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# Inequity in Air Quality: Exploring Solutions (Part 1)



EPA MID-ATLANTIC REGION 2022 SUMMIT

Working Together to Build a Better, More Equitable Region

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Meeting ID: 161 799 5585
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*This session is being recorded and will be made available after the summit.*

# Inequity in Air Quality: Exploring Solutions (Part 1)

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# EQUITY IN CLIMATE, ENERGY, AND AIR QUALITY PLANNING

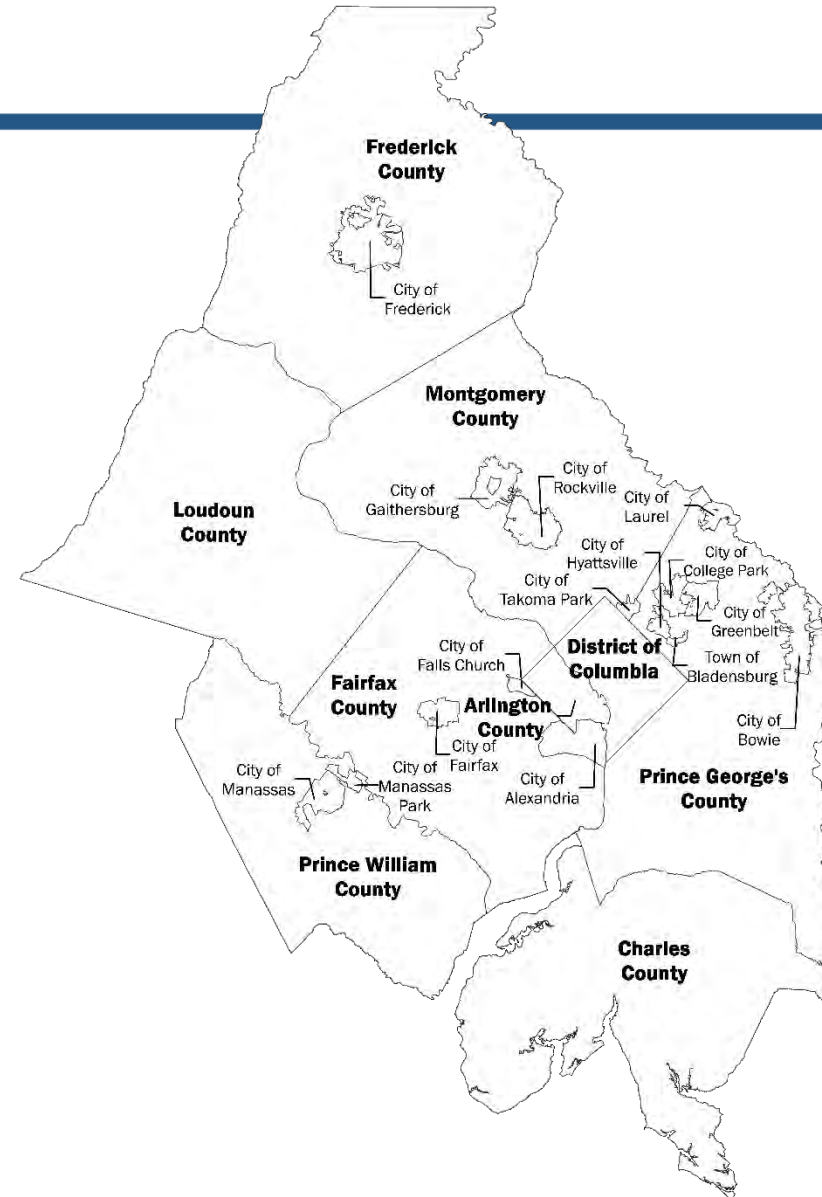
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Jeff King  
Director, Climate, Energy, and Air Program  
Department of Environmental Programs  
MWCOG

EPA Mid-Atlantic Summit  
May 25, 2022

# About COG

- An independent, nonprofit association founded in 1957.
- Brings area leaders together to address regional issues.
- 300 elected officials from 24 local governments, the Maryland and Virginia state legislatures, and U.S. Congress.
- Home of the TPB, the region's Metropolitan Planning Organization.
- 125+ staff.



# Addressing Equity at COG

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- In July 2020, the COG Board of Directors approved a resolution declaring equity a fundamental value
- The Board affirms that COG's work together as the Metropolitan Washington Council of Governments will be anti-racist and will advance equity; and
- The Board affirms that equity will be woven into COG's Region Forward Vision to ensure a more prosperous, accessible, livable, sustainable, and equitable future for all area residents and throughout COG's analyses, operations, procurement, programs, and priorities

# Equity in an Integrated Multi-Sector Planning Framework for 2030

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- Four planning priorities for the next decade related to equity, transit and land use, housing, and climate change
- Planning Area: Equity Emphasis Areas (EEAs)
  - Originally developed by the Transportation Planning Board to analyze potential impacts of long-range transportation planning, March 2017
  - Represents 350 of 1,200+ census tracts with high concentrations of low-income individuals and/or racial and ethnic minorities
  - Broadened to elevate equity and inform future growth and investment decisions in other programmatic areas – housing, energy, food systems

# COG Board Planning Priorities

“If the challenges are interrelated, so are the solutions.”

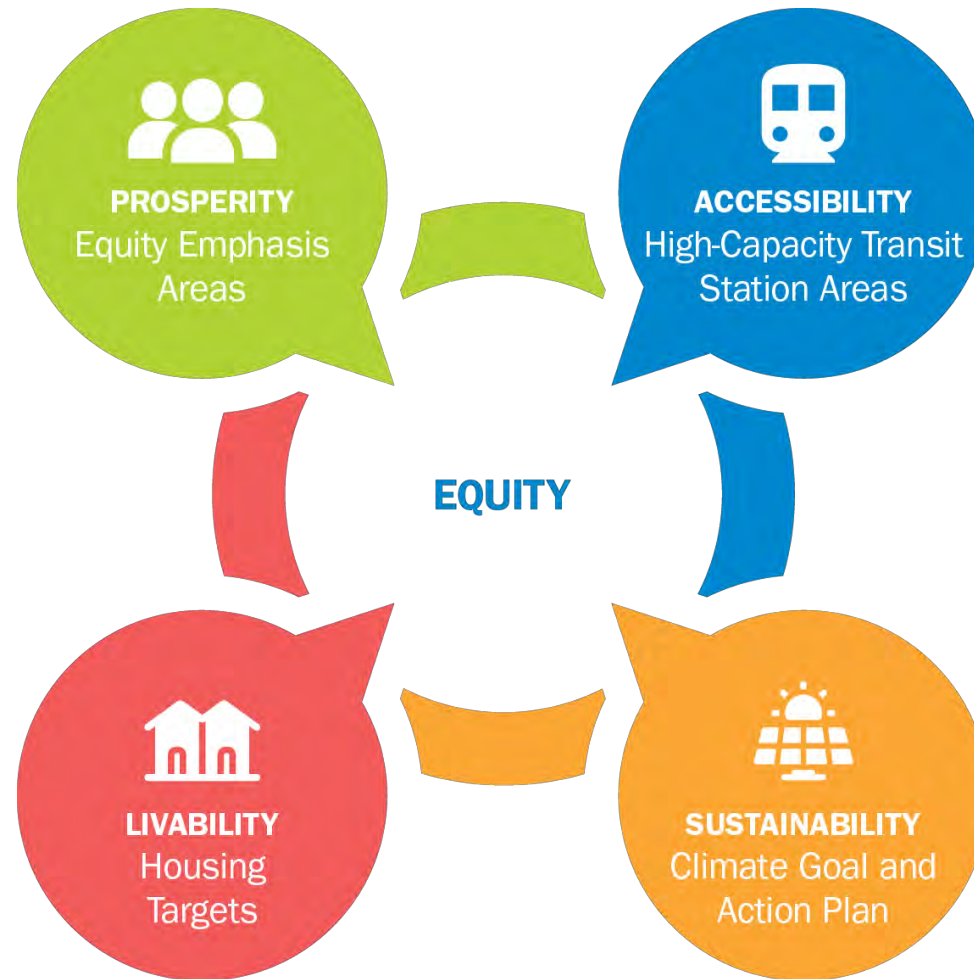
1. Housing Targets (2019)
2. Climate Goal & Action Plan (2020)
3. High-Capacity Transit Station Areas (2021)
4. Equity Emphasis Areas (2021)

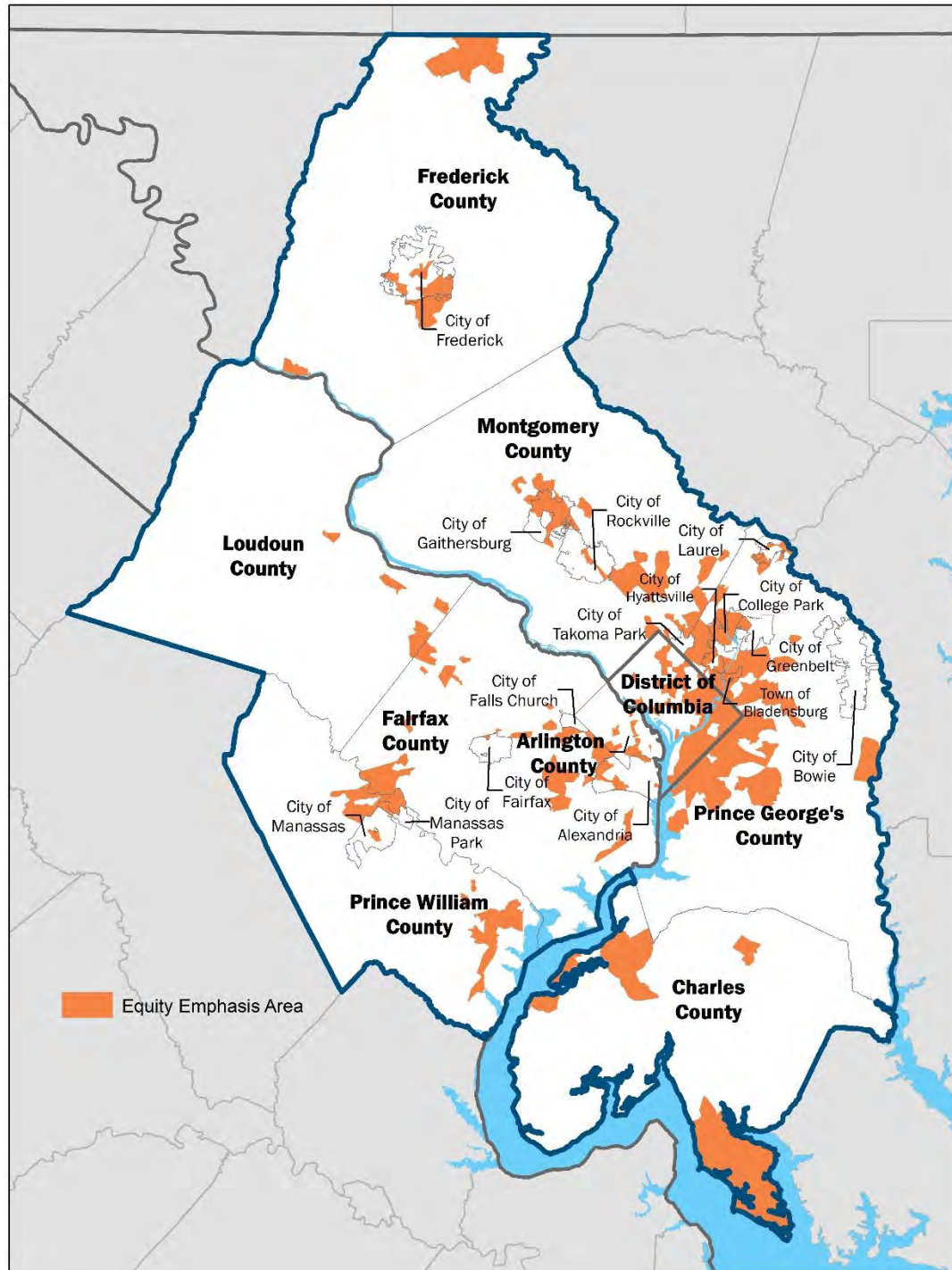


West Falls Church rendering (WMATA)



# Framework for 2030





# Elevate 350 Equity Emphasis Areas (EEAs)

Areas with high concentrations of underserved residents.

[mwcog.org/equityemphasisareas](http://mwcog.org/equityemphasisareas)



# Broader Application of EEAs

- EEAs to be used broadly in local/regional planning activities:
  - Housing
  - Community Planning
  - Health
  - Public Safety
  - Transportation
  - Climate and Energy
  - Education
  - Economic Opportunities



Virginia Commonwealth University: Health Equity Brief for COG

# Equity In Climate, Energy, and Air Program

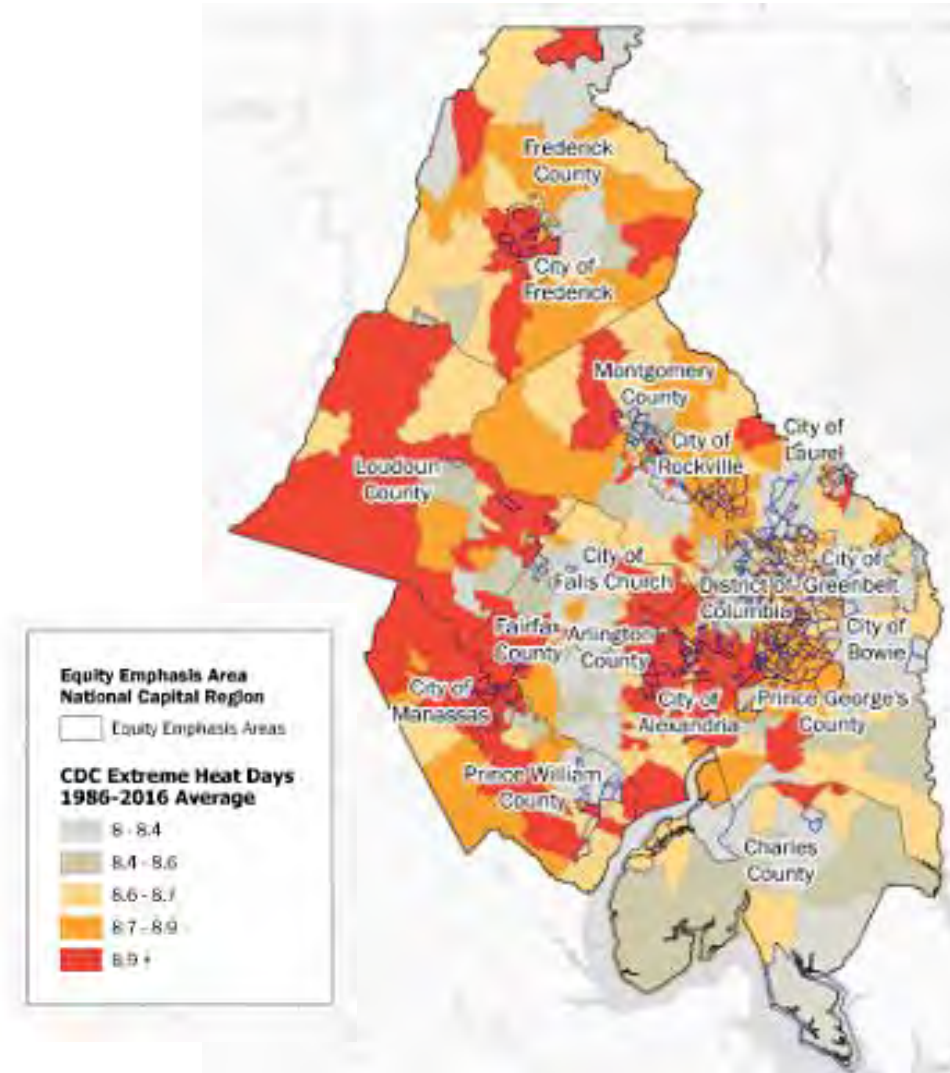
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- [Environmental Justice Tool Kit](#), 2017
  - Guidance to policymakers on incorporating social, cultural sensitivity, and community health considerations into air quality, climate, and energy planning
- [2030 Climate and Energy Action Plan](#)
  - 35 collaborative actions (25 mitigation + 10 resilience) for area governments and partners
  - Equity woven throughout all the actions, 4 specific “equity actions”.
  - Mapping EEAs: identify energy burden and support equitable access for EV charging in underserved communities. Address Heat Islands, Flooding, and Sea Level Rise

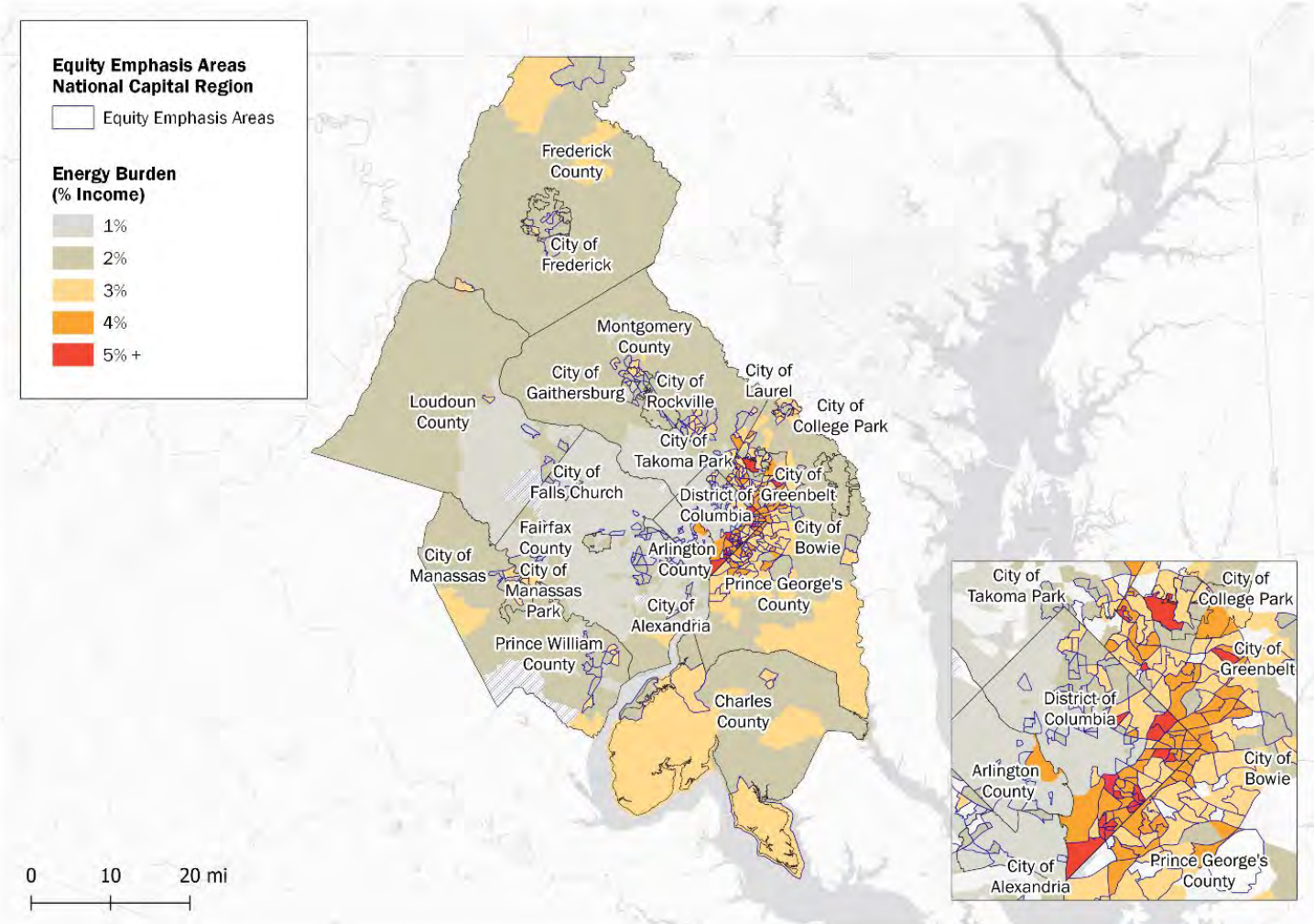


# EEAs & Climate Planning

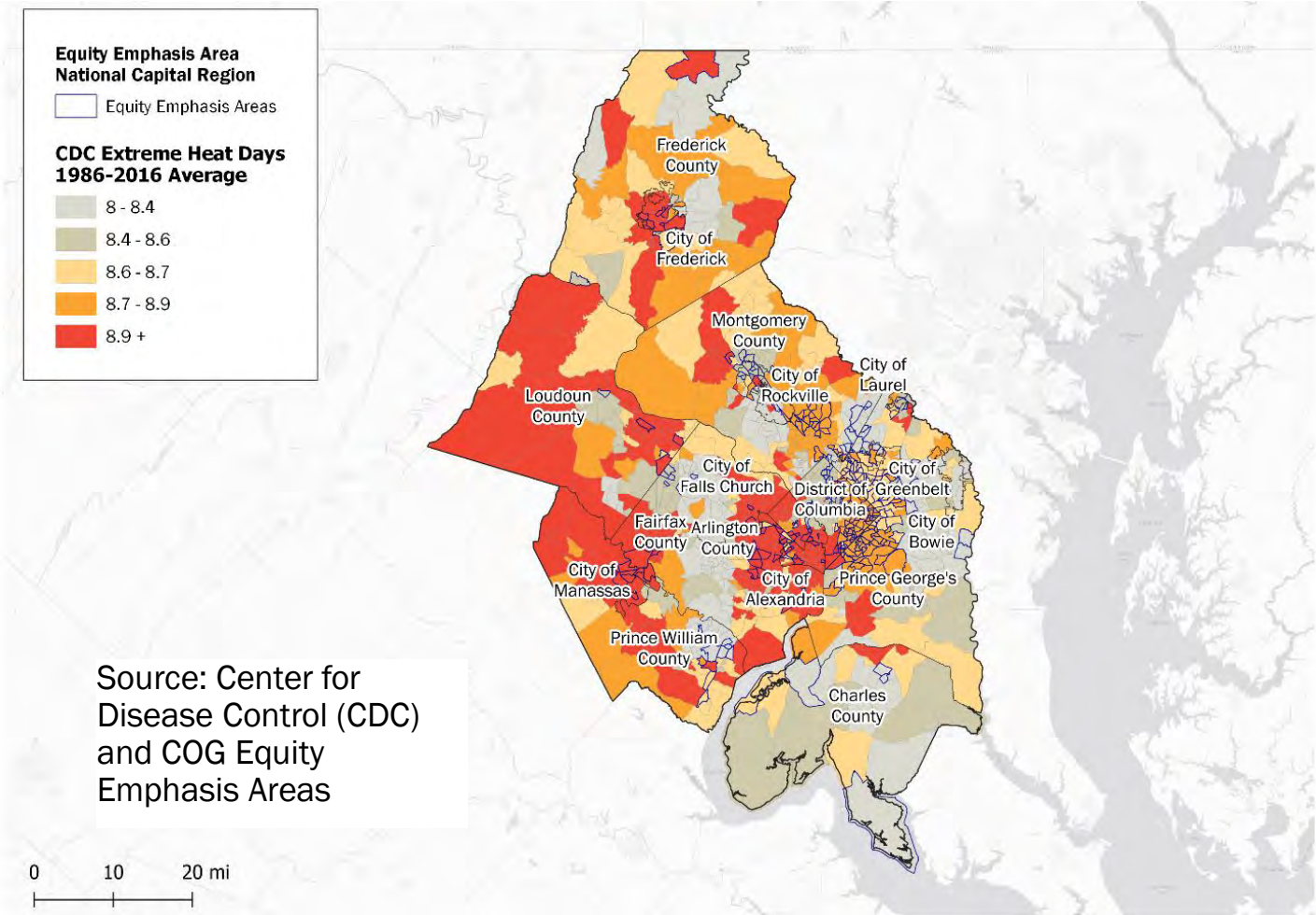
- COG using EEAs as part of climate planning work.
  - Energy burden/extreme heat days
  - Tree canopy
  - Electric vehicles charging infrastructure
  - Flooding and Sea Level Rise



# EEAs and Energy Burden



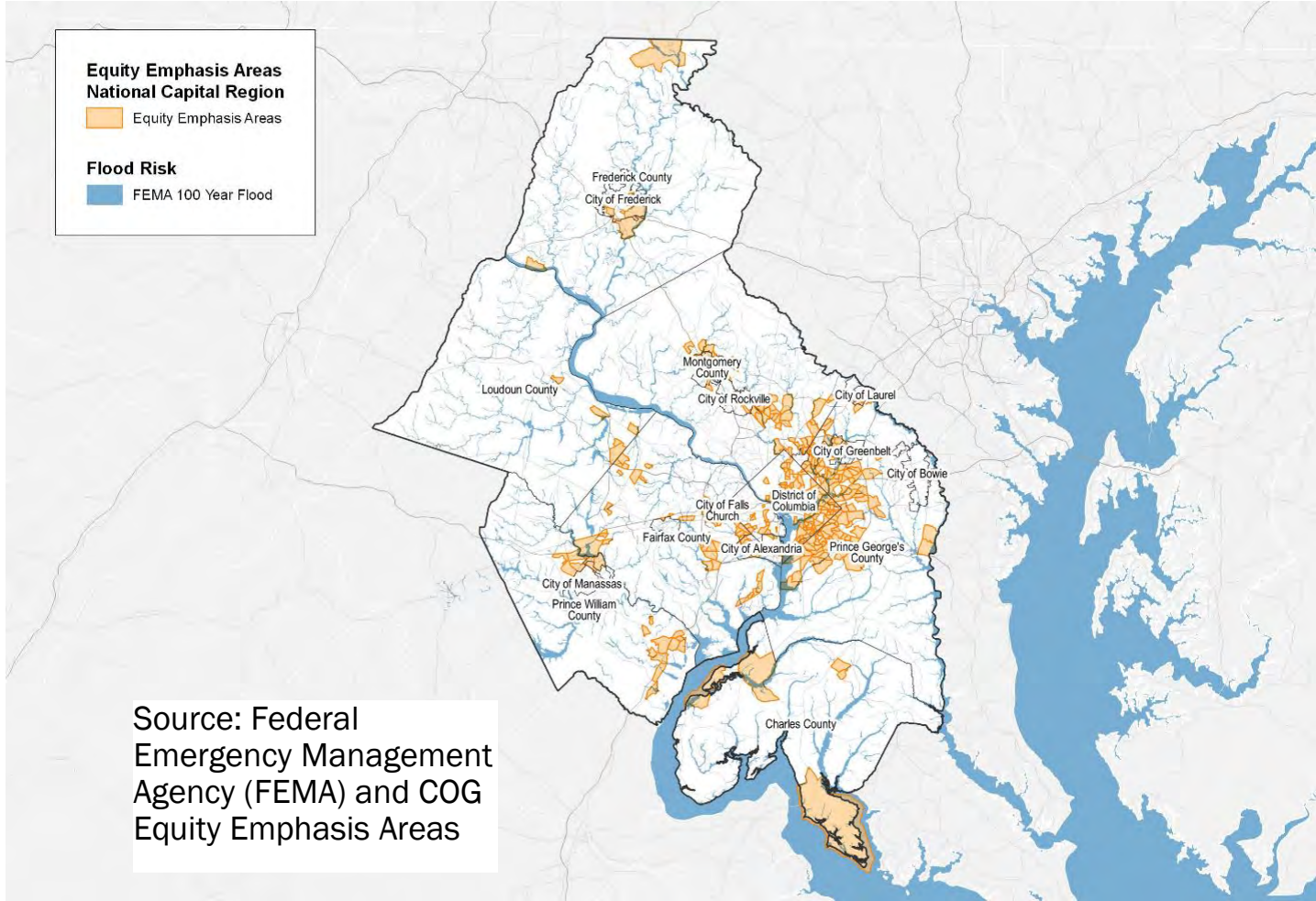
# EEAs and Extreme Heat



Source: Center for Disease Control (CDC) and COG Equity Emphasis Areas



# EEAs and Flash/Riverine Flooding





# Public Health

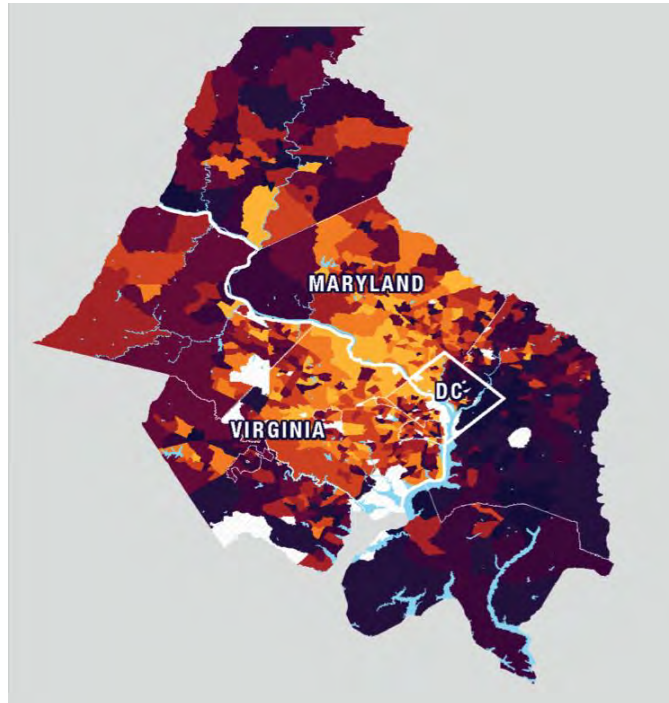
# Mapping Health Disparities Across the Region

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- *Region Forward* Health Goal
  - “We seek communities in which every person enjoys health and well-being.”
- COG Health Officials Committee
  - Commissioned a study by Virginia Commonwealth University to examine health at the census tract level, focusing on life expectancy and the factors that shape health.

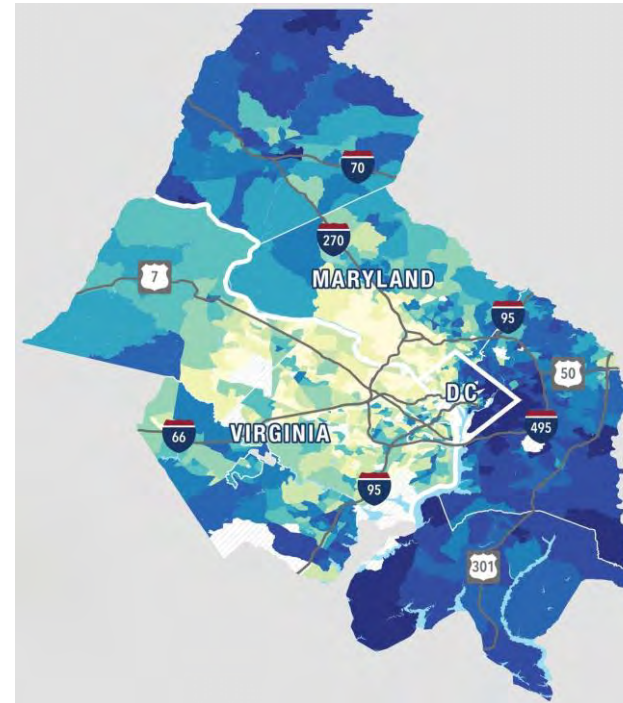
# Study Confirmed Geographic Disparities

Life Expectancy (LE)



**LE:** Avg # of yrs that a newborn can expect to live in a given area based on prior mortality patterns observed in that area

Healthy Places Index (HPI)

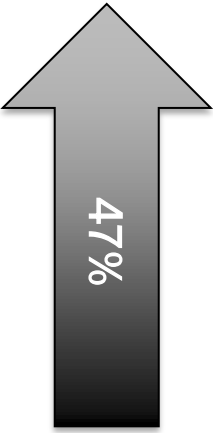


**HPI:** Composite index of 48 indicators across domains. *Correlates with EEAs.*

# Influencing Factors



Race-Ethnicity  
& Immigrant  
Status



Nearly half (47%) of the variation in health across census tracts in the region was associated with racial inequities.

# Looking Forward

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- EEAs becoming part of region's planning vocabulary.
  - Equity lens for planners to identify needs/assess progress.
  - Resource for area policymakers, partner organizations.
  - Selection criteria for COG/TPB grants and technical assistance.

# Other COG Equity Initiatives

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- Government Alliance on Race and Equity (GARE) Cohorts
  - Launched in partnership with COG, 2019
  - Regional learning cohort of local government staff to advance racial equity and opportunities
- Racial Equity Learning Series
  - Four-part training series for elected officials, May-Sept. 2022
  - Series includes an examination of policies and practices from a racial equity perspective, provides definitions of key terminology
- Chief Equity Officers Committee
  - Formed in 2021
  - Purpose: to advance racial equity within COG programs, committees, and member jurisdictions, and regionally

## Jeff King

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Metropolitan Washington  
**Council of Governments**



**Maryland**  
Department of  
the Environment

# Addressing Air Issues in Environmental Justice Areas in Maryland

*The Community Partnership and Action Plan  
in and around Cheverly MD ... as an Example*



May 25, 2022 – EPA Mid-Atlantic Summit “Together Building a Better, More Equitable Region”

Tad Aburn - Air and Radiation Administration





# Overview of Presentation

- Environmental Justice and Community Engagement in the Maryland Department of the Environment (MDE) Air Program
- The Four Basic Steps of Our Partnership Process
- The Partnership and Action Plan in and around Cheverly Maryland as an example
- Community Partnerships ...  
Next Steps



<https://mde.maryland.gov/programs/Air/Pages/index.aspx>

A bright sun shining through a blue sky with scattered white clouds. The sun is positioned in the upper right quadrant, casting rays across the sky. The clouds are fluffy and white, scattered across the blue background.

# **Environmental Justice and Community Engagement**



# Environmental Justice Initiatives

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- Environmental Justice is a very high priority at MDE
  - Department wide effort to reinvigorate the state’s EJ Commission
  - MDE-wide initiatives on outreach, compliance, permits and mapping
- Air Program Initiatives
  - Partnership effort with over 12 communities to work together to reduce environmental risk
    - So far, two of these efforts have resulted in diesel cleanup projects selected by the community (Turners Station and Curtis Bay)
  - Port Partnership also includes collaboration with over 15 communities and has driven huge investment into diesel clean up in and around the Port. By 2025 over \$35 Million will have been invested to reduce air pollution around the Port
  - Several exiting efforts involving community-based, hyper-local air monitoring/sensor networks
  - Targeted inspection initiatives now being implemented
  - Focusing on action ... not studies and tools



# The Community Partnership Effort

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- Started in 2017 with community meetings in about 12 areas including:
  - Turners Station, North Point, West Baltimore, Pasadena, Curtis Bay, Sparrows Point, Cheverly ... about 5 or 6 other communities
- These meetings were done in collaboration with community leadership
  - Community driven agendas that usually included an update on local air quality, an overview of partnership opportunities and lots of listening
  - Two partnership opportunities highlighted – diesel clean up and citizen science (hyper-local air monitoring networks)
- Many community influenced diesel clean-up efforts implemented
  - Many around the Port of Baltimore
- Over the past year the number of hyper-local, community driven air monitoring efforts has expanded dramatically
- The partnerships have had a major impact on new action-oriented enforcement and regulatory activities



## The Basic Approach We Have Used to Initiate the Partnerships (and begin to reduce exposures)

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- Step 1 – Start a partnership. Listen. Align yourselves with trusted messengers like Sacoby Wilson’s University of Maryland (UMD) Center for Community Engagement, Environmental Justice, and Health (CEEJH). Find some common win/win projects to work on with the community
- Step 2 – Build a hyper-local air monitoring network in partnership with the community. Money is out there. Partners like UMD CEEJH can be critical.
- Step 3 – Use that network and other community input to begin to take actions using existing authorities (in partnership with the community) to reduce emissions and risks and to generally make the life of community residents better
- Step 4 – Use the hyper-local air monitoring networks, the overall community input and other information and data to adopt (in partnership with the communities) new policy and regulatory programs to address key issues like cumulative impacts and transparency

A bright sun shining through a blue sky with white clouds. The sun is positioned in the upper right quadrant, casting rays across the sky. The clouds are scattered and fluffy, with some larger ones on the left and right sides. The overall scene is bright and clear.

# **Enhanced Efforts in Environmental Justice**



# Hyper-Local Air Monitoring Initiatives

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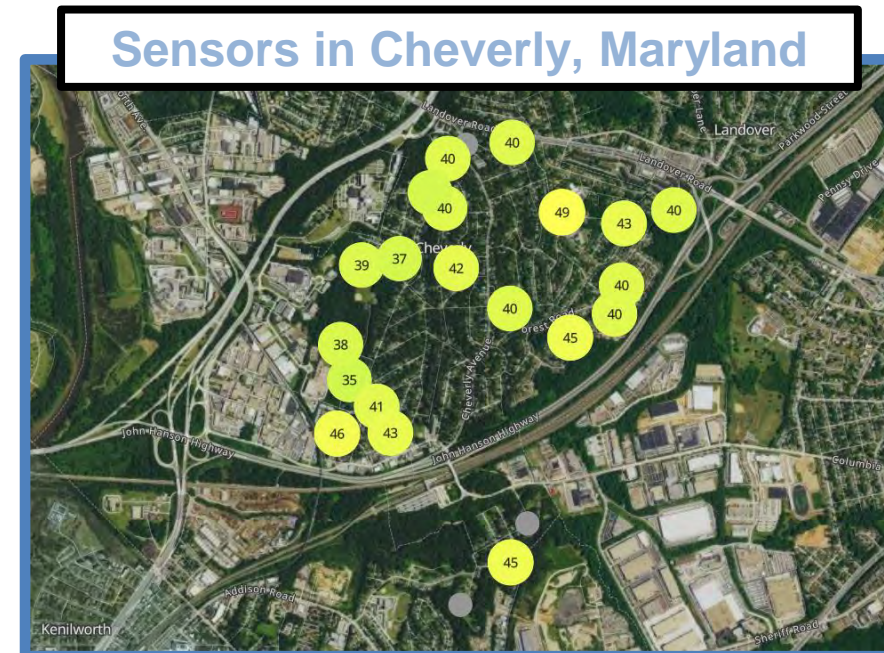
- These efforts are also implemented in partnership with the community ... focus on citizen science and building air monitoring networks using low-cost sensors that are spread throughout the community
  - Maybe 20 to 30 monitors/sensors in a community
  - A great tool for multiple reasons ... hyper-local data ... education ... capacity building ... partnership/trust building
- Builds from the revolution in low-cost air monitoring sensor technology that has just... over the past few years ... moved from being experimental to being relatively good
  - Perfect ... no. Helpful ... yes. Worthwhile ... definitely.
- There are now hyper-local networks either in place or under development in ... Cheverly, MD ... Baltimore ... P.G. County ... Harford County ... Saint Mary's County ... Curtis Bay ... Lothian .... More
- Will discuss resource related issues in wrap-up slides



# The MDE Partnership in the Cheverly MD/Sherriff Road Area

- In 2019, Dr. Sacoby Wilson and the University Maryland's Center for Community Engagement, Environmental Justice, and Health (CEEJH) initiated a partnership with the Town of Cheverly to build a hyper-local air monitoring network in and around the Cheverly area
- Just outside of D.C. in Prince Georges County ... in an area with concerns over environmental justice
  - Numerous stationary sources and major highways around the Sherriff Road area in Cheverly ... generally upwind of populated areas
- Community wide air monitoring/sensor network made up primarily of PurpleAir fine particle units now in place
  - Kudos to Dr. Wilson's team for driving this effort

- MDE joined this partnership in 2020
  - Assisted with educational efforts
  - Assisted with the hyper-local air monitoring network
  - Implemented a targeted inspection program in 2021.
  - The 2021 effort led to three new enhanced enforcement programs that are now being implemented.



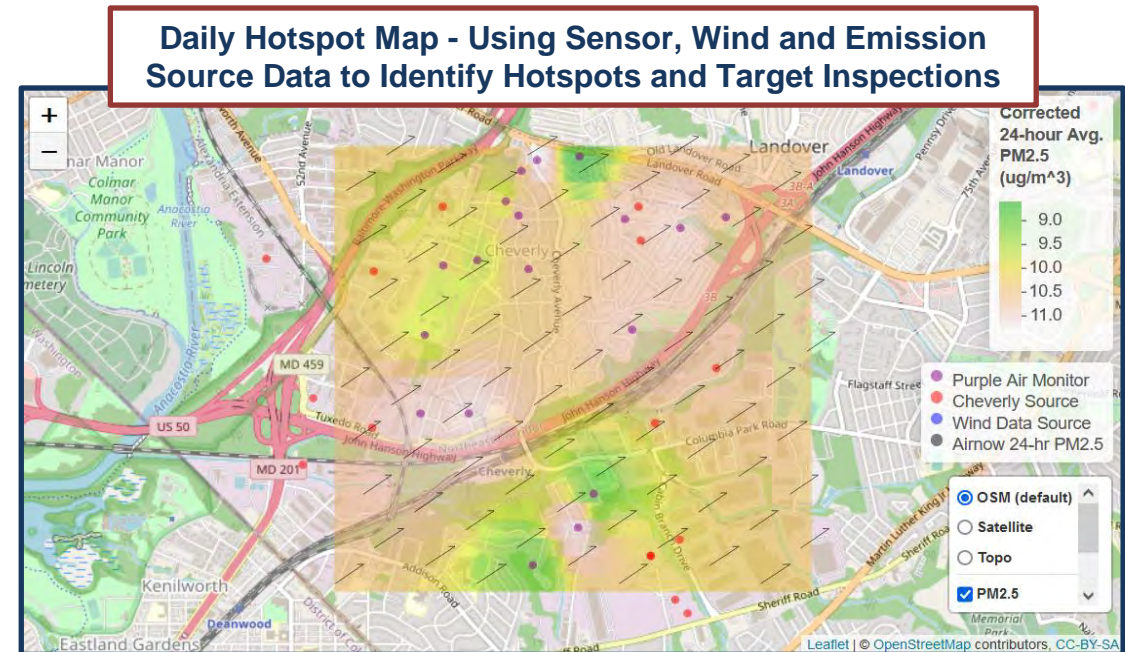




# The MDE Targeted Inspection Initiative in Cheverly

- Intensive inspection effort in June and July of 2021
  - Several meetings with community
  - Uses sensor, wind and source data, citizen input and other information to target inspections
  - Area-wide surveillance and source specific inspections 3 or more days each week
  - Stationary and mobile sources
  - 28 days of inspections - many site visits – 3 NOVs
  - Web page summarizes daily activity and inspection reports
- Follow-up activities already being implemented
  - Targeted inspections
  - Idle reduction
  - Fugitive dust
- Positive input from Mayor and residents

<https://mde.maryland.gov/programs/Air/AirQualityCompliance/Pages/CheverlyTargetedInspectionInitiative.aspx>





# The October 2021 Cheverly Report

- MDE provided the Community with a [report](#) on this effort. The report included 10 recommendations on how MDE and the Community could work together to improve air quality in the area
- Many of those recommendation are now being implemented

## Maryland Department of the Environment's Air Quality Partnership Project in Cheverly, Maryland

*This document summarizes a partnership effort to use data from a community-based, hyper-local air sensor network and local traffic data to target air emissions inspections and analyze air quality in the Cheverly, MD/Sheriff Road area*

October 04, 2021

The Cheverly, MD/Sheriff Road Purple Air, Hyper-Local, Air Monitoring Network



Maryland  
Department of  
the Environment



# Ongoing MDE Activities in the Cheverly/Sherriff Road Area

- MDE, working in partnership with the community and UMD, is now actively implementing several of the recommended follow up activities:
  - Continuing the targeted inspection and enforcement effort started in 2021 – Stationary sources and transportation issues
  - Eliminating or reducing illegal idling
  - Eliminating or reducing illegal tampering
  - Reducing fugitive dust





# Ongoing Targeted Inspections and Enforcement in Cheverly

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- Starting in the summer of 2021, MDE staff has increased the frequency of inspections significantly by including:
  - Sources where we commonly get complaints from residents (and other facilities) in and around the Sheriff Road area;
  - Non-traditional emission sources like bus depots, warehouse areas and construction sites;
- Input/complaints from community members can be a critical part in making this effort work;
  - Active effort to have community members help by reporting issues to MDE;
- Increased presence ... enforcement staff to be in the Cheverly area multiple times each month ... more, when we get complaints/resident input;
  - Informing sources of this enhanced enforcement effort is also part of the initiative; the deterrent effect can be very effective in reducing emissions



# Transparency ... Tracking Progress Under the Targeted Inspection Program

- Residents can track the progress of this effort & see what MDE has been doing by using the Compliance Enforcement link on the MDE web page [mde.maryland.gov/programs/air/AirQualityCompliance/Pages/CheverlyTargetedInspectionInitiative.aspx](https://mde.maryland.gov/programs/air/AirQualityCompliance/Pages/CheverlyTargetedInspectionInitiative.aspx)
- This page reports MDE area-wide and site-specific inspections and other activities
- For site-specific inspections, a more detailed inspection report is also available on the MDE website

The screenshot shows a web browser window displaying the MDE website. The page title is "Cheverly Targeted Inspection Initiative". The content includes a navigation menu on the left with "Air Quality Compliance" and "Cheverly Targeted Inspection Initiative" highlighted. The main content area contains text describing the partnership between MDE and the Town of Cheverly, and a section titled "Cheverly Targeted Inspection Initiative - Area Sources" with a map below it. The browser's address bar shows the URL: [mde.maryland.gov/programs/air/AirQualityCompliance/Pages/CheverlyTargetedInspectionInitiative.aspx](https://mde.maryland.gov/programs/air/AirQualityCompliance/Pages/CheverlyTargetedInspectionInitiative.aspx).



# Reducing Diesel Emissions Through Enhanced Enforcement

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- Reducing diesel emissions may be the single most important action linked to cleaner, healthier air in Cheverly
- Certain types of idling are illegal under Maryland law
- MDE has already been conducting area-wide inspections and distributing compliance advisory materials to businesses where illegal idling may be occurring
- A Partnership with the Maryland Department of Transportation (MDOT) and the Maryland State Police has already been formed to help implement this initiative
  - Joint inspections are ongoing
- Early outreach, education, and compliance advisory efforts can really start to reduce emissions before any compliance actions are ever taken
- Again, input/complaints from the community can be important



# Fugitive Dust - Enhanced Inspections and Enforcement

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- MDE enforcement efforts are already underway
- One of the most common complaints we get is fugitive dust
- MDE already started to implement this initiative in 2021
  - Much more frequent area-wide observations, site inspections
  - Compliance advisories distributed
  - Three Notices of Violation have already been issued by MDE
- Includes dust from permitted emission sources along Sheriff Road
- Also includes non-traditional emission sources like construction sites and warehouse businesses and areas
- Again, community input and complaints can be critical to the success of this initiative



## Other Actions Being Worked On

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- Other actions are just being initiated or planned. These include:
  - Working with Cheverly leadership to reduce local emissions from local diesel trucks and other equipment
  - Working with a small group of Cheverly community members and leadership to ensure that potential new emissions from a proposed Washington, D.C. Department of Transportation bus repair and maintenance facility just upwind of Cheverly does not create or add to air pollution problems
  - Working with community members on green infrastructure and climate change benefits
  - Assisting the community to make sure that local priorities are considered as part of the transportation planning process in the Washington metropolitan area
    - Includes both MDOT and PG County

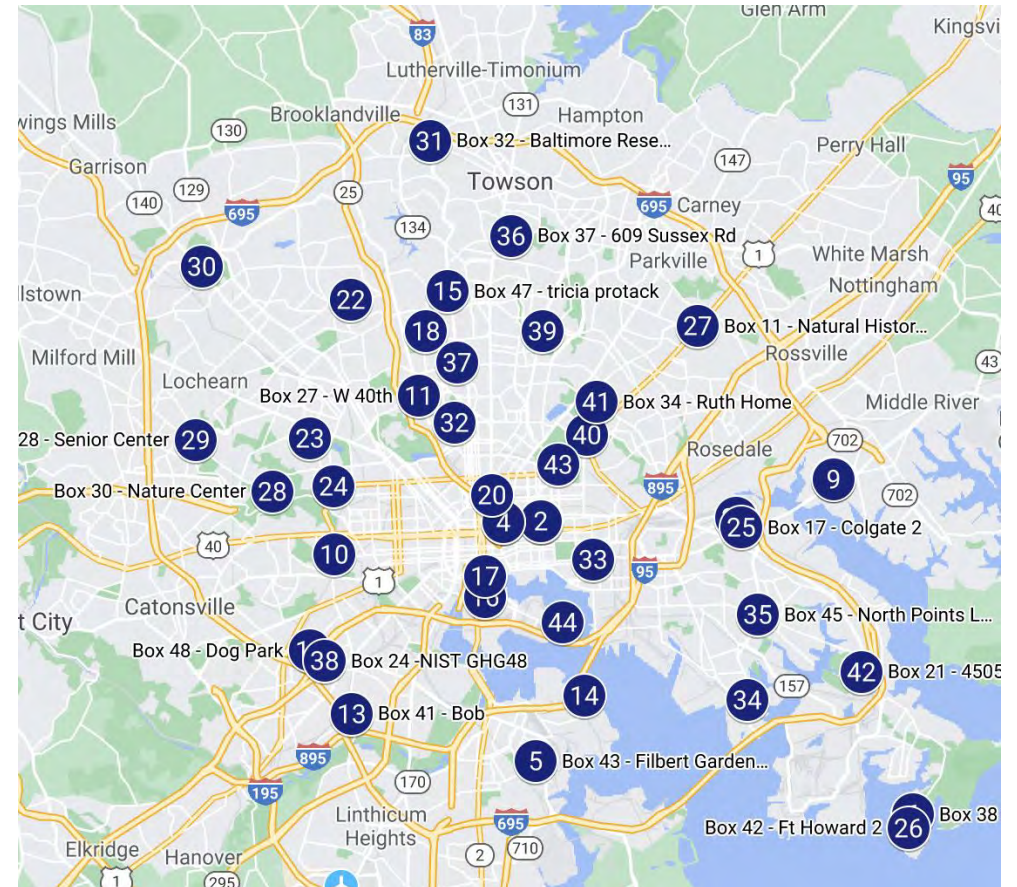




# Another Example of a Hyper-Local Monitoring Project

## *The Johns Hopkins/Yale “SEARCH” Project*

- Lead by Johns Hopkins and Yale with MDE collaboration
- A project using a large network of low-cost air quality sensors to look at air pollution variability across the Baltimore area
- Data on fine particulate, nitrogen dioxide, greenhouse gases and more being collected
- Johns Hopkins is also involved in several of the partnerships in and around Baltimore





# New Curtis Bay Partnership

- Significant effort on this partnership over the past four months
  - Very high priority because of an explosion at a local coal pier and a major fire at an oil processing facility
- Effort includes:
  - A community driven partnership effort
  - Enhanced monitoring
  - New permit requirements
  - Targeted inspection and enforcement activities by MDE
  - Recently has evolved to include multi-media targeted inspections and other community goals like a zero-waste center that also provides a center for community engagement and education





# The Port Partnership

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- A great example of a partnership between government and communities
- Government partners: the Port, the MD Department of the Environment, the MD Department of Transportation and the MD Energy Administration
- Community partners: Turners Station, St. Helena, Greater Baybrook, North Point, Fort Howard and maybe 10 other communities
- Diesel reduction has been a major focus ... but the partnership includes other media and other issues
- Through 2020, about \$15 Million investment into clean air and climate change ... over 4,000 tons of NOx emissions eliminated ... significant reductions in GHG and toxic emissions ... continued collaboration with communities. Over \$35 Million investment by 2025.



# Diesel Emission Reduction Efforts In and Around the Port

- Community Projects
  - Turners Station
    - Marshall's Trash Truck
  - Curtis Bay
    - Diesel yard truck
- Projects in the Port of Baltimore area
  - Port projects
    - Dray trucks, repower tugs and purchase trucks and handling equipment, more
  - Private Sector projects
    - Repower tugs and purchase diesel buses, locomotive switchers, electric cranes
- Other Projects
  - Purchase new electric and alternative fuel school buses, trash trucks, transit buses





# Advancing the Science

## The Proposed MDE Cumulative Air Exposure “Super-Site” Effort

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- MDE has applied for a grant from EPA to support this effort
  - Complimentary research involving UMD, NASA and NIST also planned
- Would set up community-based cumulative air exposure supersites in 3 EJ areas and in 1 other area in Maryland
- Supersites to include multiple sensors and traditional monitors, other monitoring-based techniques for fingerprinting source and source category contributions and all the other bells and whistles associated with high end monitoring sites
- Intended to look at the issue of inequitable exposure and drive initial actions to reduce exposure and risk
- Will look at stationary sources but have a major focus on mobile sources including diesel exhaust and black carbon



**NEW REGULATORY INITIATIVES  
TO BEGIN TO ADDRESS EJ  
ISSUES**



# Why Is this a Priority?

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- Environmental Justice is one of the highest priorities at MDE
- New policies and regulations to address some of the unique issues associated with environmental justice are needed
- These regulations begin to address three key concerns we have heard repeatedly in our discussions with communities that have concerns over environmental justice
- Some of these concerns ... and what we have heard are:
  - Transparency – “it is very difficult for the public to easily find information on why sources are clearly in continuous compliance with all of the air and climate regulations”
  - Cumulative Exposure to air pollution ... “The air we breathe is full of many pollutants – not just a single pollutant”
  - Fugitive Dust ... “This is a long-term problem in our community and the States regulation is too general and very old”
- There are many other areas to address ... this is just the first three the MDE Air program is moving forward with



# The New Transparency Requirements

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- The concepts behind these amendments are generally already required
- Some sources do a very good job with showing clearly – using less technical language - why they are in continuous compliance with all air requirements
  - Others do not
- This regulation will ensure that existing sources with State operating permits or Title V permits and new sources that must get a construction permit
  - Have a demonstration in their permit showing clearly, using plain English, that their operations are in full compliance,
  - Show clearly how the conditions that are included in their permit will ensure continuous compliance into the future,
  - Have an MDE approved community engagement plan if they are a priority source





# Addressing Cumulative Air Exposures

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- One of the critical issues that is now being worked on across the Country is the issue of cumulative impacts in communities with lots of environmental burdens
- One piece of the cumulative impact challenge is that for areas where there are a lot of emission sources ... both stationary and mobile sources ... people breathe mixtures of air pollutants ... not just a single pollutant
- The Maryland air toxics regulations was designed to address issues like this
- ... But ... It needs to be amended to make sure it is consistent with the cumulative air exposure concepts of 2022



# Air Toxics Amendments to Be Proposed

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- The amendments will include strengthened procedures for conducting screening and more complicated “ambient impact analyses” for sources in Overburdened Air Areas (OAAs) to **begin** to address cumulative air exposure
  - The current regulations include a tiered system of options sources can use to demonstrate that offsite concentrations do not endanger public health
  - Screening analyses, second-tier analyses, special permits, case-by-case risk assessment and more
  - Carcinogens and non-carcinogens
- The amendments will also include new requirements for larger more important sources located in OAAs to develop and implement a “Continuous Emission Improvement” Plan
  - A short- and long-term plan with phased in reductions with an aspirational goal of zero emissions
  - Plans will be required to be part of the community engagement process discussed as part of the new transparency requirements



# Strengthened Fugitive Dust Requirements

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- MDE has heard concerns about Fugitive Dust from many different communities – Inspectors real-world experience supports these concerns
- MDE has begun to implement enhanced enforcement initiatives in the Cheverly and Curtis Bay areas in 2021 and 2022 .... Using existing regulations
  - Much more frequent area-wide observations, site inspections ... Compliance advisories distributed ... Notices of Violations (NOVs) issued
- Current Fugitive Dust Regulation is extremely old (about 30+ years)
  - Very general
  - Needs updating to be more specific
- MDE is using updated regulations from the South Coast Air Quality Management District (SCAQMD) in California as a model for modernizing the Maryland fugitive dust requirements

A bright sun is positioned in the upper right quadrant of the image, casting a strong glow and creating a lens flare effect. The sky is a deep, clear blue, and several large, fluffy white cumulus clouds are scattered across the upper half of the frame. The lower half of the image is a solid, uniform blue color.

**Next Steps/Issues**



# So ... What's Next ... Is the Effort We are Making Sustainable?

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- Our plan is to gradually expand this effort to other communities
  - Gradual phasing may be difficult as the concerns over environmental justice will continue to be major drivers in the work we do ... at the states and at EPA
- The effort is probably not sustainable with current resources
  - The enhanced enforcement and hyper-local air monitoring work is significant
  - We also have a lack of expertise in certain areas like communications
- A serious discussion of these resource issues is critical
  - First with EPA
  - Also, with our regional air quality organizations like MARAMA, OTC, NACAA, APCA, MANEVU ... etc.

A bright sun is positioned in the upper right quadrant of the image, casting a strong glow and creating a lens flare effect. The sky is a clear, vibrant blue, with several large, fluffy white cumulus clouds scattered across the upper half. The lower half of the image is a solid, deep blue gradient.

**Questions – Discussion?**