

“Clearing the Air” Workshop: This Year in DC’s Air

May 8, 2024

★ ★ ★ DEPARTMENT
OF ENERGY &
ENVIRONMENT

WE ARE
WASHINGTON
DC GOVERNMENT OF THE
DISTRICT OF COLUMBIA
MURIEL BOWSER, MAYOR

Air Quality Division's Mission

The Air Quality Division's mission is to protect the health and welfare of District residents, visitors, and the natural environment by reducing the concentration of pollutants in the outdoor air.

The Division issues permits, performs permit inspection and enforcement of laws, and monitors air quality while developing plans for its improvement.

How Does the Air Quality Program Work?



Today we will cover...

Air Quality Status and Trends

Monitoring Updates

Grants and Outreach Projects

Regulatory Updates

Permitting Updates

Compliance Priorities

Air Quality Status and Trends

Monitoring Updates








Grants and Outreach Projects

Regulatory Updates

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Compliance Priorities

National Ambient Air Quality Standards (NAAQS)

Pollutant	NAAQS	District's Status
Ozone	70 ppb	
Fine Particulates (PM _{2.5})	35 µg/m ³ (hourly) 9 µg/m ³ (annual)*	
Coarse Particulates (PM ₁₀)	150 µg/m ³	
Carbon Monoxide	35 ppm & 9 ppm	
Nitrogen Dioxide	100 ppb & 53 ppb	
Sulfur Dioxide	75 ppb	
Lead	0.15 µg/m ³	

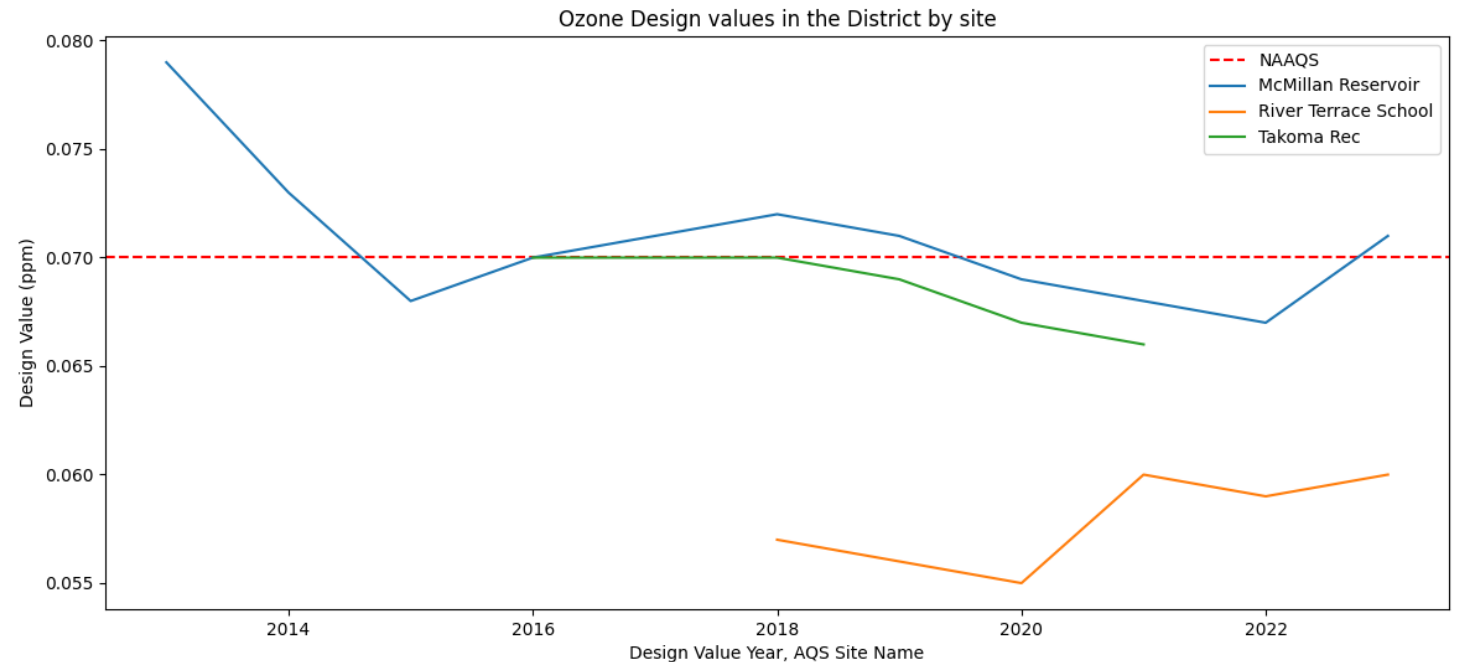
Source: <https://www.epa.gov/criteria-air-pollutants/naqs-table>

Ozone Design Value Trends from 2013-2023

Over the past decade, we've observed a noticeable **decrease in our ozone levels**.

This trend indicates ongoing improvement in air quality and demonstrates the effectiveness of current strategies to reduce ozone levels in the District.

Slight uptick in 2023 associated with high values during wildfires.



Wildfire Smoke – an “Exceptional Event”

An *'exceptional event'* refers to an unusual and uncontrollable incident or event that significantly affects air quality but is not typical of the day-to-day air quality conditions.

- The District Department of Energy and Environment (DOEE) submitted two exceptional event documents to the EPA for ozone exceedances in June 2023.
- Our analysis determined that these events were caused by factors beyond the District's control, specifically linked to the Canadian wildfires.
- If concurred with, these events will be excluded from our design value, aiding the District in meeting ozone NAAQS



A picture taken by a resident of the District that shows early morning traffic on the day of the event. The view of the Capital is impaired because of the smoke.

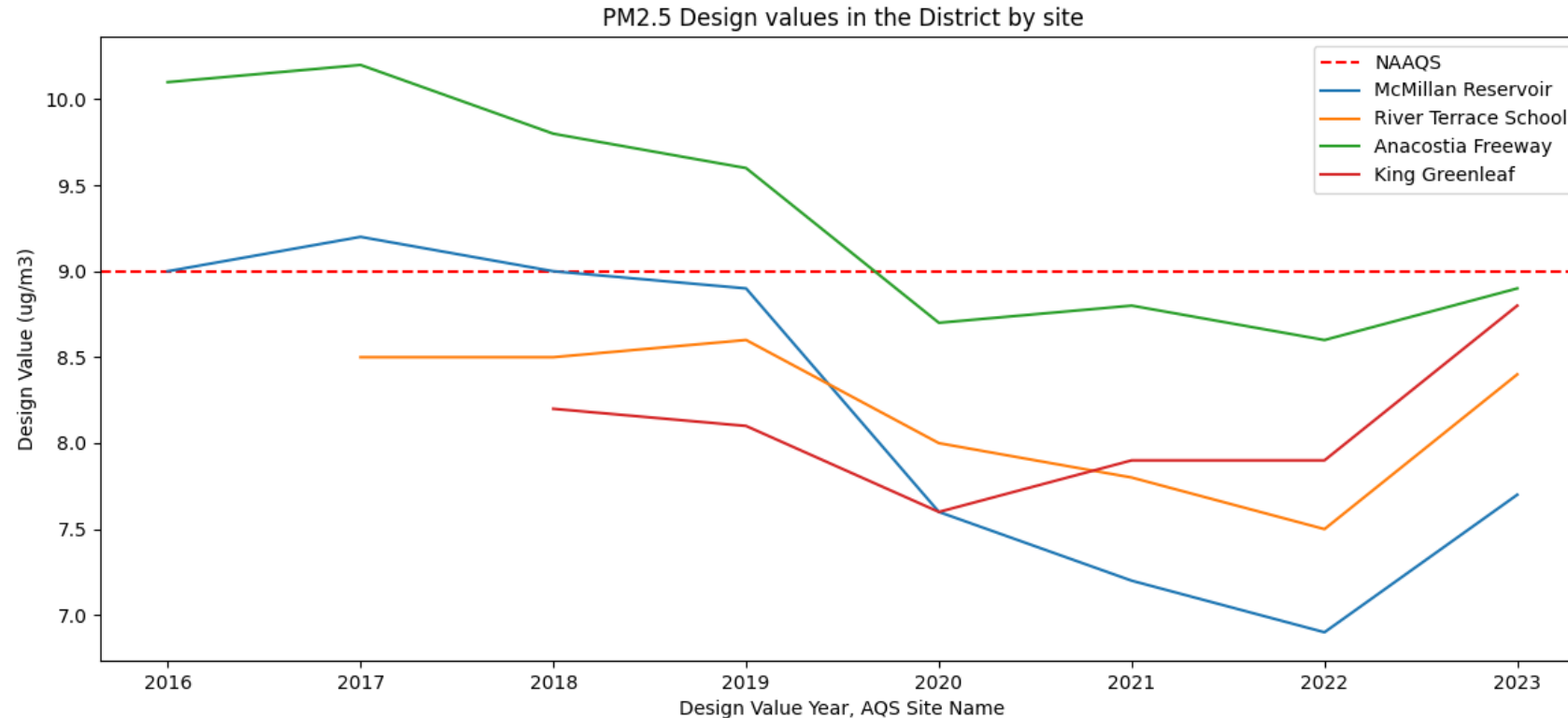
New Federal Standard for PM2.5

As of May 6, 2024, the U.S EPA has updated the Air Quality Index (AQI) to reflect new pollution standards that are more protective of human health.

- The annual standard for fine particulate matter (PM2.5) has been strengthened from 12 $\mu\text{g}/\text{m}^3$ to 9 $\mu\text{g}/\text{m}^3$.
- This change is designed to improve air quality and reduce health risks associated with air pollution.
- Current data points to the District being compliant with the stricter NAAQS

AQI Category and Index Value	AQI Breakpoints: Old NAAQS	AQI Breakpoints: New NAAQS	What changed?
Good (0-50)	0.0 to 12.0	0.0 to 9.0	EPA updated the breakpoint between Good and Moderate to reflect the updated annual standard of 9 micrograms per cubic meter.
Moderate (51-100)	12.1 to 35.4	9.1 to 35.4	
Unhealthy for Sensitive Groups (101-150)	35.5 to 55.4	35.5 to 55.4	No change
Unhealthy (151-200)	55.5 to 150.4	55.5 to 125.4	EPA updated the breakpoints at the upper end of the unhealthy, very unhealthy, and hazardous categories based on scientific evidence about particle pollution and health.
Very Unhealthy (151-200)	150.5 to 250.4	125.5 to 225.4	
Hazardous (151-200)	250.5 to 350.4 and 350.5 to 500	225.5+	

PM2.5 design value trends from 2016-2023



Even with the strengthening of the Annual NAAQS for PM2.5, the District is still within attainment for PM2.5.

Air Quality Status and Trends

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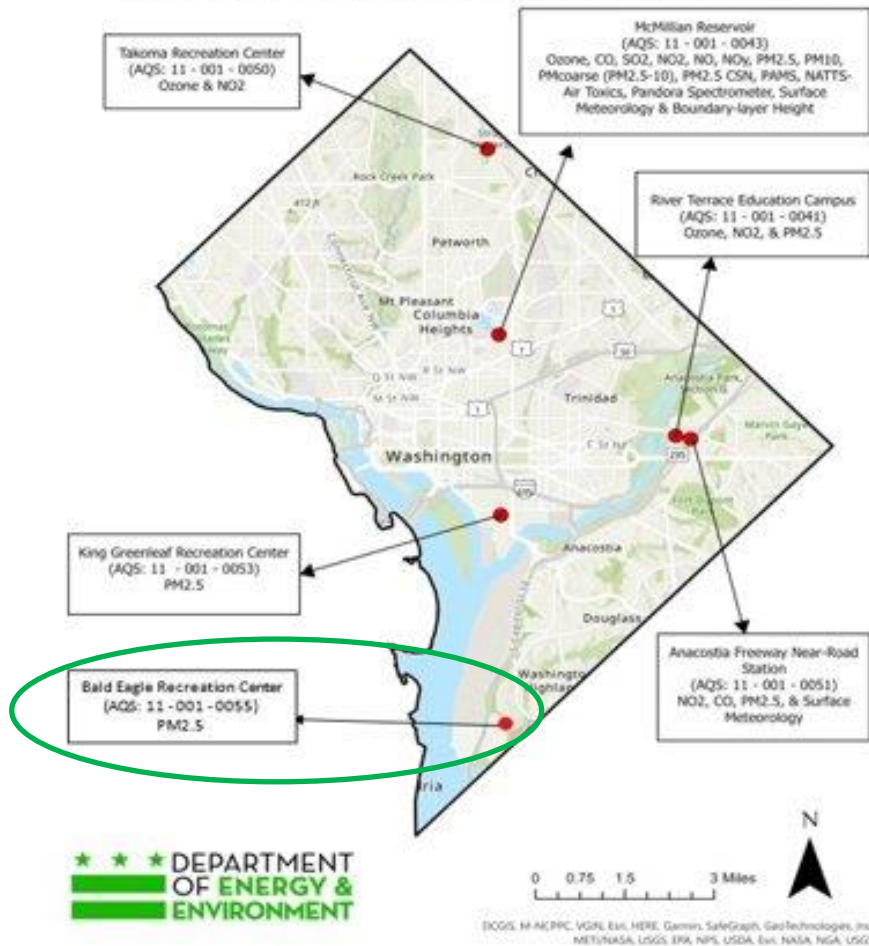
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Expanding our Federal Monitoring Network

Washington DC's Ambient Air Monitoring Network



In 2024 we installed a new FRM/FEM monitor in the Bellevue neighborhood of Ward 8, an environmental justice community in the District.

- Funding provided by EPA through ARPA.
- Two meetings held in 2023, survey conducted, as well as email discussions with community members
- Location was chosen with community input

Measures PM_{2.5}

Takoma Rec Monitor Back in Action

- In 2022, our Takoma Recreation center site went offline for maintenance and has been brought back on as of April of 2024.
- Here we measure Ozone and NO_x (oxides of Nitrogen).
- We are able to measure these pollutants near the Maryland border



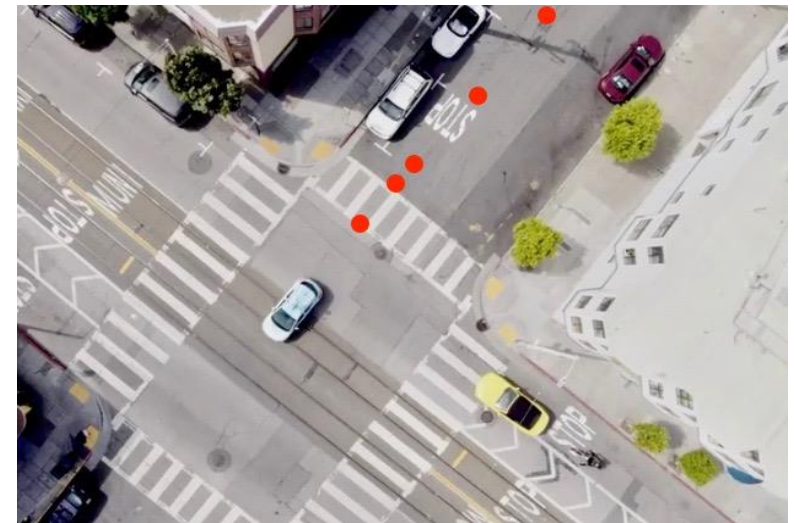
DOEE Community Air Monitoring Initiative

In 2023, DOEE began work on a hyperlocal mobile air quality monitoring project with technology company Aclima that provided block-by-block information on air pollution and GHGs. Using their mobile monitoring technology, Aclima collects and maps a variety of air pollutants and greenhouse gases (GHGs).

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.

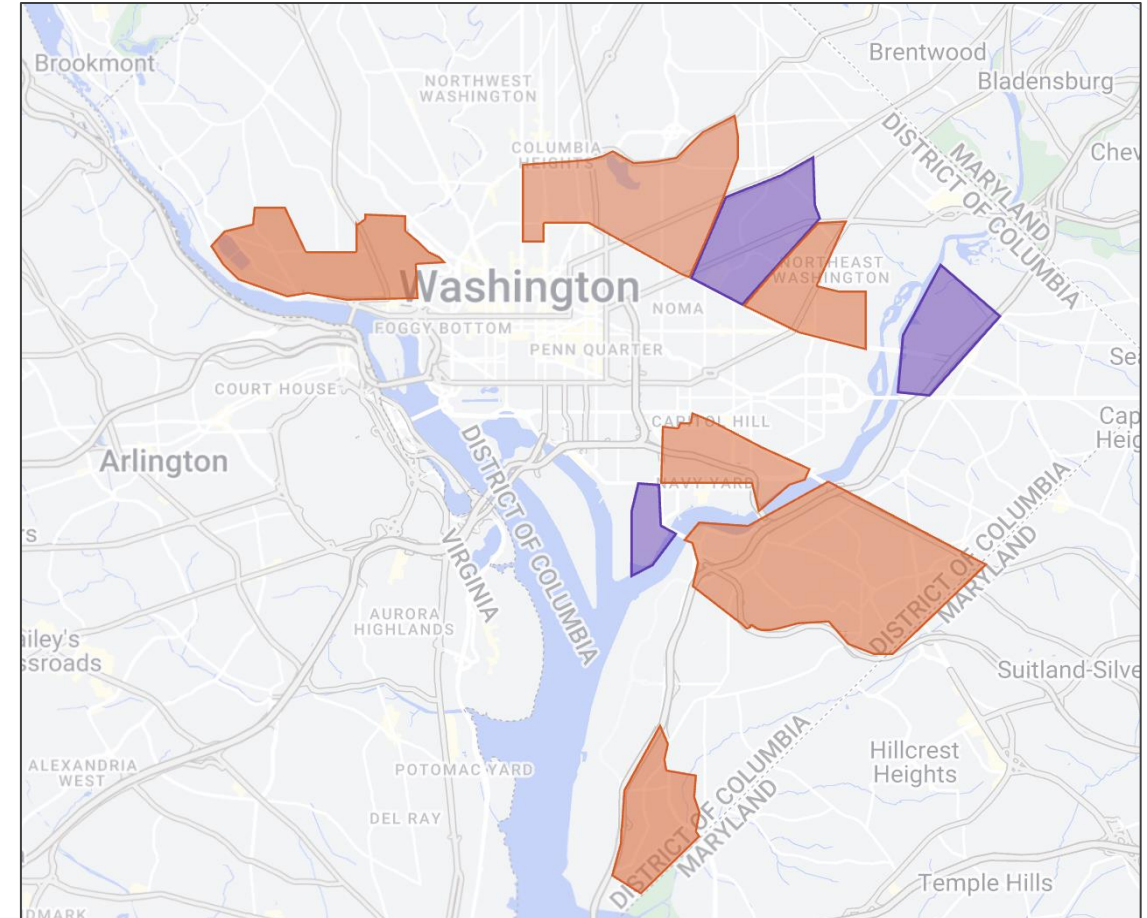
Data collected every 1-second and assigned to a ~100m road segment based on the location (latitude and longitude) of the data point.



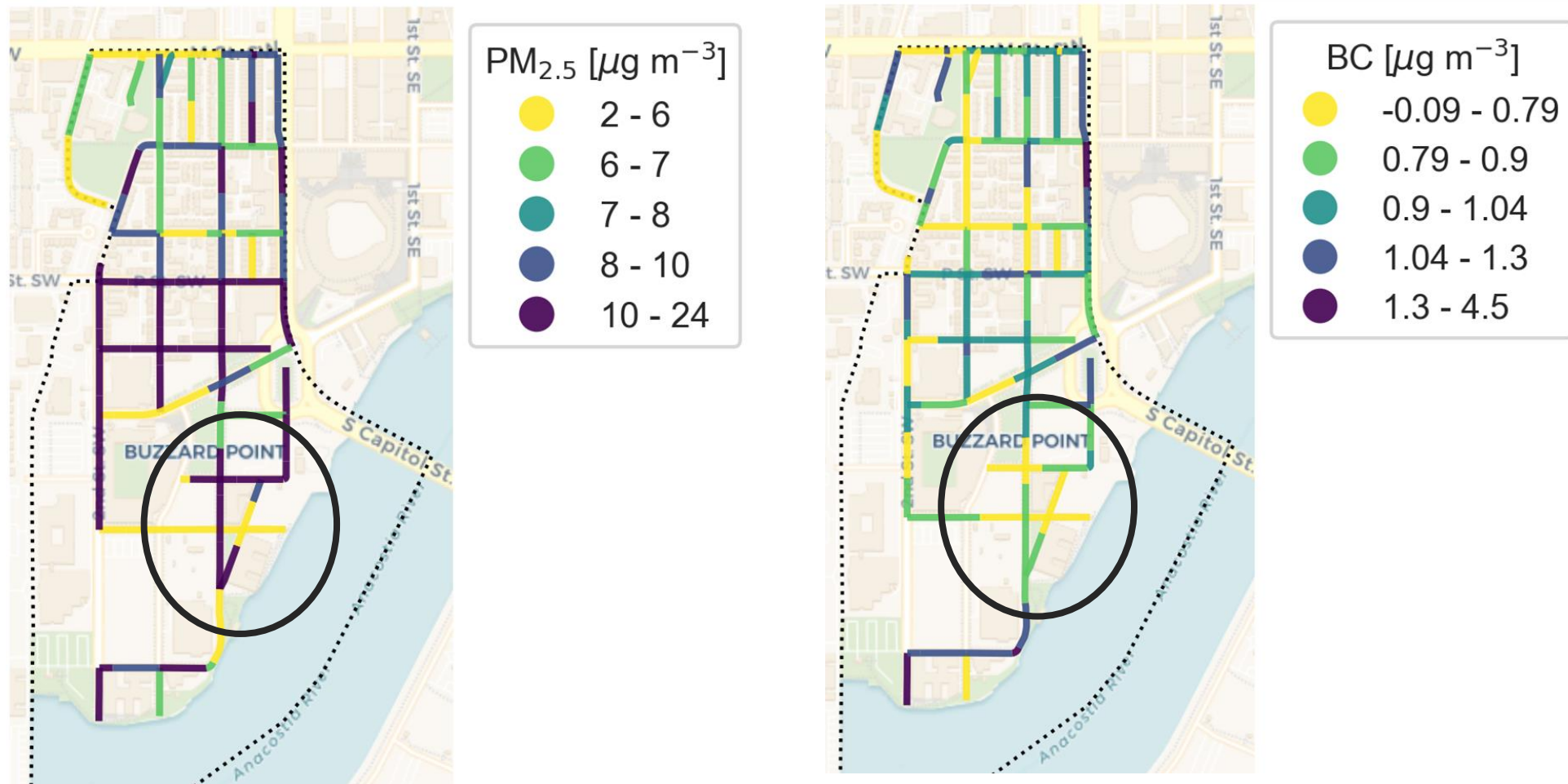
1 second data points as red dots aligned to the route of the car.

Hyperlocal Monitoring

- Phase 2: May - July 2024
- Neighborhoods:
 - New: Georgetown, Eckington/Howard/Edgewood, Trinidad/Carver, South Capitol Hill, Greater Anacostia, and Bellevue
 - Repeat: Ivy City/Brentwood, Mayfair, and Buzzard Point
- Most neighborhoods chosen due to their history of disproportionate exposure to environmental hazards.
- Measurements will include:
 - CO₂, fine PM, NO₂, CO, O₃, black carbon, and TVOCs.



Example of Hyperlocal Monitoring in Action: 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**.

Low-Cost Sensor Network

Sensor Procurement

- Recently deployed Clarity and Purple Air sensors into various communities, following a year of study at our McMillan Reservoir site
- Acquired 39 new Purple Air sensors, including 3 with VOC capabilities.
- Initiated the procurement of approximately 50 additional LTE-enabled devices to expand the program.

Goals

- Better understand exposure to air pollution in overburdened communities, especially impact on students
- Examine use in source determination

Have also researched handheld devices, such as Plume Lab and Atmotube. We typically use these for science communication and community outreach.

Deployable Sensors



Clarity Node Sensors



Purple Air Sensors

Handheld Sensors



Plume lab



Atmotube Pro

Testing Soon



QuantAQ
Modulair PM



Purple Air Flex
(VOC)

Upcoming IRA Funding



DOEE is applying for IRA funding to expand its low-cost sensor network and invest in a mobile monitoring van

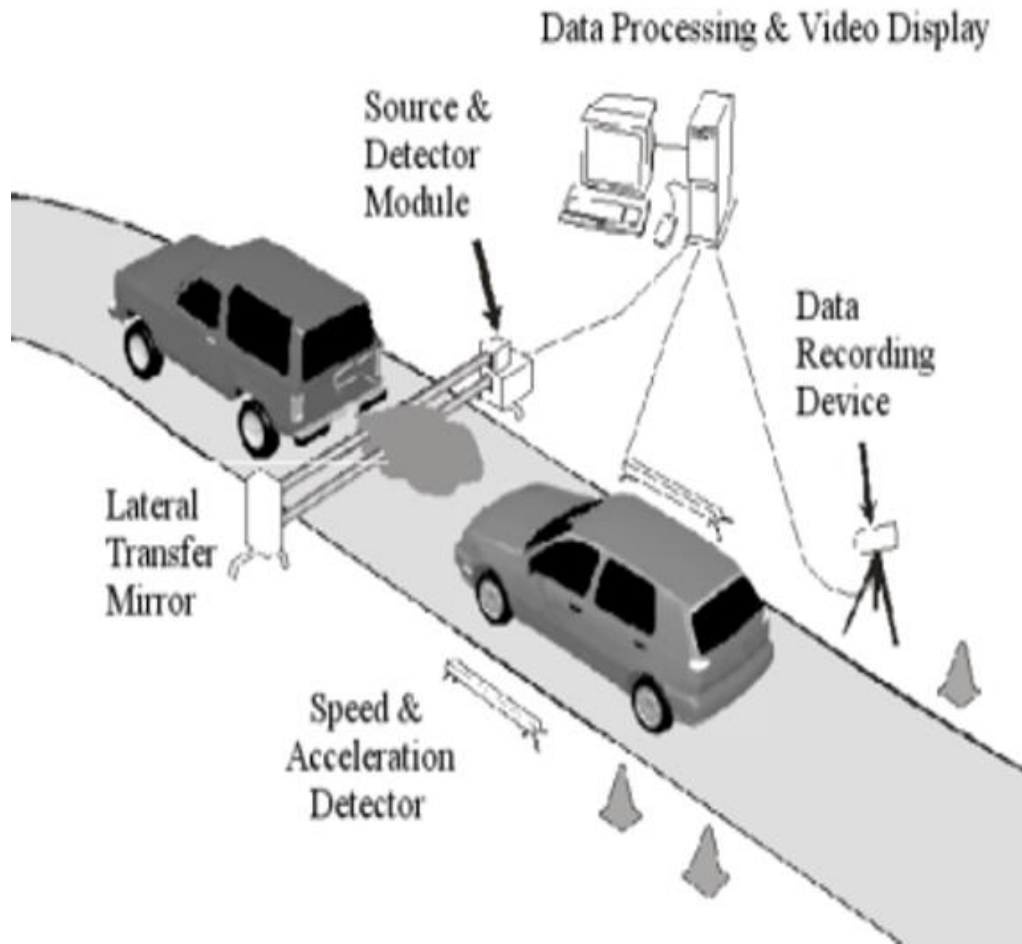


Funding will purchase LTE enabled sensors and equipment for mobile monitoring van



Sensor to be placed in disadvantaged communities to measure local air quality and van will be able to move throughout the District to where data is needed

Remote Sensing Devices



DOEE is bringing vehicle Remote Sensing Devices (RSD) to the District

What is an RSD?

- Measures vehicle emissions in real, everyday driving conditions as vehicles accelerate onto a highway.
- Uses ultraviolet and infrared light technology to capture pollutant levels, license plates, speed, and acceleration

Needed to meet Federal requirement to demonstrate the District's emissions inspection program run by DMV is sufficient, but we have been relying on data collection of District drivers in VA

We are focusing on collecting info on vehicles driving in overburdened communities

Expect to see RSD set up near several highways in Wards 5-8 this summer

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Enhanced Air Quality Monitoring Grant

DOEE received a competitive EPA grant under the American Rescue Plan for Enhanced Air Quality Monitoring

Subgrant goals:

- Increase public participation in District-wide air quality decisions
- Empower residents to be better advocates regarding air quality issues

We're in the process of awarding this grant!

Enhanced AQ: Air Quality Advisory Board



Membership will reflect Wards 1, 4, 5, 6, 7, and 8 and include air quality and health technical experts



Will convey community air-related experience and work to enhance community air-related communications with DOEE



Will advise DOEE on new online air quality data mapping tool, the location for three new air quality sensors, and help conduct community outreach and engagement

Enhanced AQ: New Air Quality Monitors



DOEE is purchasing three new “Village Green Park Bench” monitors to monitor PM2.5 and Ozone



AQAB will advise on locations for new monitors in overburdened communities

Enhanced AQ: Online Air Quality Mapping Tool

Display and send out
air quality alerts

Communicate AQ data
from DOEE's existing
monitoring network
and community air
monitors

Display results from
mobile hyperlocal
monitoring project

Feature videos of
District residents'
experience with air
quality

Additional input from
AQAB

Enhanced AQ: Filming Residents' Stories

Why Stories?

- Provide context to air data
- Show how people experience environmental injustice
- Give residents tools to amplify their voices and their experiences

Clean Air Act IRA Funding

Expand Air Ambassador Program

Community Outreach to CBOs, ANCs and Faith-based Organizations

DC Air Researchers Consortium

Air Ambassador Program Goals

Increase AQ awareness in overburdened communities by creating a train-the-trainer program to educate residents

- On air quality issues
- How to advocate for themselves

Develop relationships with community members for future engagement

Air Ambassador Activities



In this workshop, Air Ambassadors will get learn about outdoor air contaminants, where they come from, and how they affect our health.

In 2023:

Subgrantee created trainings on air quality and gave trainings to Ambassadors

Air Ambassadors gave five workshops in their communities on air quality

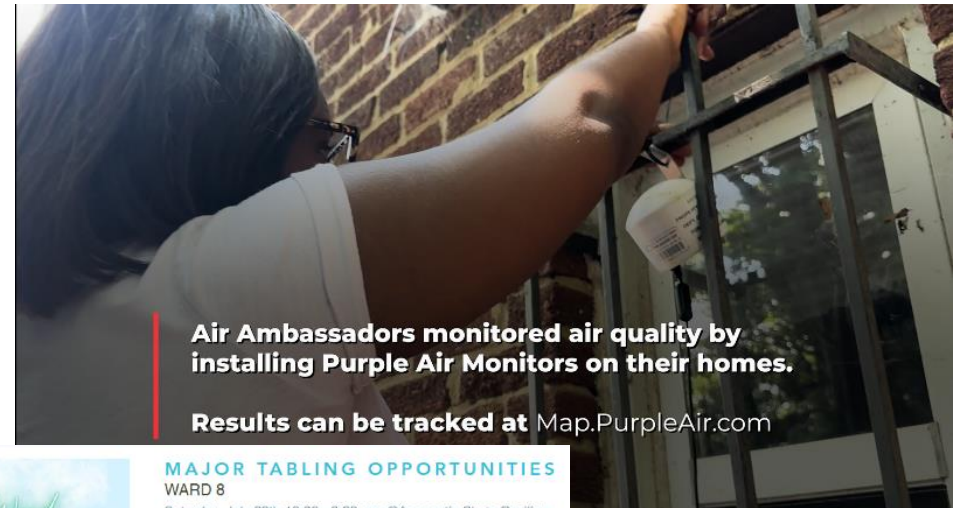
Workshop on policy and solutions

Compensation - Ambassadors earned up to \$500, based on participation in the program (approx. 20-25 hours)

Originally funding under Multi-Purpose Grant

Other Ambassador Activities

- Purple Air monitors installed by Ambassadors
- Community walks with handheld monitors
- Tabling and flyering at community events



Air Ambassadors monitored air quality by installing Purple Air Monitors on their homes.

Results can be tracked at [Map.PurpleAir.com](https://map.purpleair.com)



In this workshop, each Air Ambassador will table at at least one event to promote environmental awareness.

MAJOR TABLING OPPORTUNITIES

WARD 8

Saturday, July 29th 10:30 - 3:30 pm @Anacostia Skate Pavilion
DC Environmental Justice Coalition presents
*Take Back Our Earth! Scavenger Hunt at Late Skate

Saturday, August 19th 12 - 4 pm @Ballou High School, SE
Resource The Block: Back To School

Saturday, August 19th 2 - 7 pm @1640 Good Hope Rd SE
Turn Up The Wage (bring chair)

Wednesday, August 23rd 12 - 4 pm @Park Chester
Resource The Block

Wednesday, August 30th 12 - 4 pm @Marbury Plaza
Resource The Block

WARD 5

Saturday, August 26th 9 am - 12 pm @Turkey Thicket
Ward 5 Day

WARD 7

Saturday, August 26th 11 am - 3 pm @Kelly Miller Middle School
Dreaming Out Loud Farmer's Market

Expanding the Air Ambassadors

Additional funding from EPA IRA Grant to continue 2023 program

Will award funding for this in early summer

Low-cost sensors project with Ambassadors

Ambassadors to provide additional input to DOEE

More Ambassadors from more neighborhoods

Wider community engagement

Air Researchers Consortium

DOEE is developing a regional working group, comprised of local atmospheric and climate scientists, to address air quality and environmental justice issues in the District. The group is funded by an EPA grant.

The Consortium will:

- Share research
- Improve communications between the District government and scientists.
- Keep District government officials in keeping up to date on air quality research to inform and improve decision making
- Address gaps in existing research that affect District residents
- Meet quarterly

Diesel Vehicle Electrification Projects



Amtrak Switchers

- Two switchers are being repowered to clean Tier 4 engine standards. We expect them to return in 2024 and to be 95% cleaner.
- RFA out now to manage repowering of up to three additional switchers.



Street Sweepers (DEAL Program)

- Recently finished partnership with DPW to electrify three street sweepers.



University Shuttles (PF-DEAL Program)

- Issued grants to Gallaudet and Georgetown to electrify one shuttlebus each.



Next Steps

- A second issuance of applications for PF-DEAL electrification program
- Partnerships on electrification with DPW, FEMS, and other agencies
- Seeking continued funding, including Clean Heavy Duty Vehicle Program

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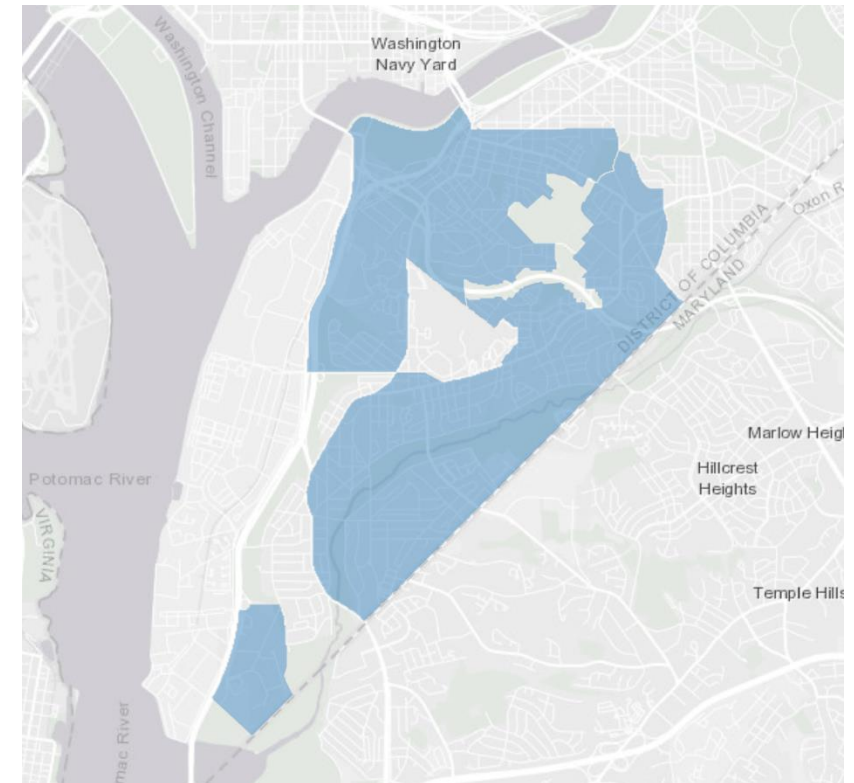
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Removing Some Exemptions for EISFs

- Environmental Impact Screening Form (EISF) is a first step to determine if further environmental review is necessary
- The EISF gives a preliminary look at the potential environmental impacts of a project.
- DOEE removed an exemption to requiring EISF in Economic Development Zones, which were solely in overburdened communities in Wards 7 and 8



New Requirements for Odor Control Plans

- The rulemaking requires sources submit an OCP in three (3) circumstances:
 - 6 source categories 1) cannabis production; 2) certain types of painting operations; 3) trash transfer stations; 4) asphalt processing; 5) wastewater treatment; and 6) commercial solid fuel-fired cooking operations;
 - DOEE receives complaints from 3 or more households or businesses within 30 days, and an investigation verifies the suspected source of the odor.
 - DOEE measures odors from a source using the olfactometer at a specified ratio.
- OCP will demonstrate controls and policies to reduce odor and must be approved by DOEE.
- You can stay up to date with processing of OCP's here:
<https://doee.dc.gov/service/odor-control>

Adopting California's Advanced Clean Cars 2

- States have the option under the Clean Air Act to adopt emission standards for new vehicles set by CA
- CA calls their standards Advanced Clean Cars (ACC)
- DOEE adopted CA's ACC 2 standards
 - Program will begin for MY 2027
 - Phases in share of newly registered new vehicles that are zero emission until reaching 100% for MY 2035
 - Prior to MY 2035 newly registered new gasoline vehicles will meet stricter air pollution standards
 - Does not affect registering used cars

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Incorporating EJ the Permitting Process

- Using hotspot monitoring data to communicate with regulated entities during permit drafting
- Increasing community awareness during public comment periods for draft permits in overburdened communities
 - Creating a plain English “fact sheet” for specific permits
 - Offering informational sessions to explain new permit conditions to the public

High Priority Permits up for Renewal



Fort Myer Plant 1 (Eckington)

- Public comment period (after extension) closed on March 25, 2024
- Received hundreds of public comments
- Currently reviewing comments



Fort Myer Plant 2 (Brentwood)

- Draft permit in progress



Vulcan/Virginia Concrete (Buzzard Point)

- Draft permit should be published in the next few weeks

National Engineering Products (Ivy City)

- Submitted Odor Control Plan on February 28
- Submittal includes proposal for installation of odor control equipment
- DOEE is nearly complete with our review and will be taking action on the plan soon
- EPA is continuing air monitoring around the community and plans to share analysis this summer



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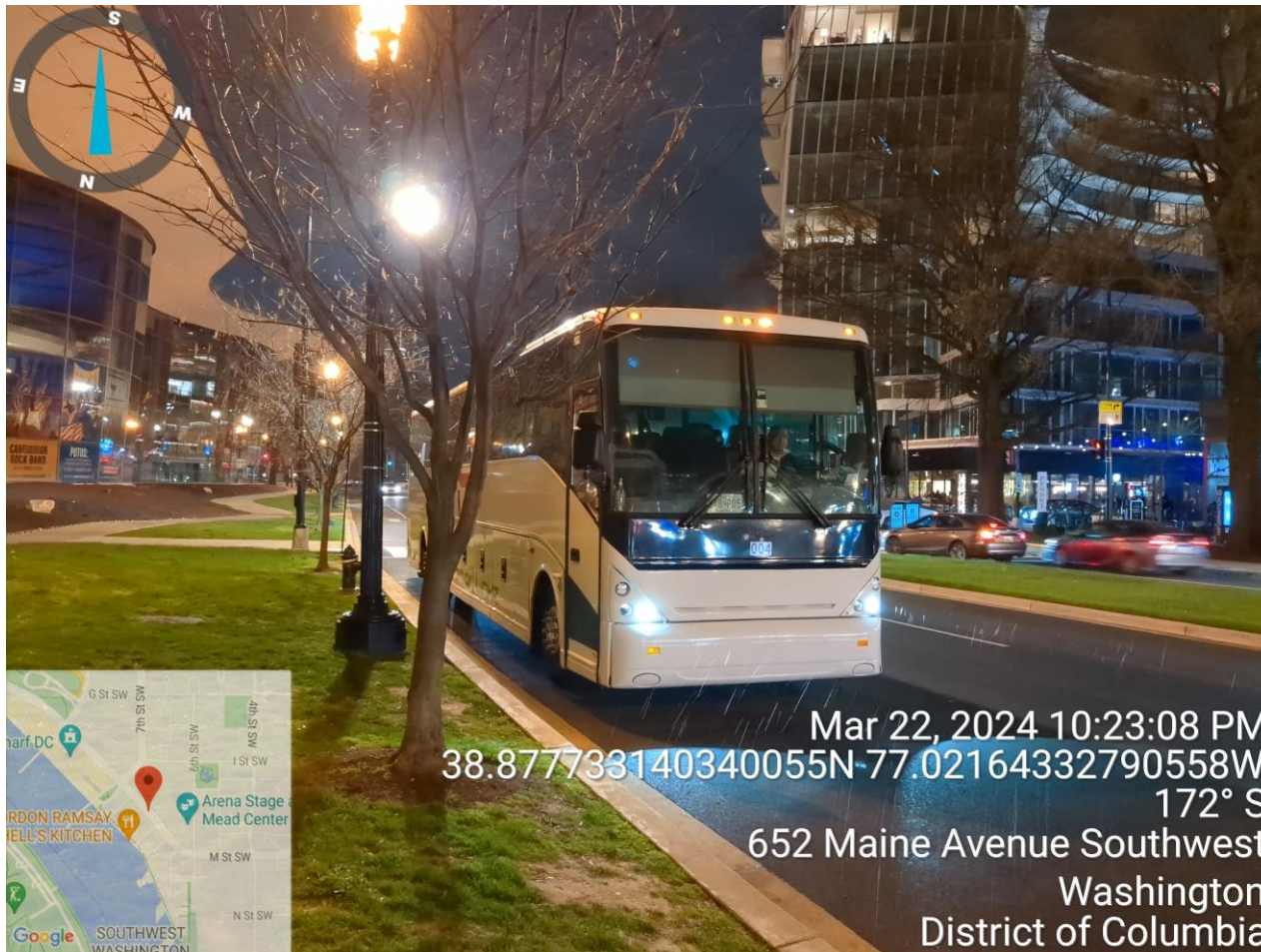
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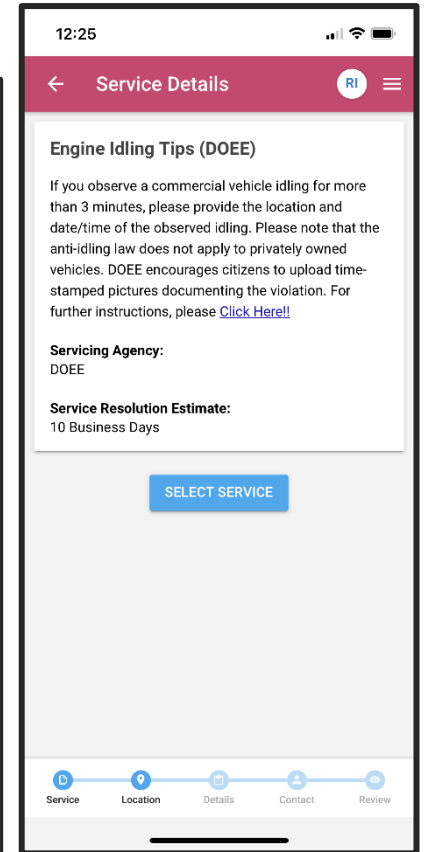
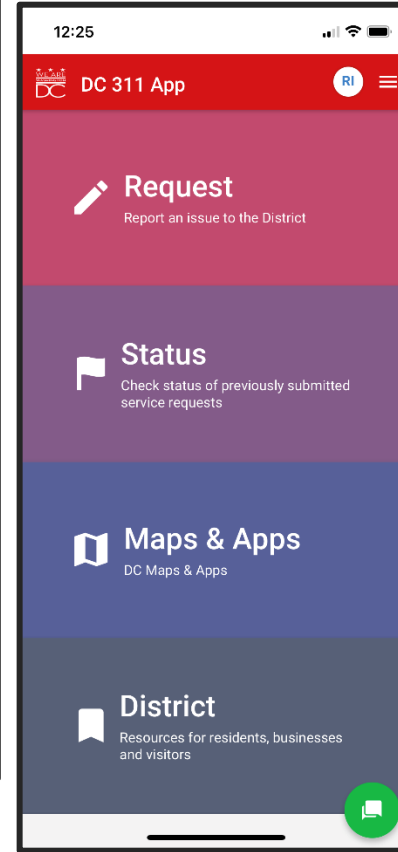
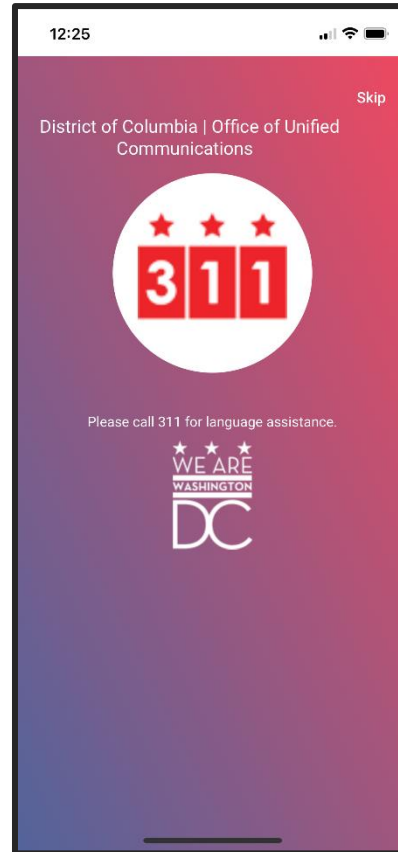
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Compliance Priorities

Increased Inspections for Engine Idling Enforcement



Quicker Turnaround for Community Enforcement



Fuller Implementation of Odor Control Regulations



Enhanced Scrutiny of Minor Sources of Air Pollution



<https://wesellfans.com/industries-served/auto-industry/paint-booth/>

Thank you!

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