Recommendation #24

Reduce Exposure of Vulnerable Populations to Extreme Heat

Description

Co-Benefits

- Within County Control
- Alignment with Existing Initiatives
- Technical Feasibility
- Cost-Effectiveness

Time Frame

0-4 years

As we plan for a future with higher temperatures and more heat waves, the County must make necessary changes to the environment to lower temperatures while also employing strategies for prevention and treatment of heat-related illness, especially in high-risk populations.

To provide resources where they are needed most, the county needs accurate, granular, up-to-date data about where more vulnerable people are exposed to more heat. Thermal mapping, a study of tree-canopy cover, and a targeted Shade Study will provide data for a better understanding of heat distribution throughout the County. These studies will be used for a county-wide Heat Vulnerability Assessment that incorporates environmental factors, demographic data, and social determinants of health to calculate and map heat vulnerability indices for different locations. Populations at increased risk of adverse health outcomes related to heat exposure include people who work and play outdoors, older adults, children, people of color, people in lower-income households, and people experiencing homelessness. Mapping that brings these data together will help county decision makers invest first in programs for neighborhoods with the greatest need.

The Heat Vulnerability Index combined with study maps will inform and prioritize implementation strategies in the most heat vulnerable neighborhoods. As part of this recommendation, the County will also pursue and support a pilot agreement with public utility providers to implement undergrounding overhead utilities within designated priority areas of vulnerable communities. Undergrounding aerial utilities will ultimately enable long-term tree canopy growth for shade and create a more inviting streetscape at important gatherings and street-side commercial corridors within the community.

Proposed Measurement & Tracking

On an annual basis track, update, and map the following:

- T*rack cooling strategies* deployed in vulnerable areas.
- Map impervious areas created and removed, and tree cover gained or lost in vulnerable areas.
- Map and quantify aerial utilities undergrounded for entire County.
- Map and quantify installed cool and permeable paving and soil volume enhancements overlaid with trees loss or gained in the ROW for entire County.
- Update locations via GIS mapping of all CIP and municipal sidewalk replacements, tree planting both accomplished and planned over a 1–2-year span.

- Update temperature mapping and Heat Index.

Capacity and Funding:

What Capacity and funding is necessary to enact this recommendation?

1. Allocate additional funding to completing the recommended thermal mapping and land cover studies and partnering with an educational organization or institutional experts with expert knowledge in this area(e.g., NASA Develop, Portland State University, University of Maryland).
2. Allocate and budget for hiring additional full-time county staff to manage and facilitate a community-wide effort to engage in heat strategy workshops and measures.
3. Allocate and provide an additional budget for DPW&T to adapt to new sidewalk repair and replacement requirements.
4. Technical support for municipalities to adopt and implement new cooling strategies and pavement practices.

Implementation Steps

Step 1: Conduct the County's thermal mapping, tree canopy cover with shade study, and aerial utility mapping. With the support of a consulting firm, university researchers, or other partner organizations, the County will conduct this comprehensive mapping using remote sensing technologies and ground-level monitoring to create land surface temperature mapping. The thermal mapping will be overlaid with the following mapping: tree cover, impervious areas, and aerial utility coverage mapping. The results from analyses will highlight the urban heat island hot spots across the County. In addition, the County will conduct shade study modeling in targeted areas of the County, identified as heat island hot spots and Equity Emphasis Areas.

Step 2: Conduct a Heat Vulnerability Assessment: With the land surface temperature and tree cover maps developed in Step 1, the County will conduct a neighborhood-level Heat Vulnerability Assessment. As part of this step, a Heat Vulnerability Index will be created to identify the County's most heat-exposed areas. Subsequently, Heat vulnerability maps will help identify high-risk areas and target specific neighborhoods or sites to prioritize and expand heat mitigation and adaptation strategies.

Step 3: Stakeholder Engagement. With the Heat Vulnerability Assessment results, the County will develop and prioritize heat mitigation and adaptation opportunities (e.g., existing policies, programs, plan expansion to incorporate a heat component). The strategies should be developed and vetted through inter-Agency collaboration with community workshops, such as a series of heat strategy workshops or the formation of an extreme heat working group. The goal of this engagement should be to (1) better understand how residents currently struggle with the heat and their go-to coping measures and (2) to gauge interest and receive feedback on the list of prioritized heat mitigation and (3)inform the public about adaptation strategies.

Step 6: Finalize Heat Strategies. Finalize the heat mitigation and adaptation strategies and initiate implementation. Outline the timeline, implementation leaders and partners, performance metrics, and other relevant information for each strategy's action by end of 2022.

Step 7: Specific Code Revisions. Revise Prince George's County Code of Ordinance under Subtitle 4: Building, Subtitle 23-Roads and Sidewalks, and Subtitle 27A-Urban Centers and Corridor Nodes Development and Zoning Code to achieve the following:

- Require Green/Cool/PV Roof and Pavement Code with a specific focus to immediately require all County and local governments street and sidewalk replacement and repaving projects to use green/cool pavements in heat vulnerable areas.
- Require new roof and major roof replacements to be one or all the following: Green roofs, with native plants or vegetables and soil deep enough to support them, (2) house solar photovoltaic (PV) systems tied to the building, or (3) cool/albedo roofs.
- Require all new sidewalks or sidewalk repair projects with a width of 5'or greater to create soil volume, tree-friendly permeable paving materials with low reflectance, and cooling properties.
- Reduce maximum allowable street tree spacing from 50' spacing to 30' maximum spacing.
- Prohibit placement of trees intended to serve as street trees or provide long-term screening or buffer within a stormwater management facility. SWM facilities that promote long-term tree growth as part of providing stormwater management, such as Tree Trenches and similar tree-centric facilities, would not be included with this restriction. Of note, Filterra and similar facilities do not qualify for the exclusion.

Equity Considerations:

Equity Concern:

Past discriminatory and racist housing practices, for example redlining, has left many older neighborhoods devoid of shade.[1]

How can this recommendation be implemented to lead to equitable outcomes?

- Engage and promote landlords, tenants, and residential property owners to install energy-efficient replacement air conditioners and heating systems through community-wide grant programs with supplement Federal and state rebates for energy-efficient upgrades.
- Provide incentives or subsidies for residents of low and moderate-income housing and rental properties to reduce energy and water use, reduce waste heat, and minimize urban heat gain.
- Require utility companies to prioritize undergrounding aerial utility lines for a healthy urban tree canopy and more climate-resilient power supply.

Helpful Resources

- **Resource**:
  - *Urban Cooling Toolbox, C40*
  - Guidance on urban cooling solutions, including description of the strategy, things to keep in mind, achievable co-benefits, and city examples.
- **Resource**:

[1] https://www.nytimes.com/interactive/2020/08/24/climate/racism-redlining-cities-global-warming.html

    - *Beat the Heat Toolkit, City of Philadelphia*
- **Resource**:
    - *Reducing Urban Heat Islands: Compendium of Strategies, EPA*
    - Provides an overview of heat islands (how they form, their impacts, etc.) and describes various strategies for state and local governments to mitigate heat, outlining how they work, benefits and costs, initiatives, and available resources.
- **Resource**:
    - *Georgetown Climate Center Heat Island Toolkit, Georgetown Climate Center*
    - Provides guidance to aid local governments in determining the right heat mitigation strategy and policy tools (e.g. mandates, incentives, public education programs, etc.) available.
- **Resource**
    - *Georgetown Climate Center Green Infrastructure Toolkit, Georgetown Climate Center*
    - Provides guidance to local governments in planning, implementing, and funding green infrastructure. The toolkit also includes best practices and lessons learned for integrating green infrastructure into existing processes and communication strategies.