



Resilience Authority

of Charles County, Maryland, Inc.

Presentation to

Metropolitan Washington Council of Governments

Water Resources Technical Committee

September 8, 2023



Resilience Authority
of Charles County, Maryland, Inc.

What is it?

- Government instrumentality created by State and County legislation
- A nonprofit organization with an independent Board of Directors
- Operated for the public purpose of **responding to the impacts of climate change** in communities across Charles County.
- First of its kind in the State



Empowered to:

- Finance
- Manage
- Acquire
- Own
- Convey
- Support resilience projects.

Ex: Living shorelines, stormwater projects, land conservation

Financing:

Empowered to use **innovative financing strategies**, including those that leverage public and private investment

Mission Statement

What are doing with this legislative enabling framework? And lessons learned

Prioritize Equity and Nature-Based Solutions

Nature-based solutions that enhance *everyone's* ability to understand and respond to the impacts of climate change.

Actions *prioritize the most vulnerable communities*, and all efforts are grounded in principles of diversity, equity, inclusivity, and justice.

Vision

- *As of 2022, Charles County is the wealthiest majority black county in the nation. Compared to its neighboring counties in the Metropolitan Washington D.C. area, it also has a higher percentage of remaining natural, biodiverse areas.*
- *Recognizing the strength in Charles County's rich diversity of people and natural resources - in the face of climate change, persistent socioeconomic inequality, and rapid residential, commercial, and industrial development – the CCRA's vision:*

Set a national example of climate resilience grounded in environmental justice for everyone.

Impacts of Climate Change in Charles County

Increased Precipitation
and Storms = Flooding

Increased temperatures
= Health Risks

Sea Level Rise = Coastal
Flooding Hazards



Projects and Partnerships: Turning Climate
Change Challenges into

Opportunities

for positive change and Equitable
Resilience

Climate Challenge:

Increasing temperatures

Urban Heat Islands.

Heat affects everyone.

Some areas are often hotter than others. These hotspots are called Urban Heat Islands.

Equity and Environmental Justice Lens:

Urban heat islands are caused by the uneven, inequitable spread of land covers in the urban landscape, leading to more heat-absorbing buildings and pavements and fewer cool spaces with trees and greenery.

Residents of intra-urban heat islands are more likely to experience heat-related illnesses and even death.

Related negative effects include worse air quality and a higher cost burden of air conditioning bills.



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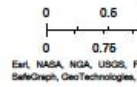
Partnership with Charles
County Public Schools

Higher Impervious Surface = Lower Climate Resilience



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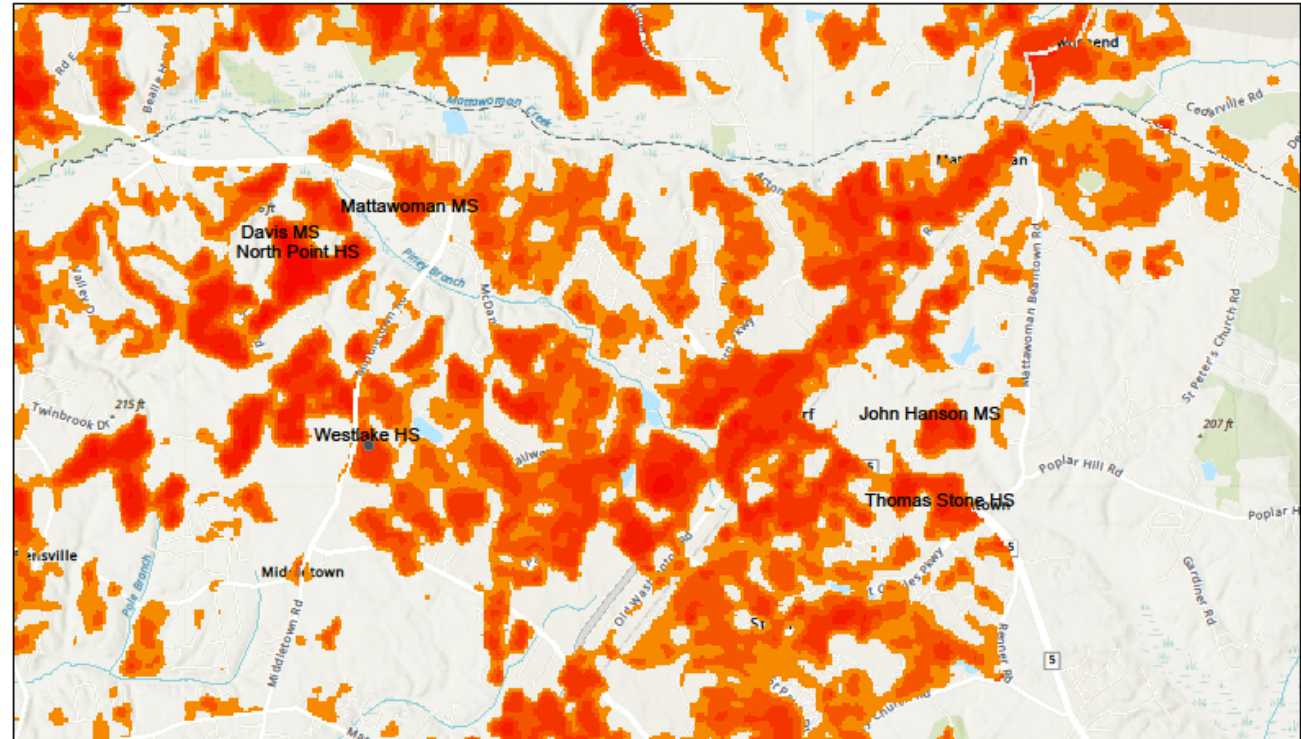
CLIM-Impervious Cover



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SafeGraph, GeoTechnologies, Inc.

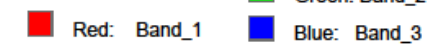
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Heat Islands = Health Risks and Lower Climate Resilience

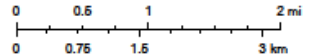


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CLIM-Urban Heat Island

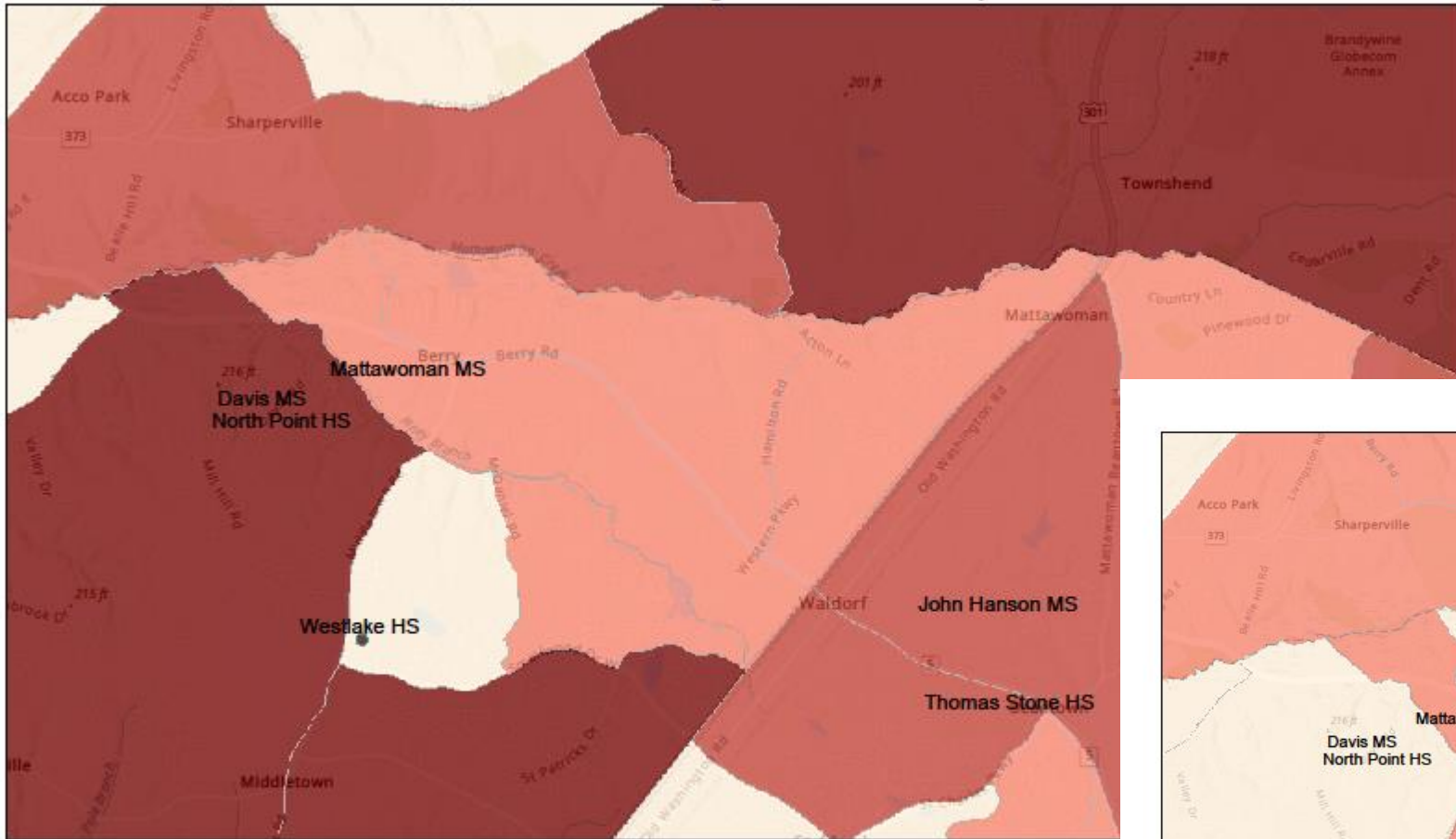


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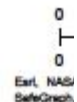
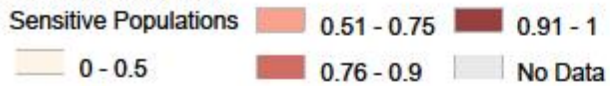
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Asthma, Heart Disease, Lower Birth Weight = Sensitive Populations EJ MD Screen



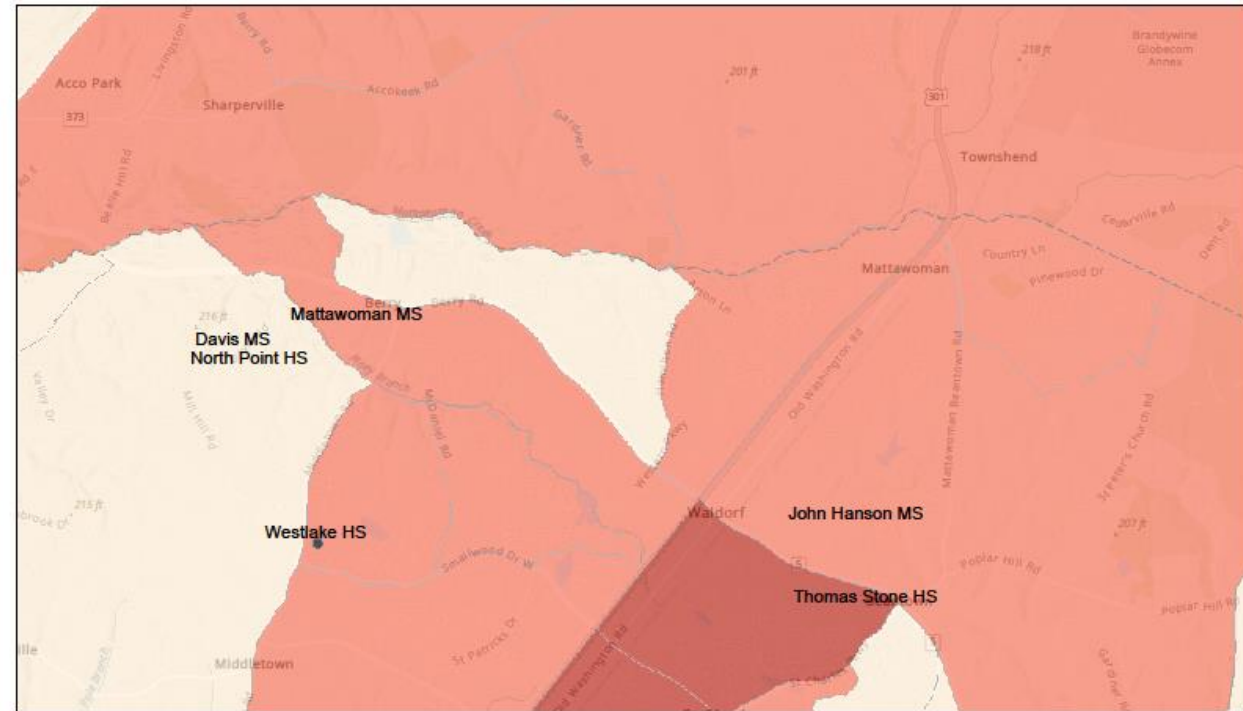
Higher
Percentage Rank
= Higher
Concern

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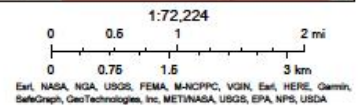
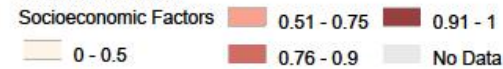


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Socioeconomic Factors EJ MD Screen



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Opportunity

Trees

Equitable Resilience

and

Environment Justice Multipliers



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Trees play a critical role in creating resilient, healthier, and more connected communities.

Trees clean our air, filter our water, and slow storm flooding.

Trees provide shade and cool urban areas by up to 10 degrees, which can help prevent heat-related illness and deaths.

Trees connect communities, cultures, and generations.

Neighborhood trees have shown the ability to reduce stress, improve overall health and development in children, and encourage physical activity.

And a healthy communitywide tree canopy fosters economic advantages as well as an increase in civic pride among residents. [Arborday.org](https://www.arborday.org)



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RAYC Forward.

Climate resilience grounded in environmental justice for everyone.

Establishment of Urban Tree Canopies at Charles County Public Schools in Urban Heat Islands, expansion of partnership:

Formation of the Resilience Authority Youth Corps of Charles County (RAYC)

The Resilience Authority of Charles County and the Student Conservation Association, www.thesca.org have joined forces to form the Resilience Authority Youth Corps (RAYC). Through our “RAYC Forward” initiative, the Student Conservation Association will hire, train, supervise, and mentor interested Charles County high school students and young adults to monitor and maintain newly planted Urban Tree Canopies in the county’s Urban Heat Islands.

Climate Challenge:

Increased Precipitation →

**Increased Urban Flooding in
Waldorf**

Charles County Government's Emergency Management Service commissioned a study to identify specific sites experiencing the worst of urban flooding

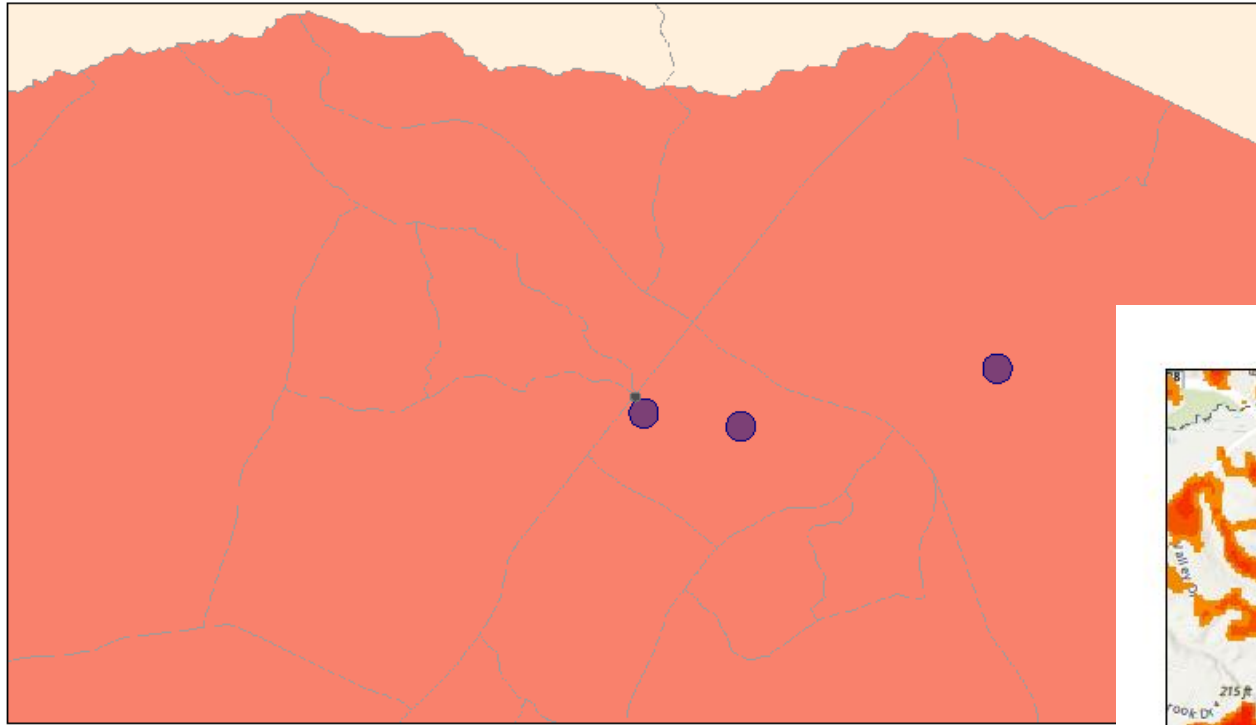
Equity: The Risks Associated with Urban Flooding Are Not Shared Equally

Historically, urban development has concealed landscape systems – burying waterways, flattening topography, and removing vegetation.



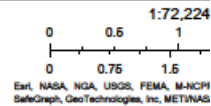
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ZekiahWS CommunityResilienceScore



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 Community Resilience Score

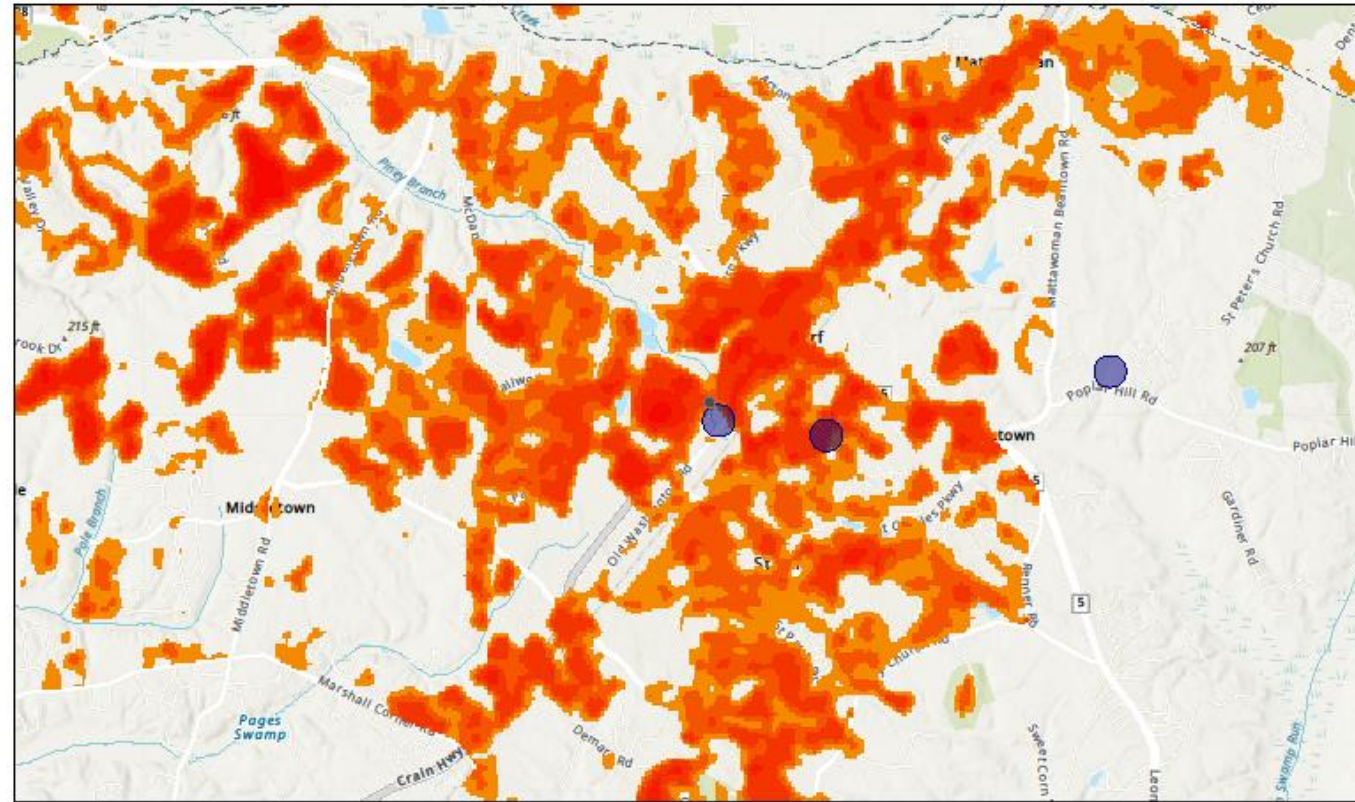
0.0 - 0.50	0.51 - 0.75	0.76 - 0.90	0.91 - 1.0	No Data
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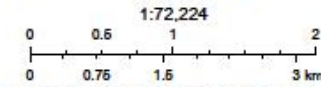
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ZekiahWS UrbanHeat Islands



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 CLIM-Urban Heat Island

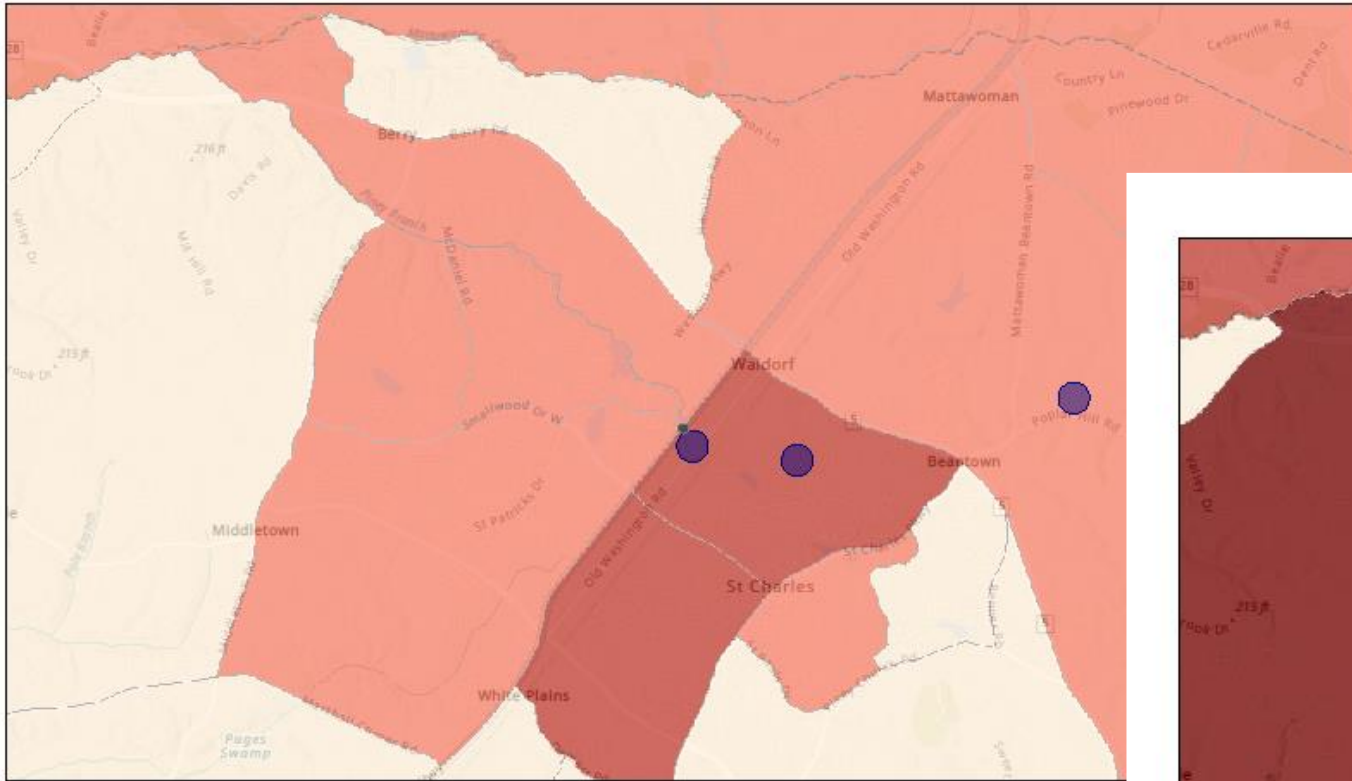
Red: Band_1	Green: Band_2	Blue: Band_3
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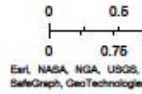
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ZekiahWS EJ SocioEconomic



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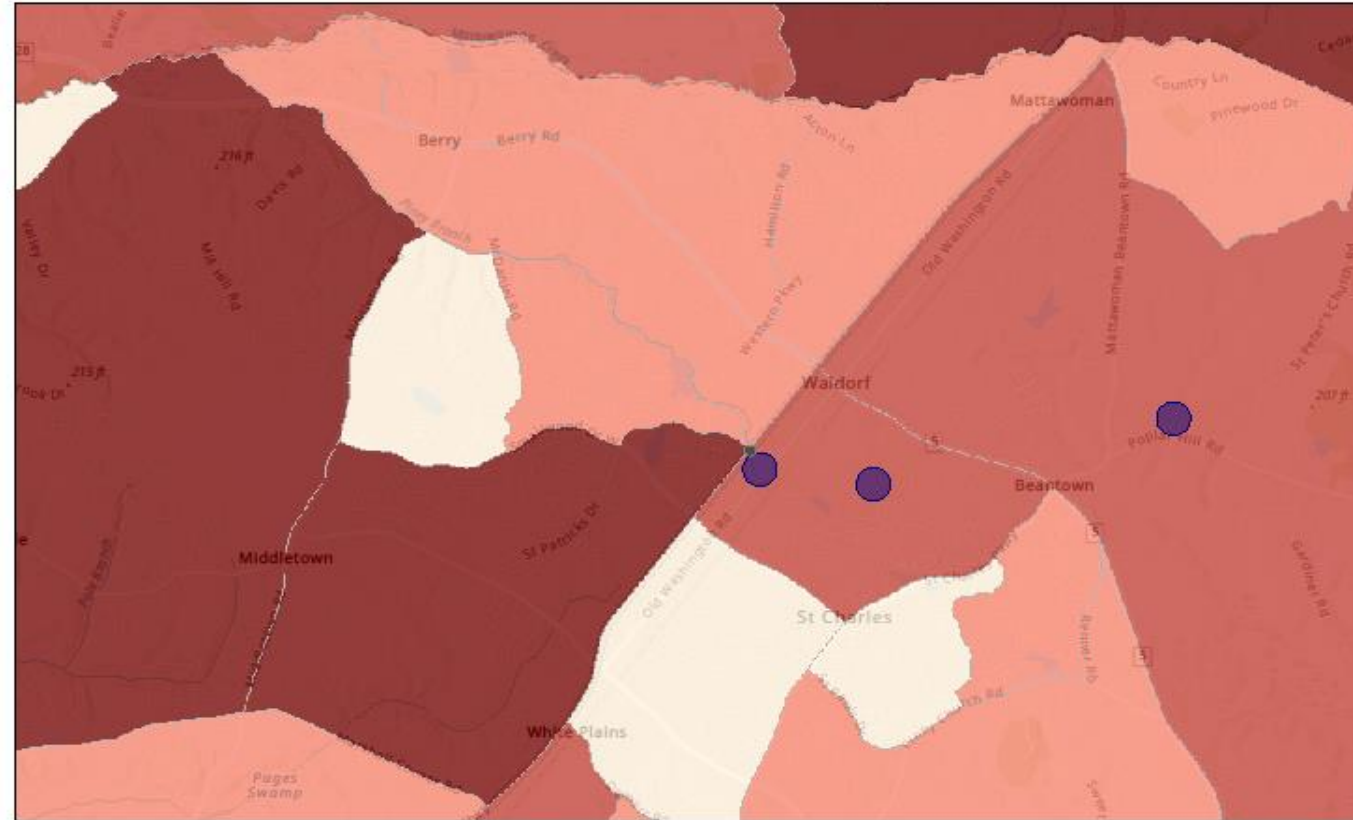
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ZekiahWS EJ Sensitive Populations



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Sensitive Populations
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Opportunity

Innovative use of green and hybrid infrastructure Waldorf to address stormwater flooding, create usable natural space for community members, trees for cooling and increase habitat for wildlife.







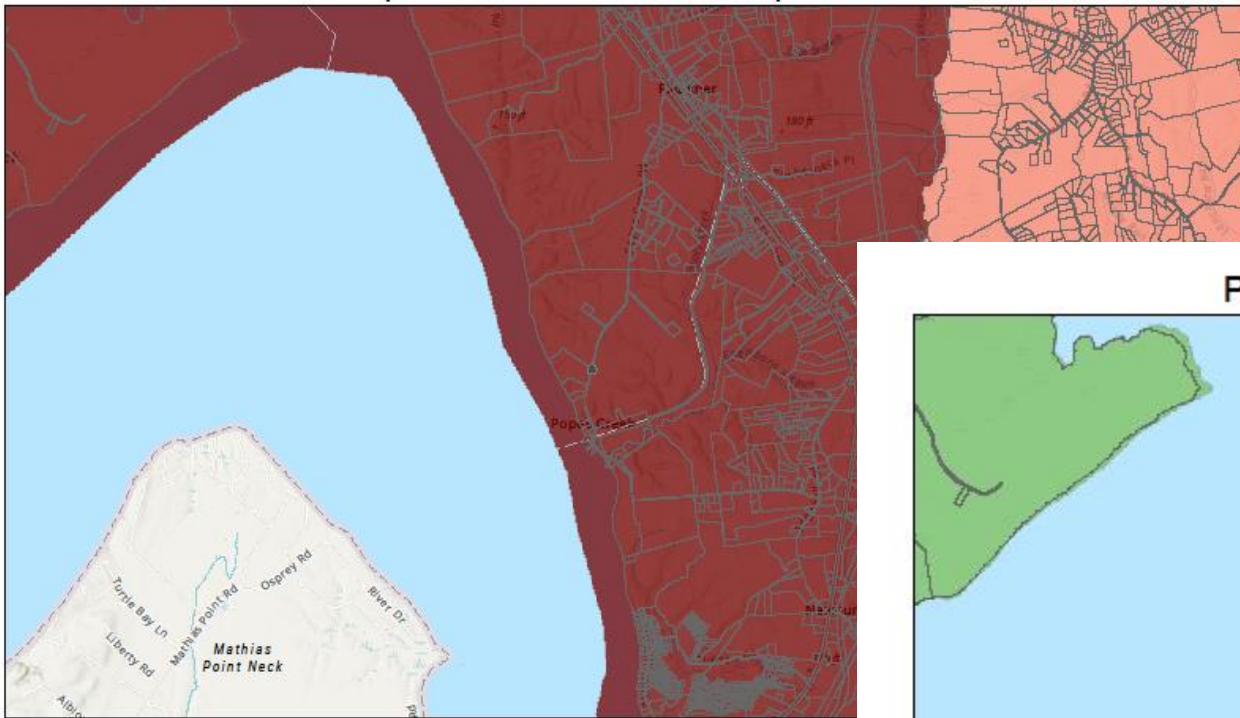
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**Climate Challenge: Sea Level Rise →
eroding shorelines, coastal flooding** – Future
site of Popes Creek Nature-Based Park.

**Equity: The Risks Associated with Sea Level Rise Are
Not Shared Equally**

PopesCreek EJ-MD Sensitive Populations



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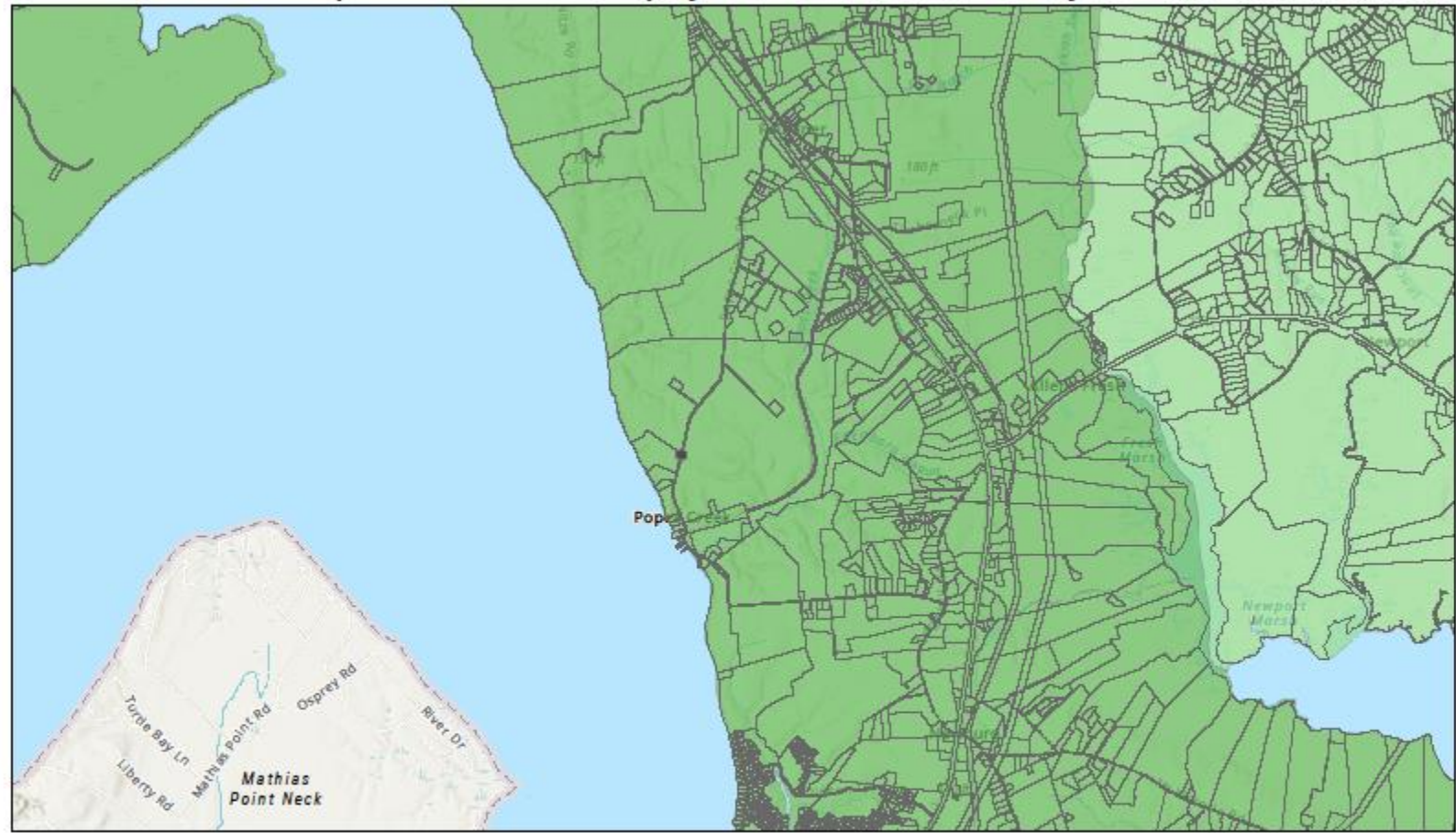
Parcel Boundaries

Sensitive Populations

- 0 - 0.5
- 0.51 - 0.75
- 0.76 - 0.9
- 0.91 - 1
- No Data

Esri, NASA, NGA, USGS, FEMA | VGIN, Esri, HERE, Garmin, SwireGraph, GeoTechnologies, Inc, MET/NASA, USGS, EPA, NPS, US Census Bureau, USDA | Maryland DNR | MD IMAP, MDE | MD IM

PopesCreek EJ-Park Equity Below %185 Fed Poverty Line



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Parcel Boundaries

Concentration of Households Below %185 of the Federal Poverty Line

- 0.26 - 0.40
- 0.41 - 0.55

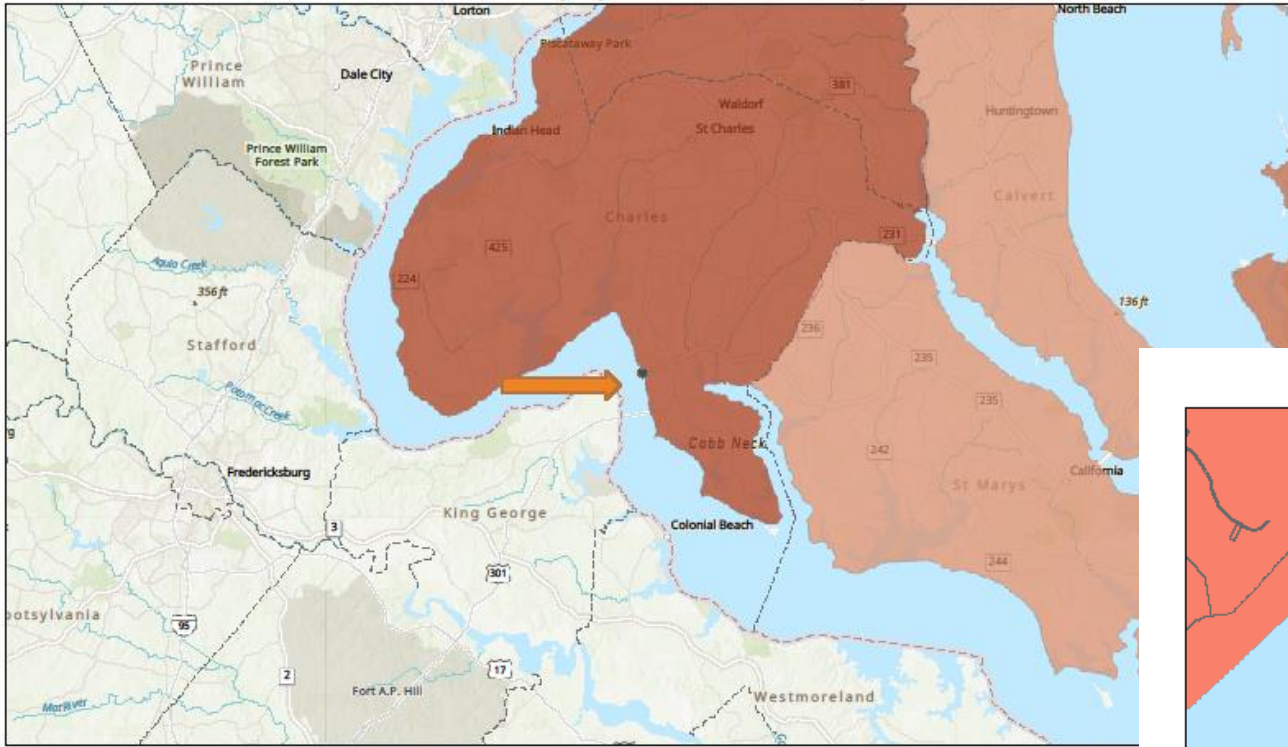
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0 0.5 1 2 mi

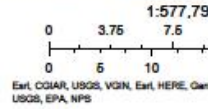
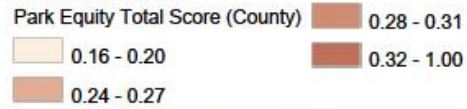
0 0.75 1.5 3 km

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EJ-Park Equity Total Score County

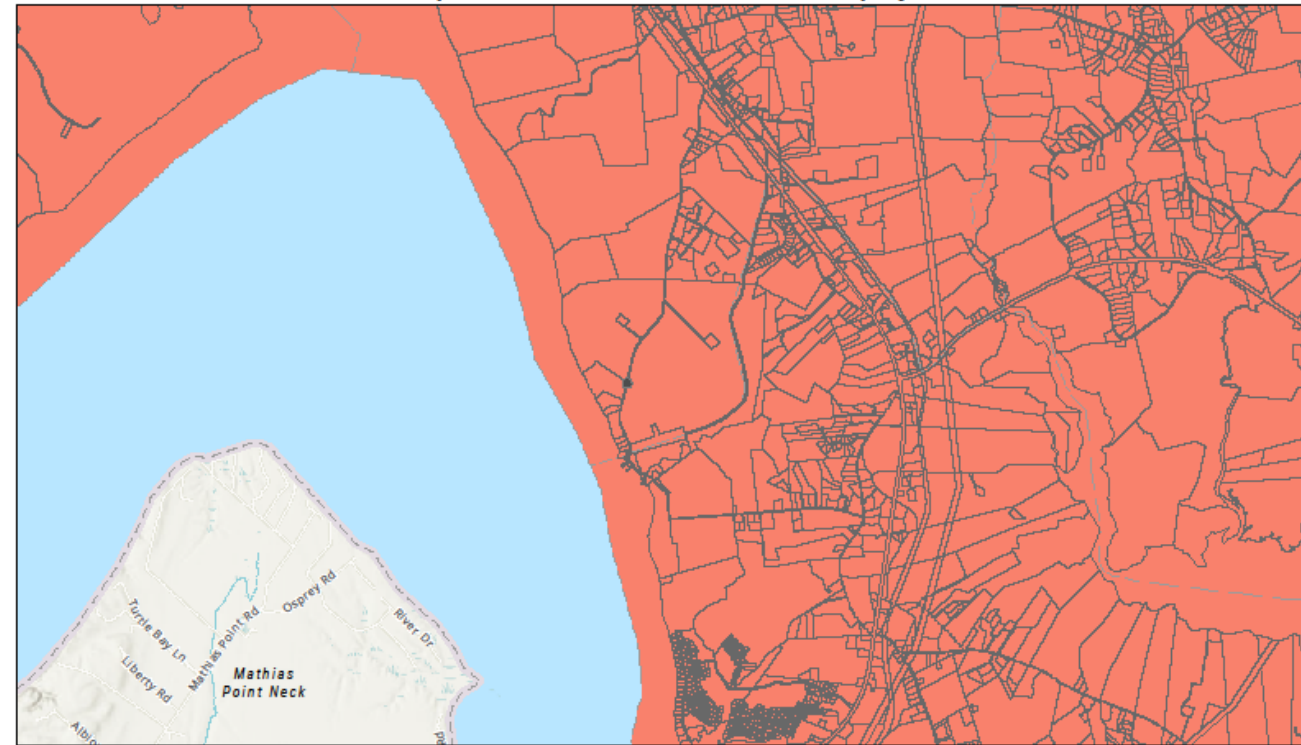


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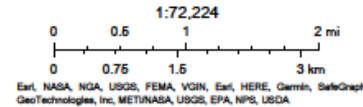
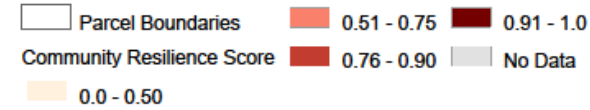


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PopesCreek Climate and Health Equity



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ArcGIS Web AppBuilder



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Opportunity

Design/Implement a living shoreline to protect park infrastructure, create habitat and enhance recreational opportunities

Nature-based park that will provide environmental education about climate change.

We're just getting started!

Stacy J. Schaefer

Executive Director

SchaeferS@ResilientCharlesCountyMD.com



Resilience Authority
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www.CharlesCountyMD.gov/Resilience