

Welcome

As you enter, please fill out the poll so we can create breakout rooms of appropriate size for the end of the meeting.

Community meeting 2024 Hyperlocal air quality monitoring: planning and input

April 4, 2024



Photo: Buzzard Point



Agenda

1. Introduction and background on DOEE's air quality monitoring (DOEE)
2. Introduction to Aclima (Aclima)
3. Recap of 2023 2-week pilot results (Aclima & DOEE)
4. Proposed monitoring areas for 2024 (All)
5. Community Input (All, in breakouts)

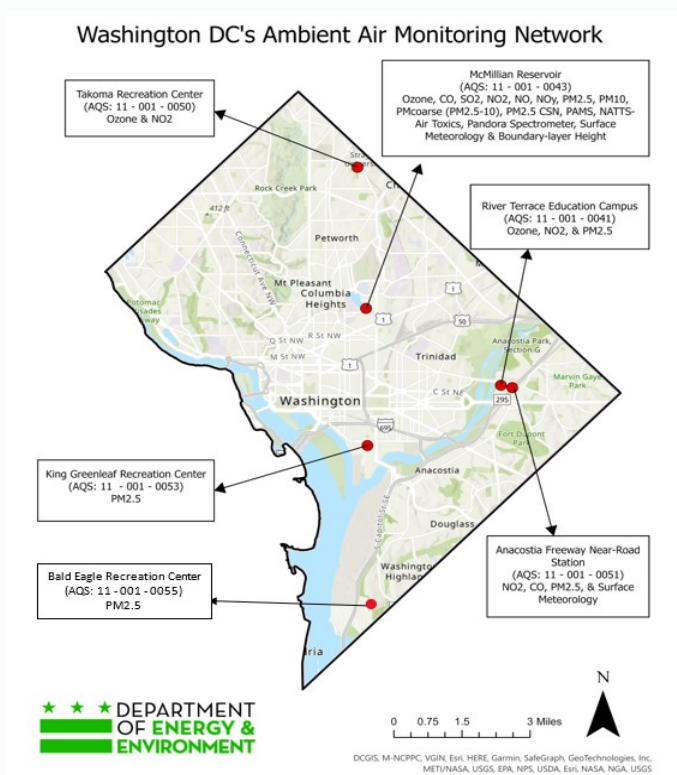


DOEE Community Air Monitoring Initiative

- This program will provide block-by-block information on air pollution and GHGs
- Continuation of last year's two-week pilot in the priority communities of Ivy City/Brentwood, Mayfair, and Buzzard Point
- The goals of the initiative:
 - Gain additional valuable, data-driven insight into air pollution in these communities.
 - Increase residents' awareness of pollutants in their neighborhoods and help them to reduce emissions.
 - Help decision-makers create policies that are better targeted to reduce air pollution in the District and determine which part of these neighborhoods warrants further analysis.

Existing Monitoring System

DOEE has 6 stationary monitors in all 4 quadrants of the city



Monitor	Ward	Location Setting*
River Terrace Education Center	7	EJ community
I-295 Near-Road Station	7	EJ community
Bald Eagle Recreational Center	8	EJ community
King Greenleaf Rec Center	6	EJ community
McMillan Reservoir	1	
Takoma Rec Center	4	

Newest monitoring station

* All monitors considered to be urban monitors

Other DOEE Air Quality Monitoring Projects

- Hyperlocal monitoring program will be used to inform:
 - ▶ Sites for stationary low- or mid-cost sensors
 - ▶ Expansion to the other parts of the District
- EPA sampling around Ivy City
- DOEE is partnering with the Community Data Health Initiative (Harvard/EDF/Howard/Georgetown) to use the data collected to research address a health issue affected by air quality
- EPA Grant - Enhancing air quality data with community storytelling to advance environmental justice
 - ▶ DOEE is working to convene our partners
- Procuring sensors, some of which will be Purple Airs, for low-cost sensor project. We are partnering with schools to host the sensors
- Planning to continue our work with a local CBO on our train-the-trainer Air Ambassadors program. The Ambassadors will also assist in hosting and determining locations for the Purple Air and training on data collection

Aclima's approach: mobile mapping & analysis

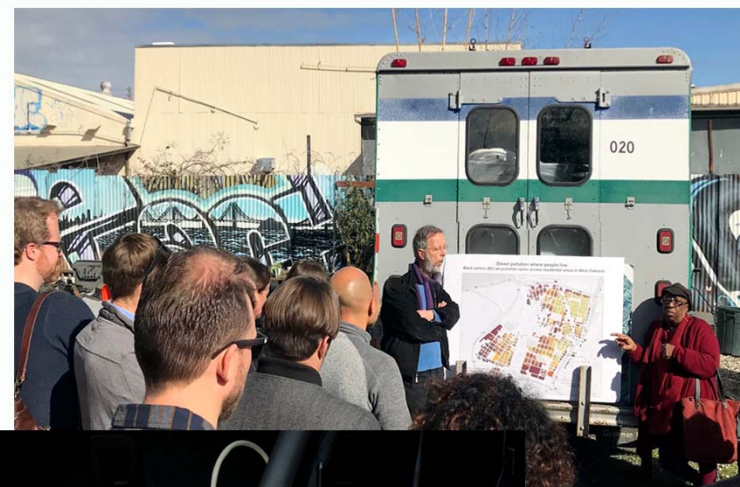
How we work: we measure, map, and analyze air pollution and greenhouse gases block by block

We provide: science and data-backed information about air pollution and GHGs at the hyperlocal level – illuminating each neighborhood block's unique air.

We're committed to informing action by leaders that reduces emissions and collectively working towards an equitable, clean air future for all.

We are a mission-driven Public Benefit Corporation:

- Atmospheric, climate, & data scientists
- Software, hardware, user experience, & systems engineers
- Community organizers & urban planning specialists
- Advisors from non-profits, government, & more

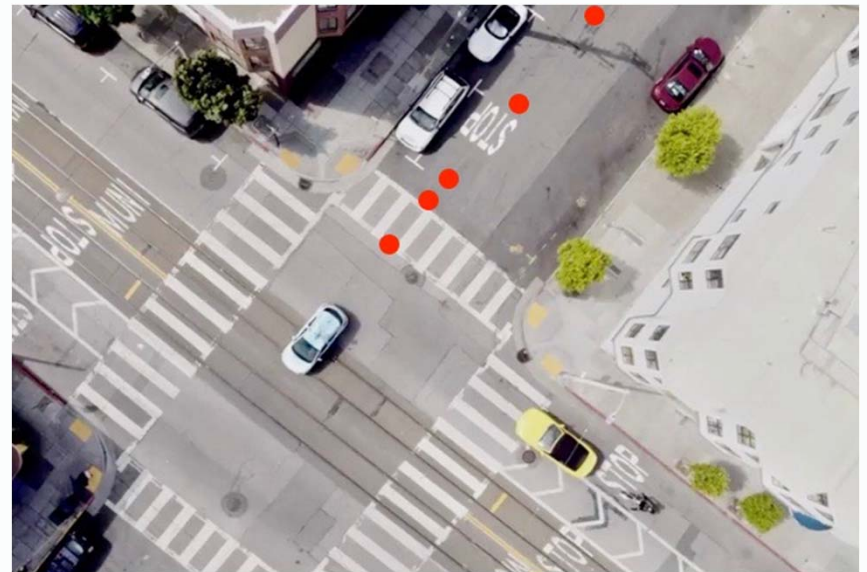


Introduction to Aclima mobile monitoring

Aclima uses mobile mapping and analysis to generate maps that show typical pollution concentrations with high spatial resolution (hyperlocal maps)

These maps highlight typical concentrations over a defined measurement period, in this case two weeks for the DC Pilot, illustrating high and low pollution concentrations at the street level.

All 1-second measurements are averaged to a ~100m road segment based on the location (latitude and longitude) of the data point.

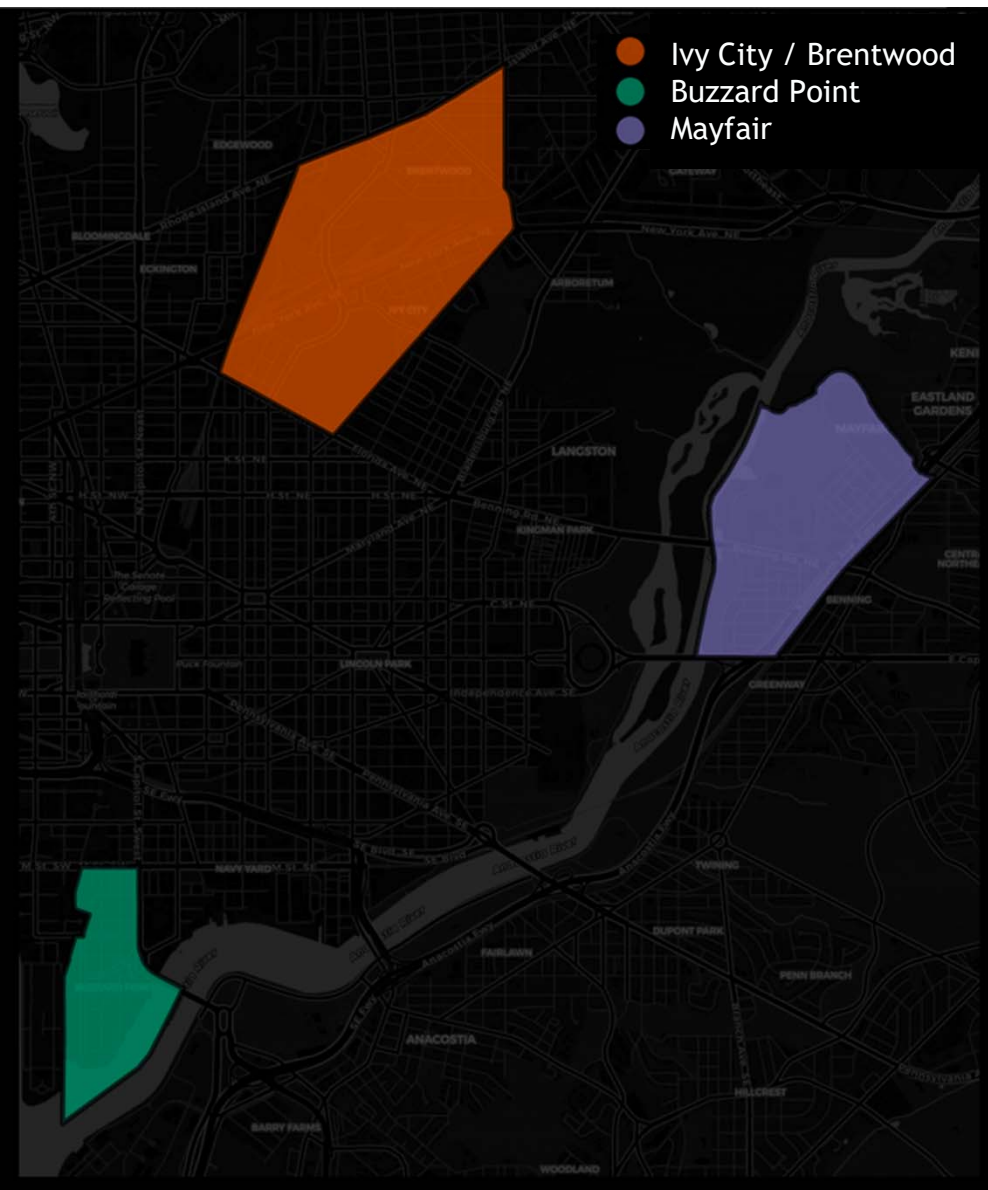


1 second data points as red dots aligned to the route of the car.

EPA's National Ambient Air Quality Standards (NAAQS)

Criteria Air Pollutants (in bold are pollutants measured by Aclima)

Nitrogen dioxide (NO ₂)	100 ppb (1 hour); 53 ppb (annual average)	In attainment
Ozone (O ₃)	70 ppb (8 hour)	Have clean data, but for 2023 exceptional event
Fine particulate matter (PM _{2.5})	35 µg/m ³ (24 hour); 9 µg/m ³ (annual average)*	In attainment of 24-hour Preliminary attainment for annual
Coarse particulate matter (PM ₁₀)	150 µg/m ³ (24 hour)	In attainment
Carbon monoxide (CO)	35 ppm (1 hour), 9 ppm (8 hour)	In attainment
Sulfur dioxide (SO ₂)	75 ppb (1 hour)	In attainment
Lead (Pb)	0.15 µg/m ³ (3 month average)	In attainment



June 2023 Pilot Overview

In June 2023, Aclima conducted two weeks of hyperlocal mobile air quality measurement across 3 neighborhoods specified by DC-DOEE:

Mayfair, Ivy City/Brentwood, and Buzzard Point (5 census tracts total).

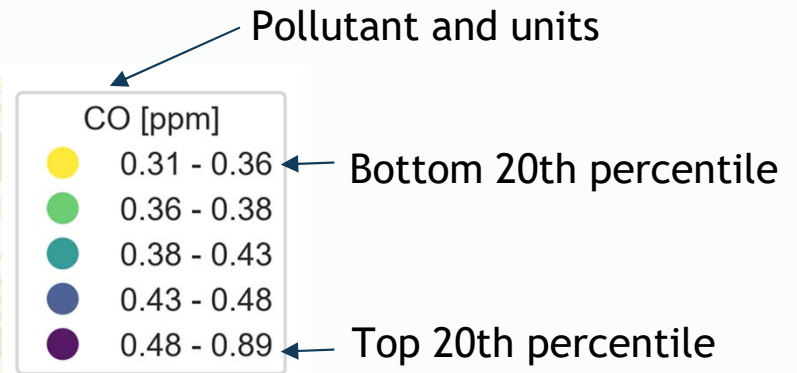
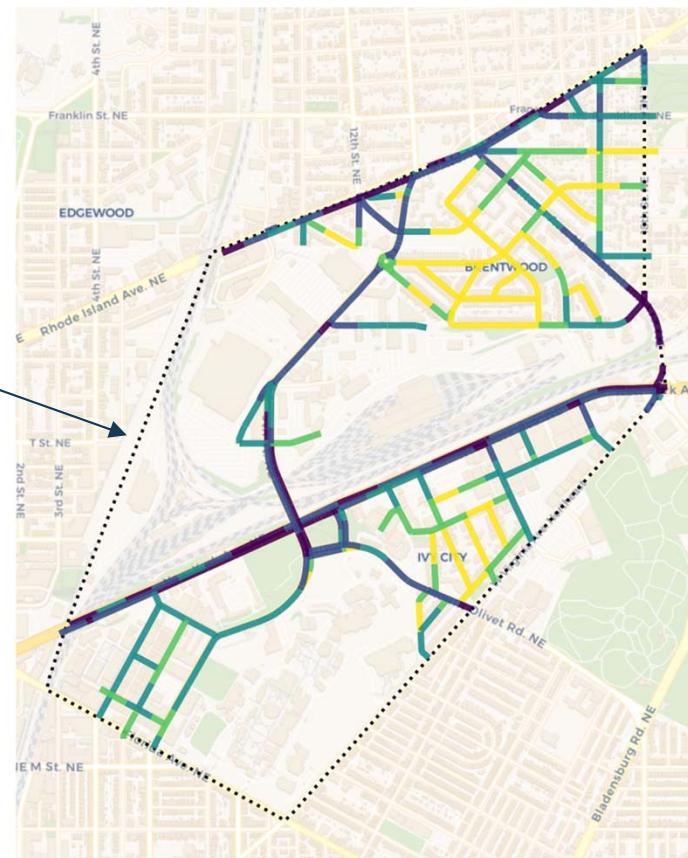
Measurement included:

Carbon dioxide, fine particulate matter (PM_{2.5}), nitrogen dioxide, carbon monoxide, ozone, black carbon, methane, and TVOCs.

Map guide:

Measurements collected June 15 - 28, 2023

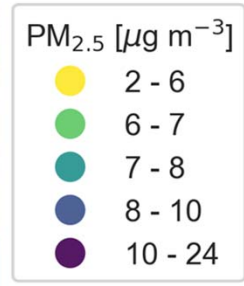
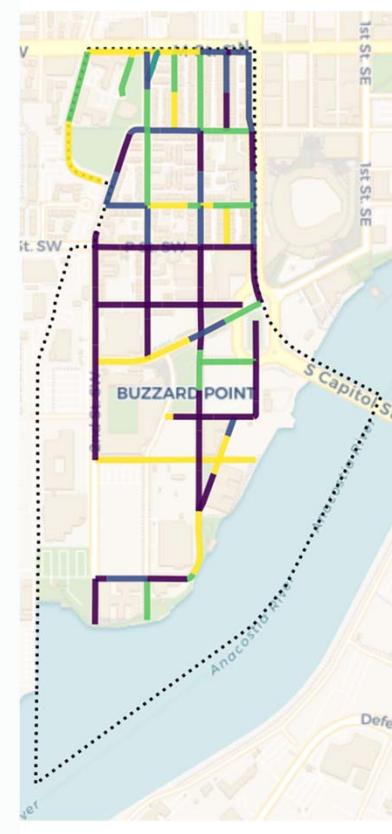
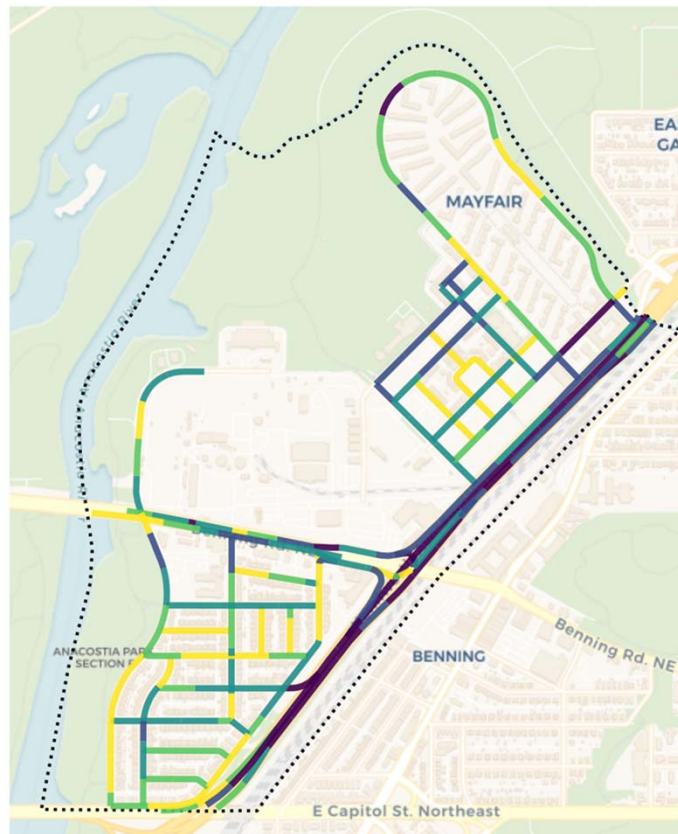
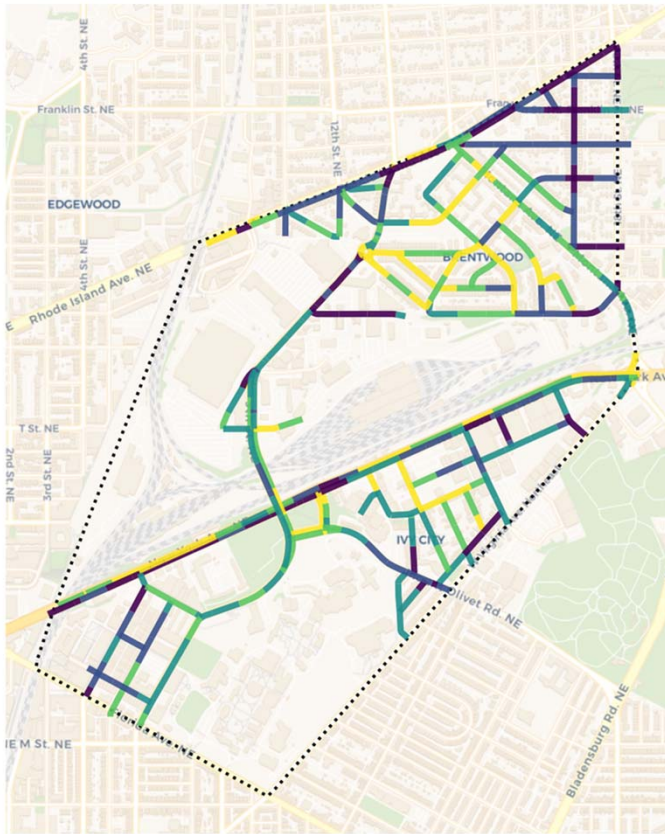
Measurement area bounds



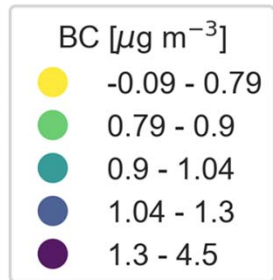
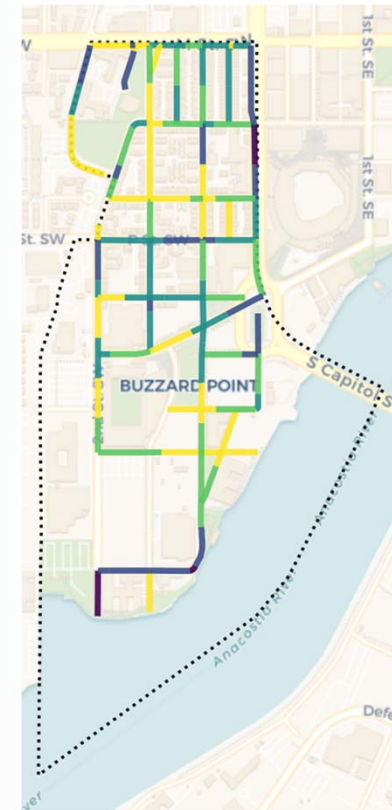
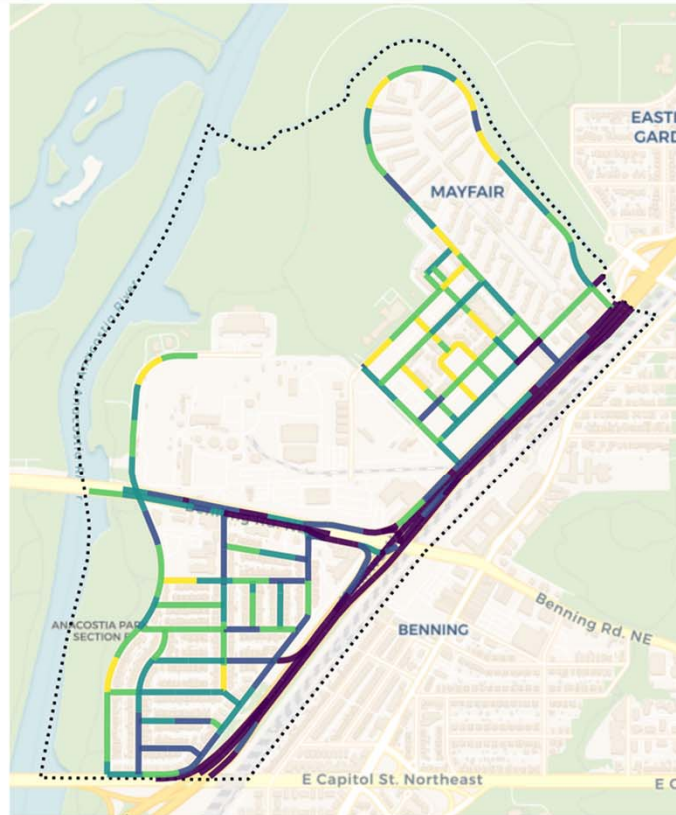
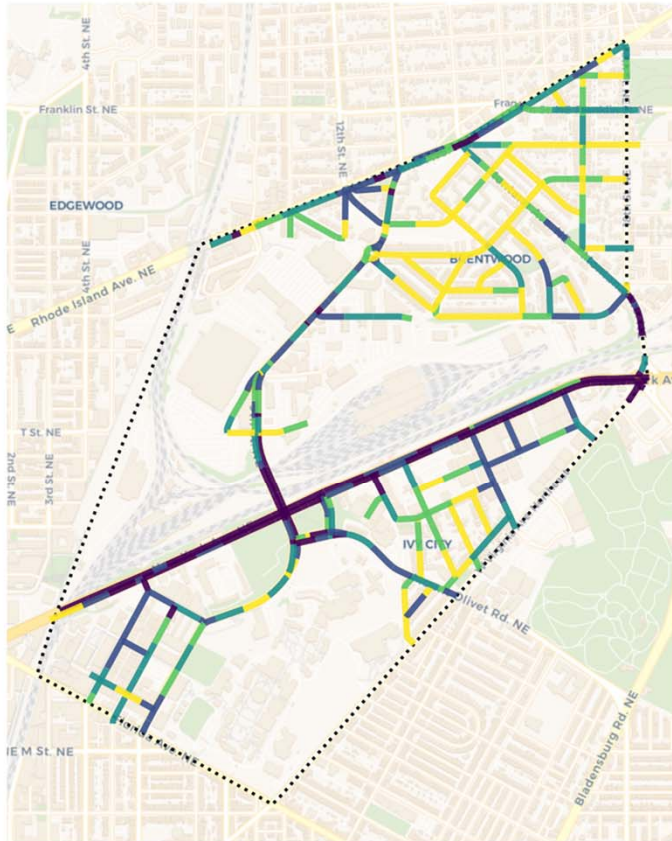
Median concentration color scale grouped by 20th percentile intervals

PM_{2.5} (Fine particulate matter)

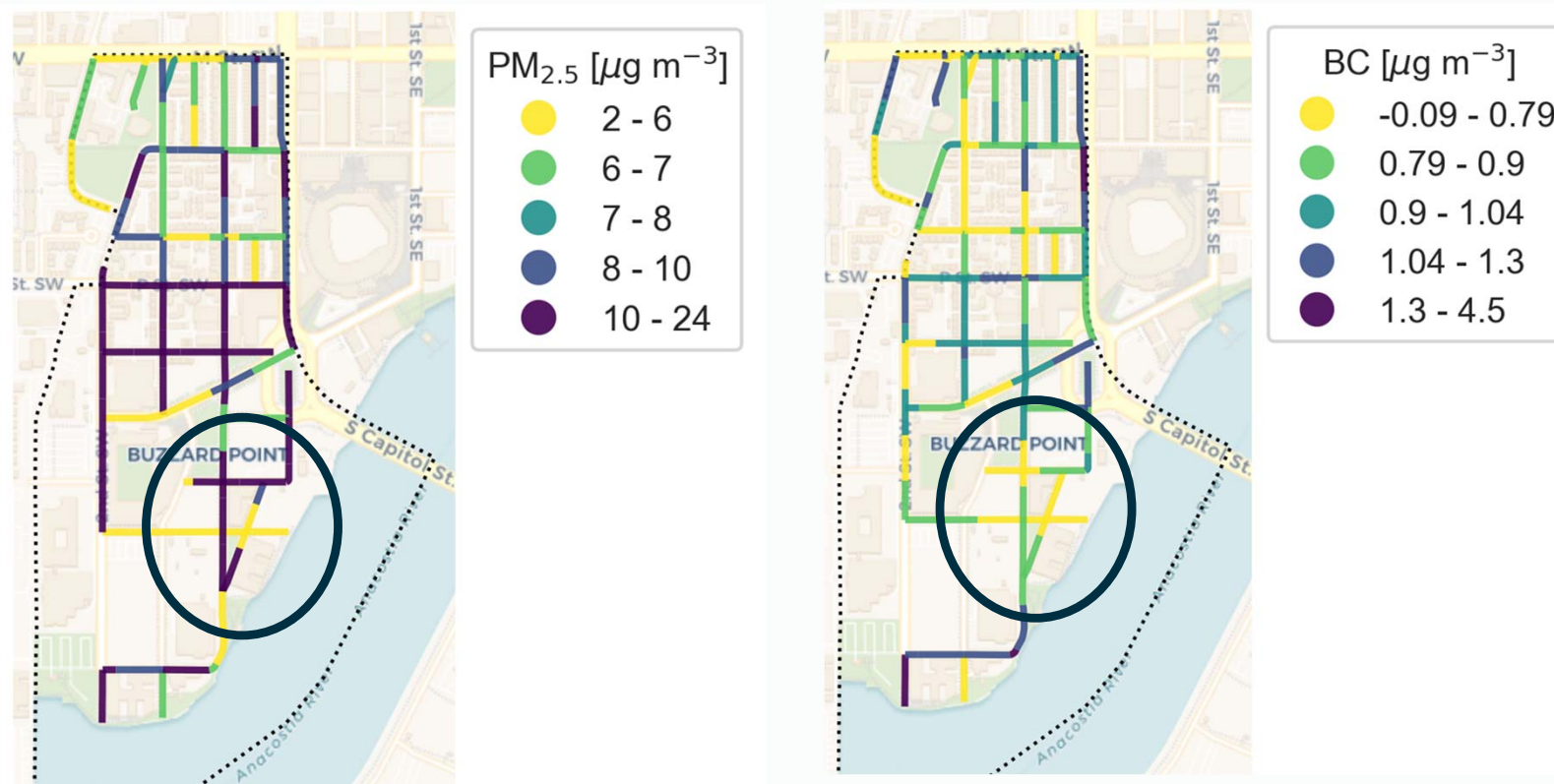
Standard: 35 $\mu\text{g}/\text{m}^3$ (24 hr); 12 $\mu\text{g}/\text{m}^3$ (annual)



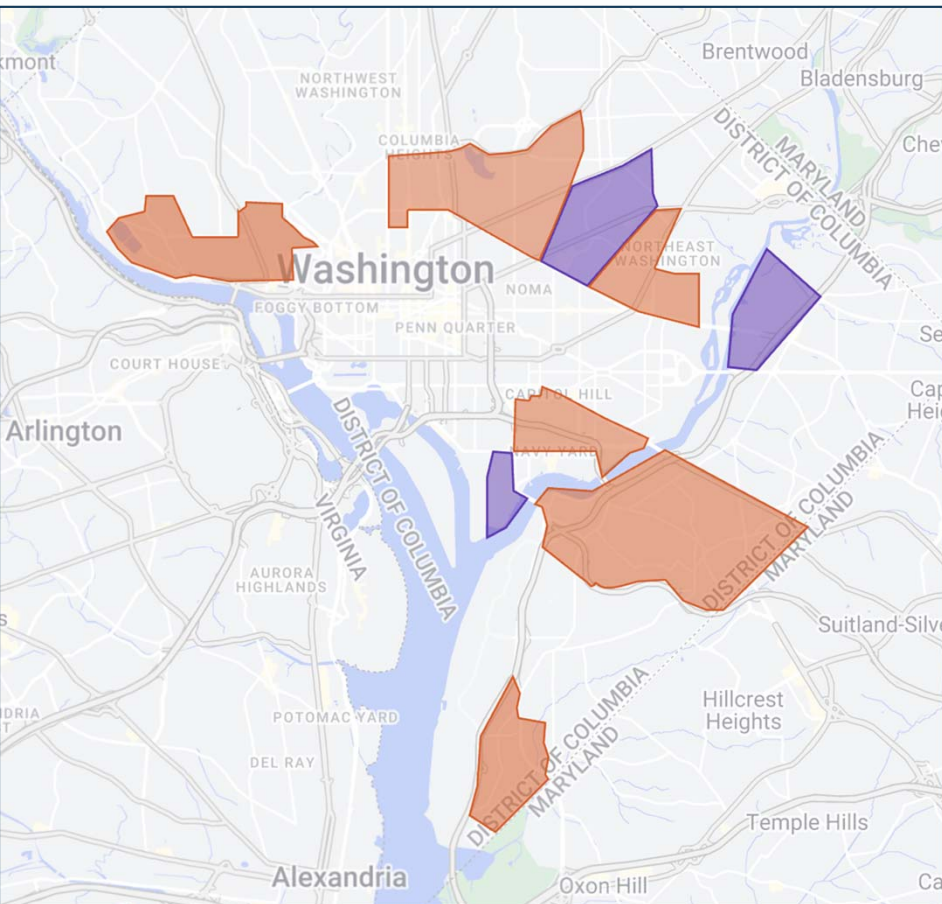
Black Carbon (BC)



Example of an area of concern: Buzzard Point



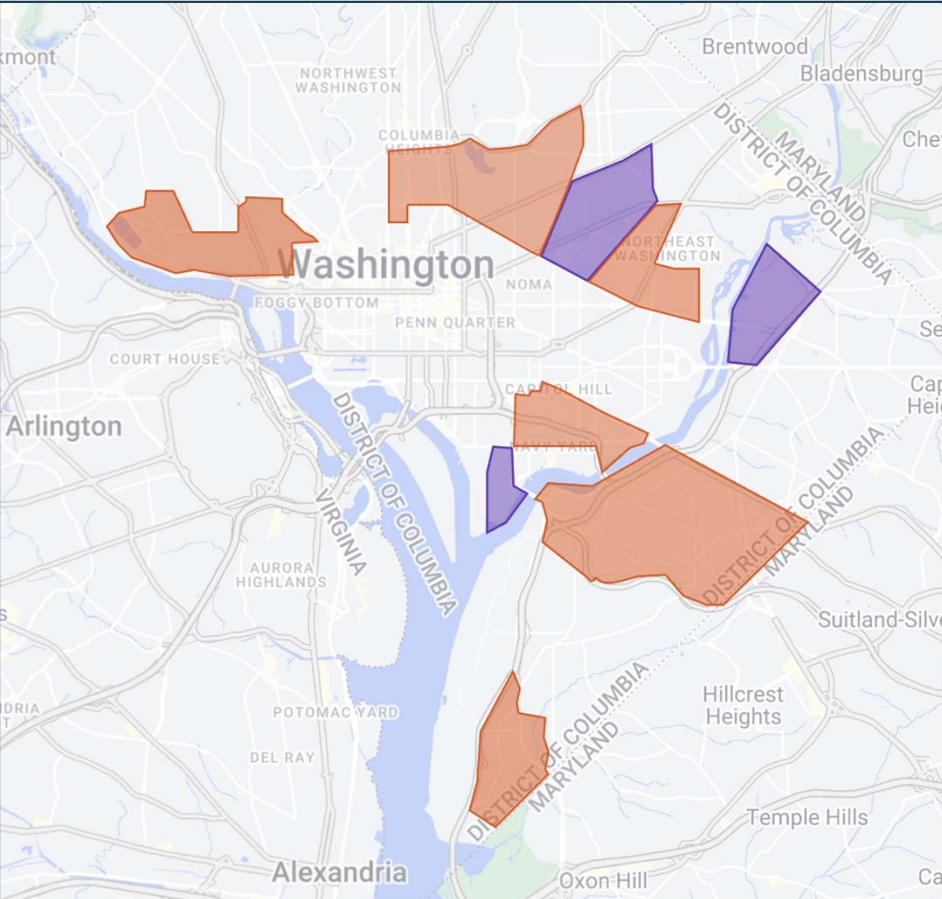
Segment medians for PM_{2.5} (left) and Black Carbon (right) in Buzzard Point, with black circles highlighting segments with high PM_{2.5} and low BC.



2024 Monitoring

- New areas included in the monitoring project: South Capitol Hill, Trinidad/Carver, Greater Anacostia, Bellevue, Eckington/Howard/Edgewood, and Georgetown.
- Neighborhoods that were part of last year's pilot project will be included this year as well: Ivy City/Brentwood, Mayfair, and Buzzard Point.
- The majority of the neighborhoods included in the monitoring project were chosen due to their history of disproportionate exposure to environmental hazards, which resulted in acute air quality problems and poor health outcomes.
- Georgetown was chosen to provide comparison data to areas of the city that have been historically disadvantaged.

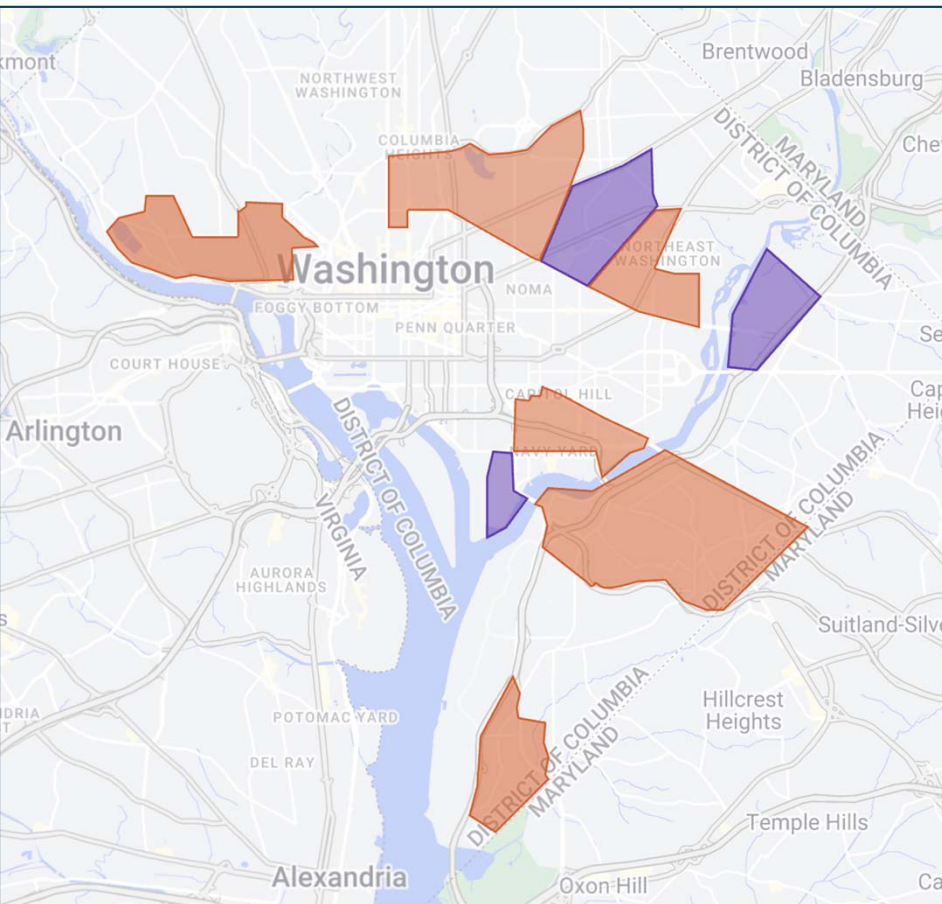




2024 Monitoring

Starting in May 2024, Aclima will be conducting three months of hyperlocal mobile air quality measurement across additional neighborhoods in the DC area.

Measurements will include:
Carbon dioxide, fine particulate matter, nitrogen dioxide, carbon monoxide, ozone, black carbon, methane, and TVOCs.



Community input:

Are there specific areas or concerns that can help us design the upcoming 2024 measurements?

Community input

We want your feedback on areas to focus on during this project! For example, are there:

- Streets with lots of traffic?
- Idling hotspots?
- Facilities that seem to be emitting pollution?
- Dusty construction sites?

* Please note that designated neighborhoods will not change. We are looking for areas/places of concern within these neighborhoods.

Public comment period open through April 19, 2024

Email: AirQuality.Planning@dc.gov

Subject line: *"Comments on the mobile monitoring project"*

Hard copy:

DOEE Air Quality Division

ATTN: 2024 Mobile Monitoring Project

1200 First Street, NE, 5th Floor

Washington, DC 20002

Comments postmarked or received after Friday, April 19, 2024 will not be accepted.

Questions: AirQuality.Planning@dc.gov

