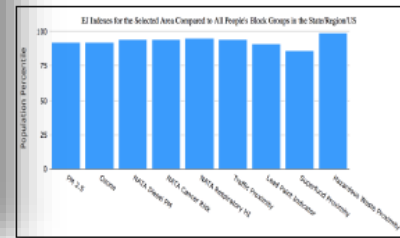


Figure 2. Historic West End Index (higher is greater risk)

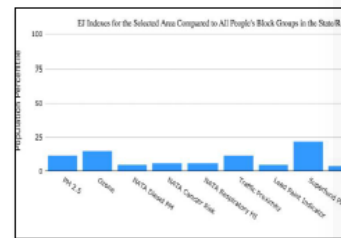


Figure 3. Myers Park / Dilworth Index

AIRKEEPERS DOCUMENT POLLUTION

The lasting effects of these patterns of development was underscored by the AirKeepers project, which began in 2016. With the help of community leaders, Clean Air Carolina established permanent fine particle pollution monitoring sites in three west side neighborhoods: Oaklawn Park, Historic Washington Heights, and Northwood Estates. We compared the results with a monitor installed in Myers Park, and with Mecklenburg County's federal regulatory monitor at Garinger High School in the eastern part of the city. A year of data from all five sites indicates that the Historic West End had more instances of higher concentration and more outliers than the other neighborhoods (Figure 4).

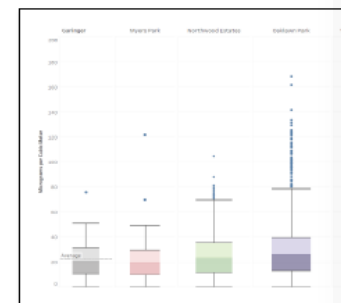


Figure 4. PM2.5 concentrations in five distinct areas of Charlotte. 2017, Clean Air Carolina

PRESENT-DAY RISKS

Today, people living in the Historic West End are at greater risk from air pollution than those in affluent, historical neighborhoods, which are located well away from highways and other sources of pollution. A businesses that have permits for pollution underscore these difficulties with far more permits issued to businesses in the African American neighborhoods around the Historic West End (Figure 1). Bar graphs created with software from the Environmental Protection Agency (EPA) demonstrate dramatic differences between mental health risks for the Historic West End neighborhoods and for Myers Park (Figure 2, 3).

MONITORING LEADS TO ACTION

The work of the AirKeepers demonstrated the importance of monitoring pollution and pollution-related activities. In addition to overall pollution levels, AirKeepers documented pollution spikes produced by street paving, mountain wildfires, and increased truck traffic linked to a major construction project on I-77. They worked on strategies to inform neighbors about pollution sources and opportunities to advocate for cleaner air.

CREATING A CLEAN AIR CORRIDOR

The pollution these efforts revealed has led residents to call for establishment of a Clean Air Corridor in the Historic West End. Creating this corridor will include helping residents learn about air pollution and its causes, working with businesses and individuals to reduce pollution emissions and advocating for policies that will produce cleaner air. Areas of action will include:

- PASSENGER VEHICLE EMISSIONS:** Passenger vehicles are the most significant source of air pollutants linked to a wide range of health impacts. This effort would expand Clean Air Carolina's IdleFree Schools campaign into the broader Historic West End community by installing signage in key places such as libraries, health clinics, churches, fast-food restaurants and other public places.
- CLEAN CONSTRUCTION:** Diesel emissions from construction projects are highly toxic and carcinogenic. Developers can voluntarily join Clean Air Carolina's Clean Construction Partnership, demonstrating their commitment to protect the health of residents by using low-emission equipment in the area. Residents can also advocate for special zoning which would require the use of low-emission equipment.
- PERMITTING AND ZONING:** Businesses must apply for and receive air quality permits, and many request rezoning when they open or expand operations. Neighborhood residents can learn more about how permits and zoning requests are reviewed and approved, about the role that they can play in commenting on those permits, and about opportunities to serve on the Mecklenburg County Air Quality Commission.
- USE OF COMMUNITY BENEFITS AGREEMENTS:** A Community Benefits Agreement or "CBA" is a contract signed by community groups and a company whose operations are impacting the community in a detrimental way. The agreement requires that the company provide specific amenities and/or mitigations to the local community or neighborhood.
- TREE PLANTING:** A healthy tree canopy can absorb a portion of an area's air pollution. Strategic tree planting in the Historic West End would help filter air pollution from vehicles along Beatties Ford Road and surrounding highways.
- CLEAN AIR ADVOCACY TRAINING:** Residents and stakeholders are invited to attend a free 4-week series of classes in March at Johnson C. Smith University's New Science Center to learn about advocating for clean air.

CLEAN AIR CORRIDOR TO LAUNCH SPRING 2019

A special community event will be held in the Historic West End to celebrate the launch of the Clear Air Corridor in April. Stakeholder organizations and individuals interested in supporting this initiative are invited to attend. A guest speaker from the U.S. Environmental Protection Agency will attend the event along with local leaders to discuss ways to improve air quality and public health in the community.

For more information about the Clean Air Corridor contact Ron Ross at roneross@gmail.com.
For more information about Clean Air Carolina's AirKeepers Program or to see the full report, contact Calvin Cupini, Program Manager at calvin@cleanaircarolina.org.

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Keys to Success

Research

Relationships

Resource, not Roadblock

Research



MECKNC.GOV

GOVERNMENT

RESIDENTS

BUSINESSES

VISITORS

English

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Air Quality

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Personal Air Sensor Technology

Mecklenburg County Air Quality (MCAQ) supports the research and development of personal air sensors. Until reliability improves, this emerging technology cannot be used to drive regulatory decisions or infer health consequences. However, these sensors may help citizens better-understand air quality in areas that lack a comprehensive regulatory monitoring network. [Air quality in Mecklenburg County is well-understood based on data from four state-of-the-science monitoring stations that measure 38 parameters, taking hundreds of measurements daily.](#)

Interested in exploring your environment with a Personal Air Sensor?

A variety of devices are available with a wide range of accuracy and reliability. [Find an objective evaluation of devices](#) from the Air Quality - Sensor Performance Evaluation Center (AQ-SPEC), established by the South Coast Air Quality Management District in California.

In addition, the U.S. Environmental Protection Agency (EPA) has developed an [Air Sensor Toolbox](#) for citizen scientists, researchers, and developers.

What are the most appropriate ways to use personal air sensor technology?

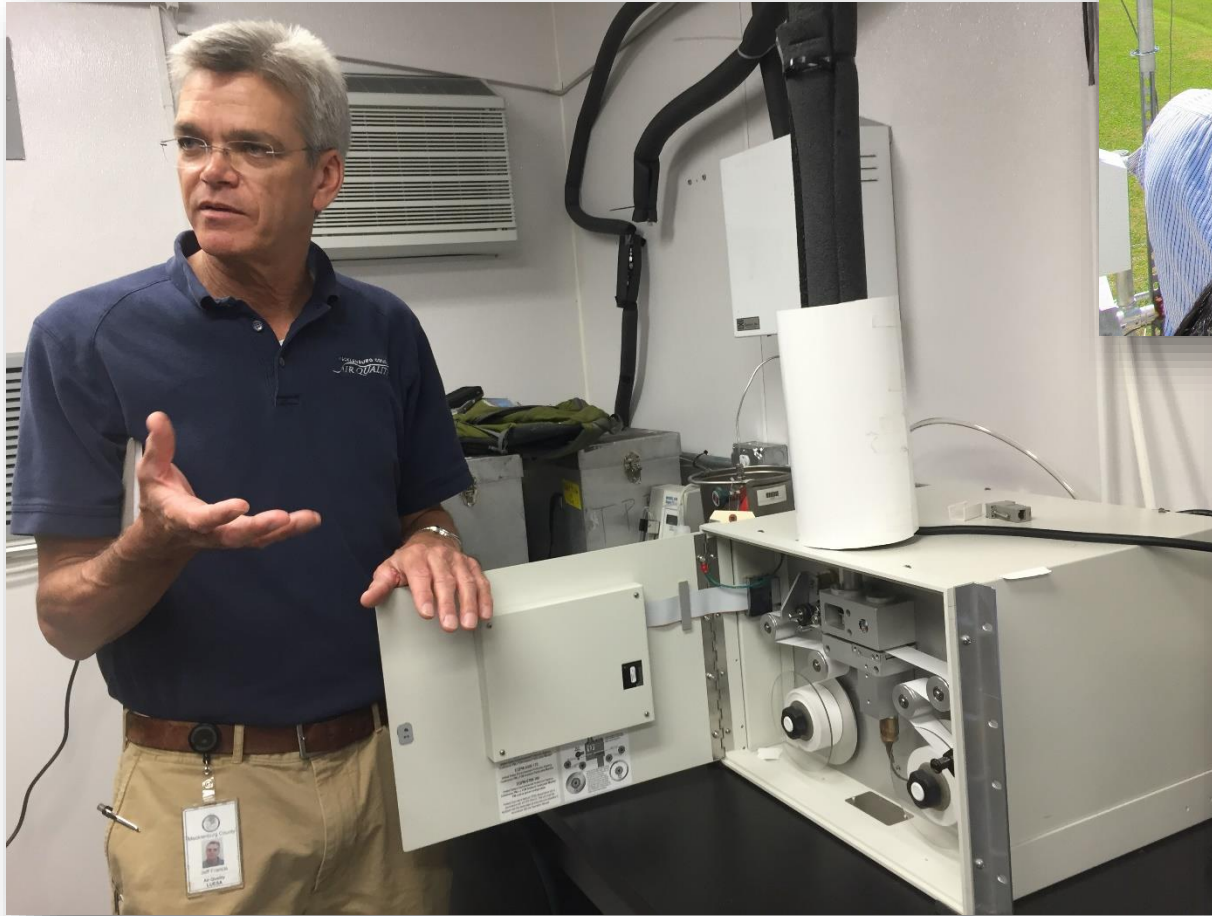
Recommended applications:

Research

Objective research conducted using sensors is valuable to improve understanding of sensor accuracy. For example, MCAQ has participated in several studies to test sensor reliability. Personal air sensors were placed at [MCAQ regulatory monitoring stations](#) for a defined evaluation period. The regulatory monitor data and sensor data were compared to assess the accuracy of the sensor.

Photo: A UNCC student and MCAQ

Relationships



2016



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2017



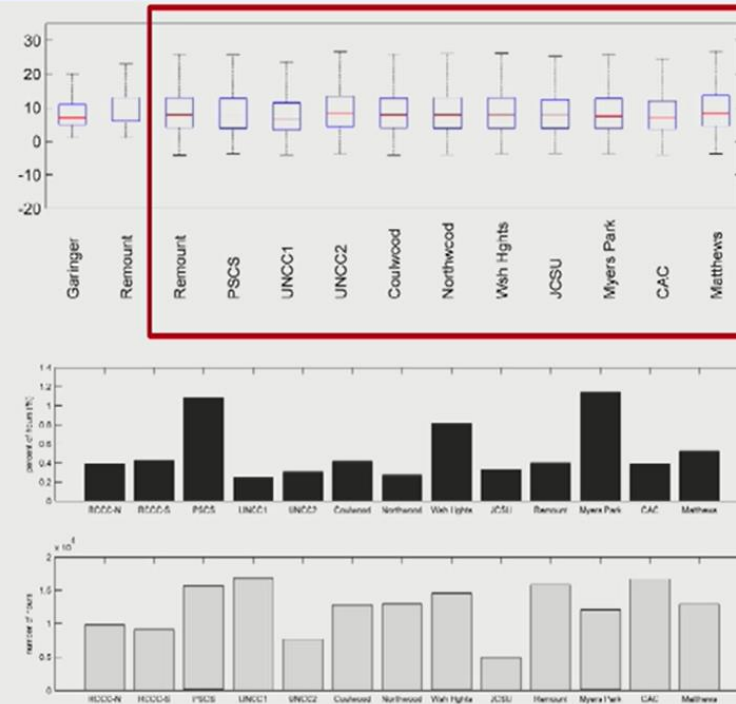
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Citizen Science Monitoring



For the most part, **average concentrations** of PM2.5 are **nearly the same** at all of our monitoring sites.

What we found were events likely very **local to just one sensor**, that produced **higher** than average levels for **very short periods**.

Neighborhood residents reported construction trucks, rush hour, or days of street repaving as being the likely sources for these local spikes.

Preliminary Analysis by Brian Magi, UNCC brian.magi@uncc.edu

Relationships



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Keys to Success – Recap!

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Questions?

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