



Extreme Heat in Baltimore



Connection to Plans & Priorities

Key Sustainability Plans

Disaster Preparedness Plan

5-year plan risk assessment and hazard mitigation plan

- Extreme temps – 1 of 12 hazards assessed.
- Contains:
 - Social vulnerability index
 - Vulnerability assessment
 - Probability of future hazardous events
 - Potential impacts of climate change on structures & the economy

Key Interventions/Actions

- Increasing energy redundancies for critical facilities and **installation of generators**
- Continuing and expanding the Community Resiliency Hub program



Climate Action Plan

10-year GHG emission reduction plan

- Climate changes increase temperatures – interventions must keep people safe without exacerbating climate change by increasing fossil fuel use.
- Key Interventions/Actions
 - Create a **Heat Management Plan**
 - Expand weatherization program
 - Achieve **40% urban tree canopy** and increase green space
 - Transitioning to fossil fuel free buildings, fleet, etc.

Sustainability Plan

10-year plan balancing social equity, environmental stewardship & economic health

- Key Interventions/Actions
 - Calls for creation of **community resiliency plans** while discussing extreme heat and weather
 - Continue to support the growth of "community resiliency hubs" in disinvested, high-impact areas to provide protection and resources for residents

Public Health & Safety

Public Health

- Direct health impacts including heatstroke and heat exhaustion, cardiovascular stress, respiratory problems, kidney stress, and skin and muscle issues.
- Mental and social impacts including psychological stress, reduced productivity, and difficulty concentrating.

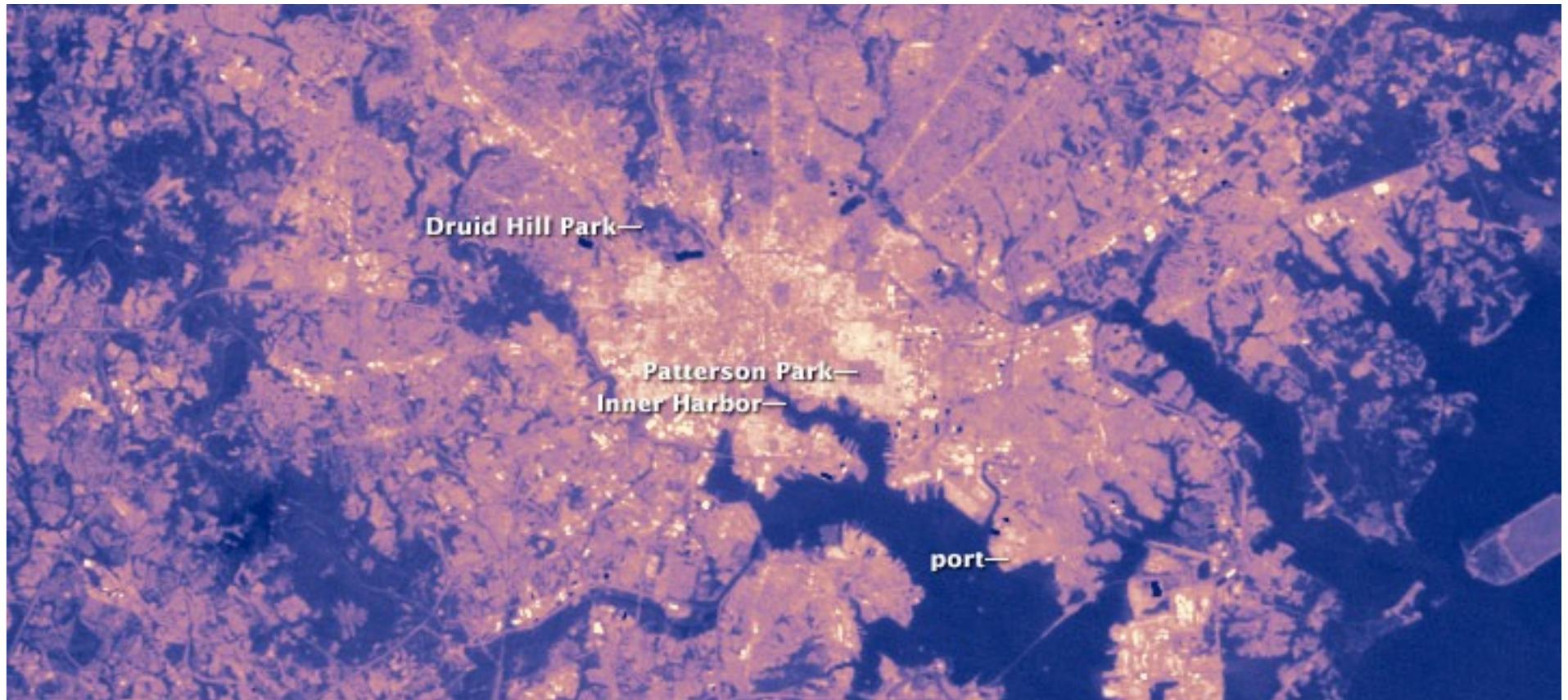
Safety

- Heat-induced aggression – science-backed concept that elevated heat can influence aggressive behavior in humans.
- Mixed findings on impact on crime - no known data focused on Baltimore
 - Some evidence shows an increase in violence and crime due to extreme heat events
 - Other findings don't show a significant impact yet some attribute it to people being less likely to be outdoors during extreme heat events



Statement of Issues

Images - Top Left: Person with a fan distributed by City of Baltimore. Top Right: Adults working in extreme heat. Bottom Right: Small pool being filled with fountain water. Photo Credits: Baltimore Sun.
Image - Bottom Left: Stage set up for performances during extreme heat, Photo Credit: WBALTV. Image - Center: Adult drinking water to stay cool in hot weather. Photo Credit: WMAR TV.



Excessive heat events ... destroy less property but have claimed more lives over the past fifteen years than all other declared disaster events combined.

Code Red Extreme Heat Program

- Established in 2006
- Occurs May 15th through September 15th
- Health Commissioner will issue a Code Red Extreme Heat Alert when:
 - The forecasted **heat index is \geq 105°F**
 - Other conditions such as high temperatures and poor air quality:
 - Heat index of 95°F or higher **AND**
 - Air quality that is “Unhealthy for Sensitive Groups” or higher as stated on www.airnow.gov

Baltimore City Health Department

Heat Safety Tips DURING CODE RED EXTREME HEAT

STAY COOL
Stay in air-conditioned locations as much as possible

Drink Water
Drink plenty of water and avoid alcohol and caffeine

Limit Outdoor Activity
Avoid strenuous activity and adjust work or exercise schedules

Never Leave People or Pets in a Car
Check the back seat before leaving

Check on Others
Call to check on neighbors, friends, family, and vulnerable adults

Follow BCHD on social media and visit health.Baltimorecity.gov for updates

BALTIMORE CITY HEALTH DEPARTMENT | OFFICE OF EMERGENCY MANAGEMENT | MAYOR'S OFFICE OF HOMELESS SERVICES



Code Red Extreme Heat Program Response



Daily weather monitoring and biosurveillance



Activate cooling centers



Send press releases



Coordinate social media messaging



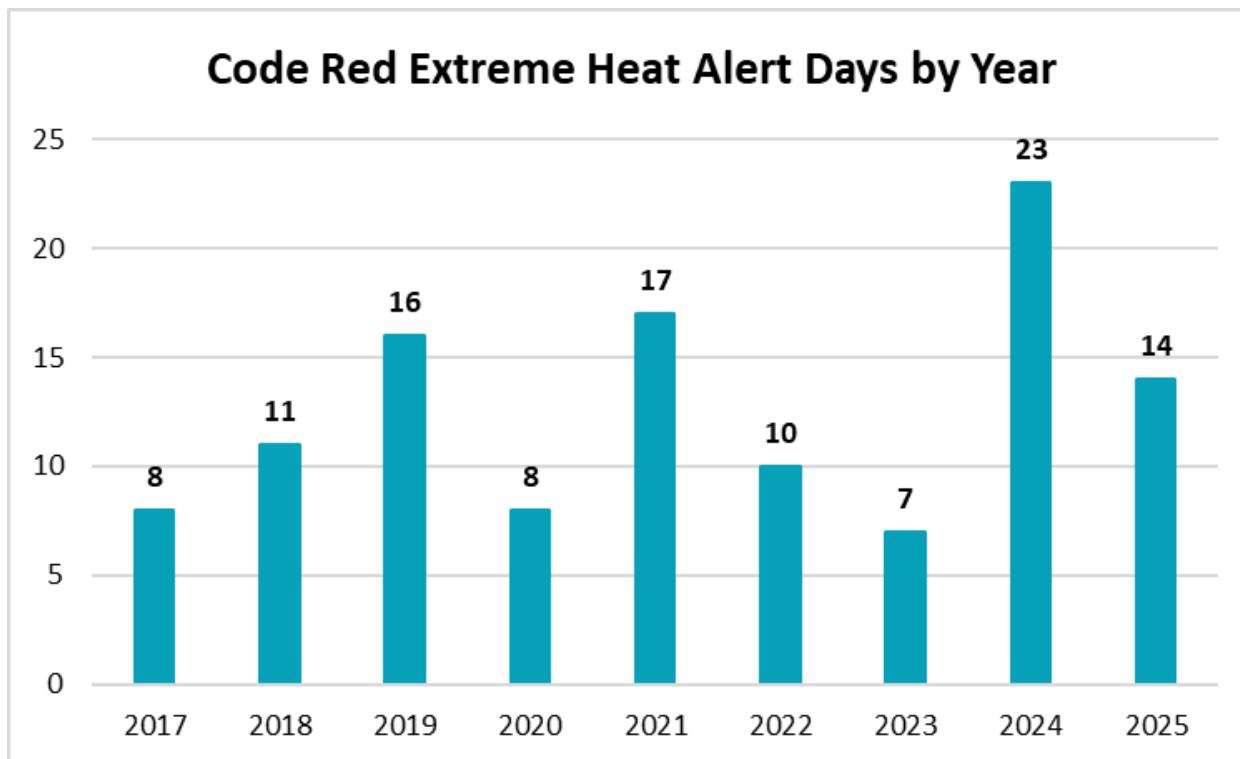
BMORE Alerts to older adults



Activate "Cool Air Spaces" Enoch Pratt Free Libraries



Extreme Heat in Baltimore



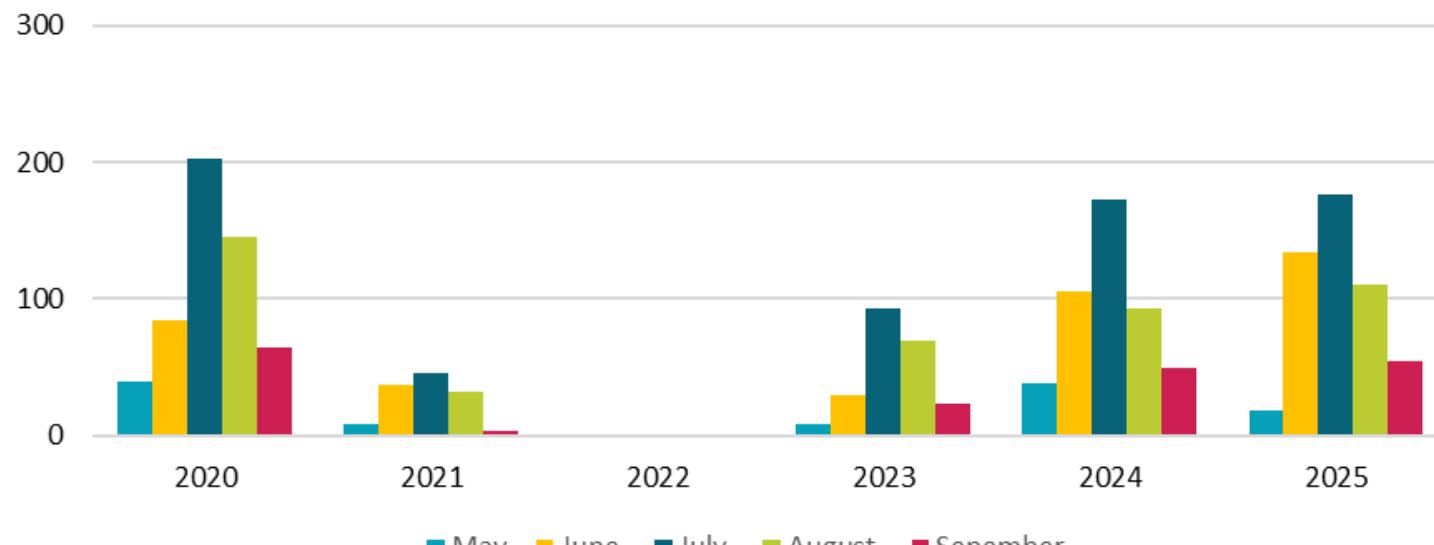
Source: Baltimore City Health Department

Baltimore City Department of Planning

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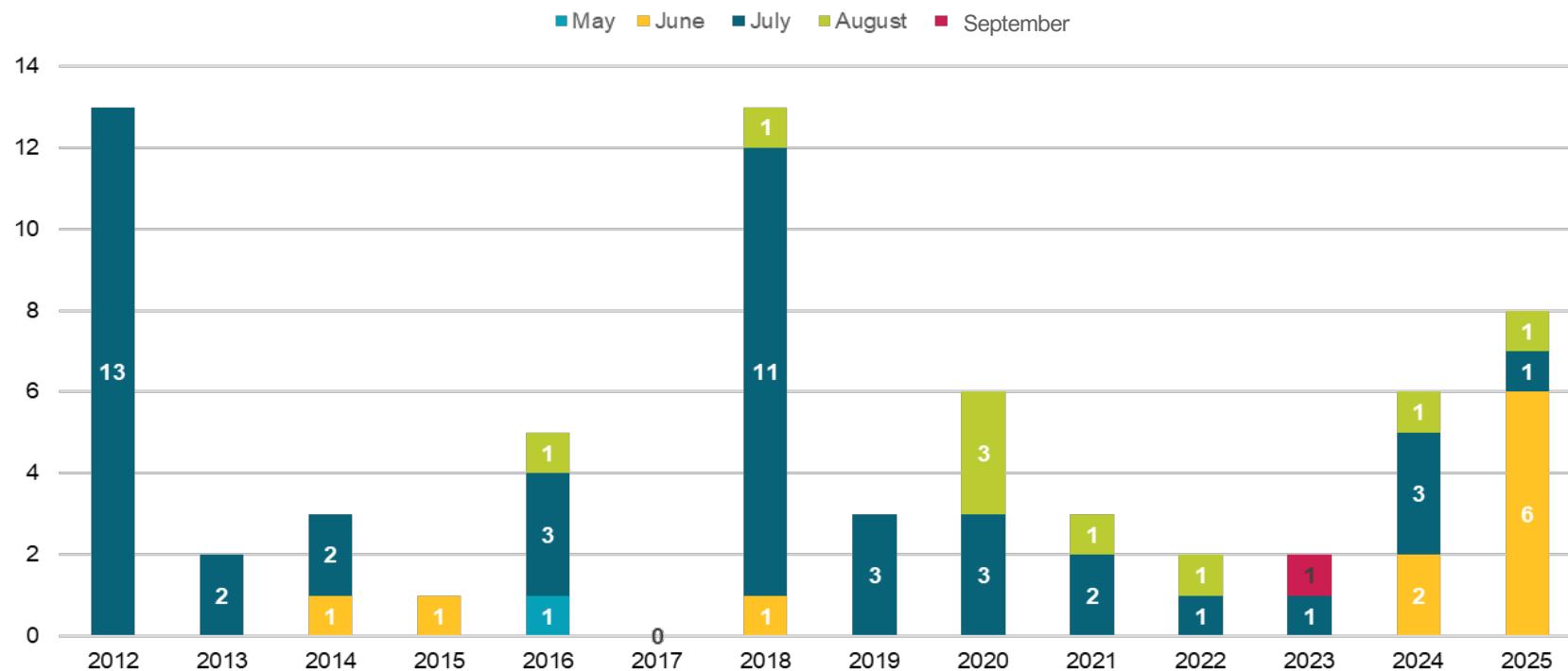
Heat-Related Emergency Department Visits by Year 2020-2025



MDH experienced a Ransomware
incident, and ESSENCE was unavailable in 2022.



Heat-Related Deaths by Year 2012-2025



There were 0 deaths reported in 2017.

Source: Maryland Department of Health Office of the Chief Medical Examiner

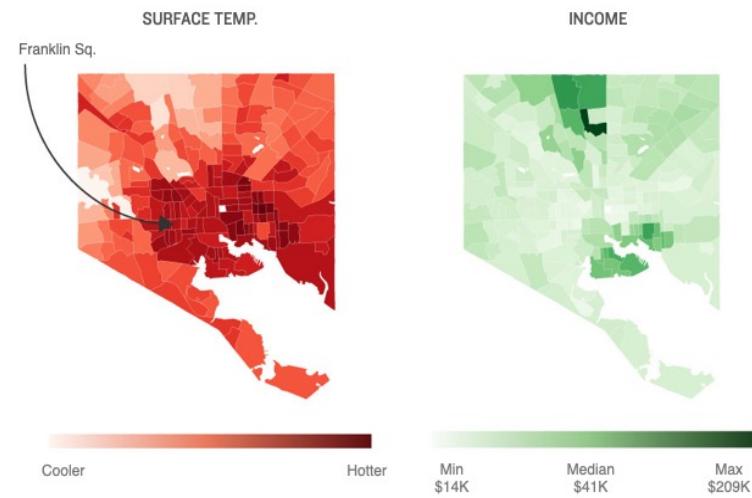
Source: ESSENCE



Risk & Concerns

- **Disproportionate Impact & Equity**

- Urban areas generally more effected
- Seniors, youth, people with other health risks, pregnant persons and babies at greater risk
- Urban Heat Island – more reflective surfaces and less tree cover and green space
 - Effects in downtown, East Baltimore & portions of West Baltimore – often in Black Butterfly communities
- Lower income households facing energy burden, and possible need for expensive retrofits
- Burden for those without personal transportation



Notes

Income measured as median household income per census tract

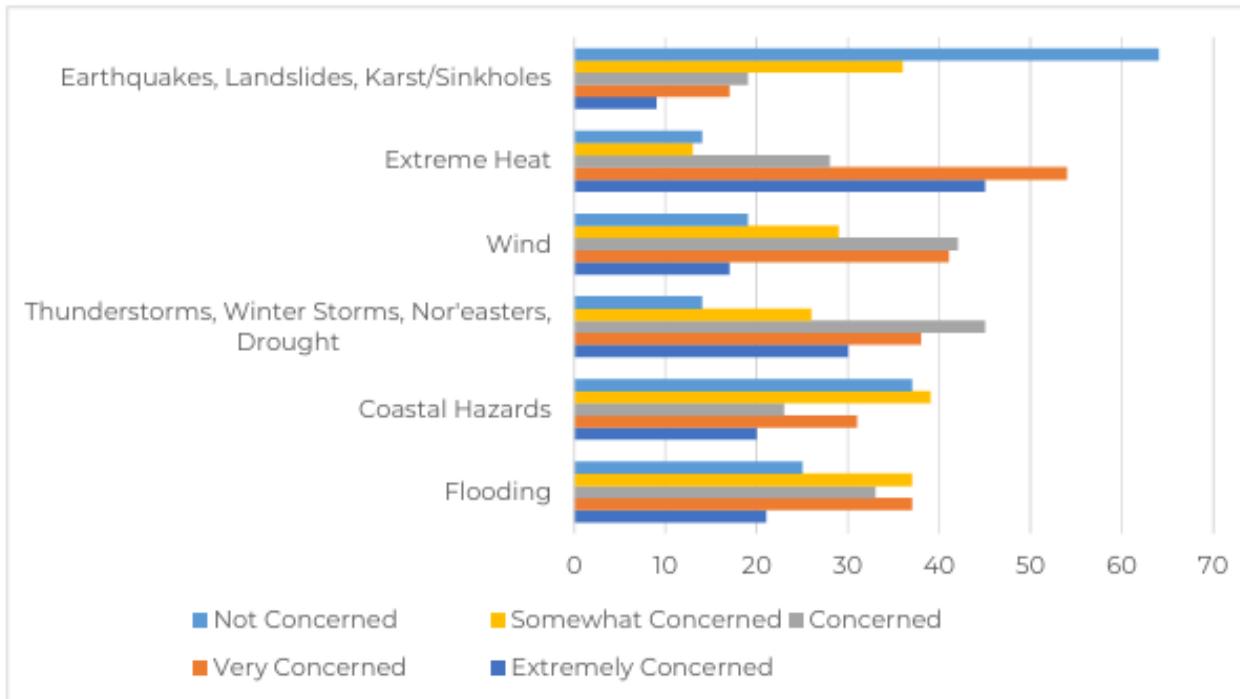
Source: NASA, Census Bureau

Credit: Sean McMinn/NPR

Risk & Concerns

- **Air Quality**
 - Traps pollutants, increase ozone formation, stagnant air affecting indoor air quality
 - Exacerbates health issues for people with asthma and other health risks
 - Can increase discomfort for all people
- **Buildings & Infrastructure**
 - Higher energy costs
 - Greater likelihood of maintenance needs for cooling systems and energy grids
 - Risk of grid failure or need for rolling outages
 - Risk to structural integrity – ex. roads and bridges
 - Greater demand for cooling facilities and recreational spaces that provide heat relief
- **Economy**
 - Reduced workforce efficiency
 - Health-related economic costs
 - Local economy disruption – i.e. retail spending, slows outdoor work
 - Can impede tourism and event attendance

Figure 3-1. Concern for Naturally Occurring Hazards



Source: Baltimore 2023 DP3

Extreme heat is a top concern for naturally occurring hazards for people in Baltimore

Key Current Initiatives

- Code Red Extreme Heat Program
 - Cooling Centers
- Cross-agency Response Coordination
 - DPW/ OEM Heat Illness Prevention Plan (HIPP)
 - Trainings & Tabletop Exercises
 - Coordination through Harvard partnership
 - Topical focus: Maternal & Child Health
 - Subcabinet on Sustainability & Resiliency Working Group
- Public-Private Partnerships
 - Community Resiliency Hubs
 - Weather Stations
 - Research Projects & Fellows
 - Pilot Projects



Image: People enjoying a splash pad in Baltimore.
Photo Credit: Baltimore Sun



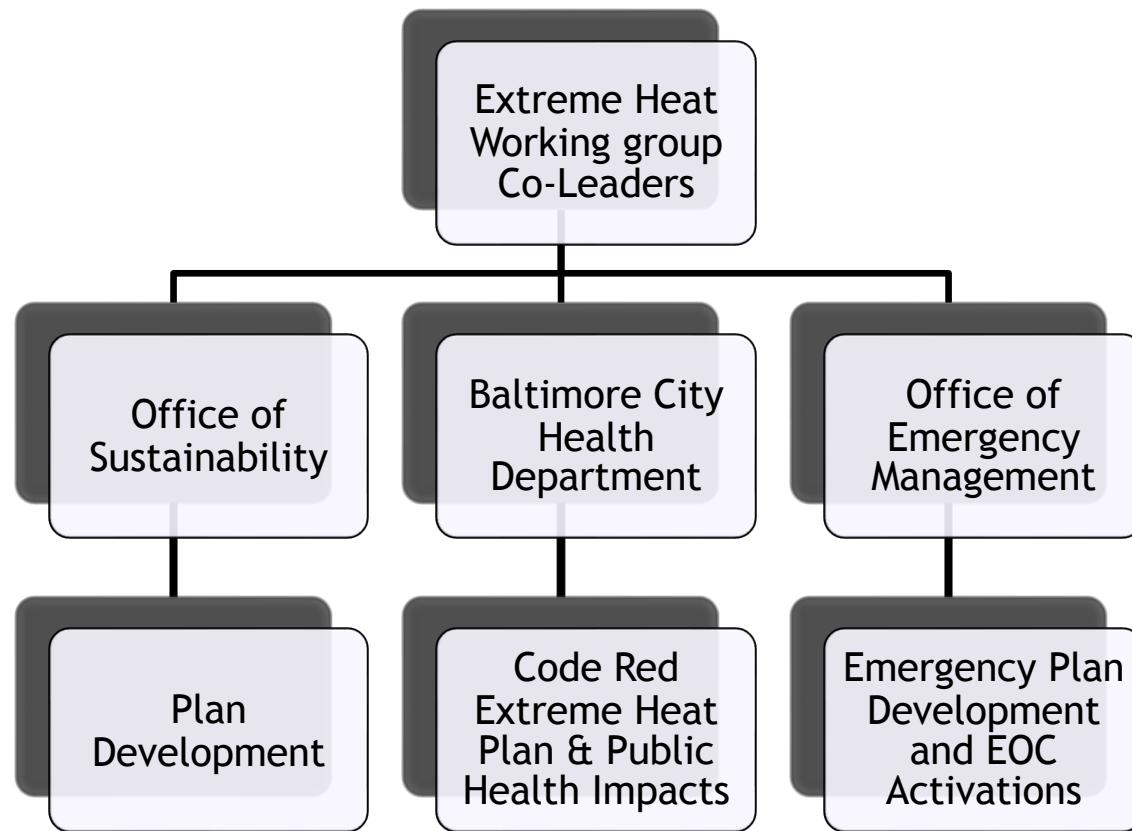
Image: Weather station installation.
Photo Credit: Baltimore Social-Environmental Collaborative 15



“...toward a more resilient, equitable, and sustainable city.”

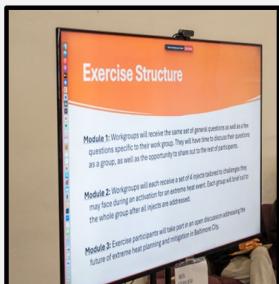
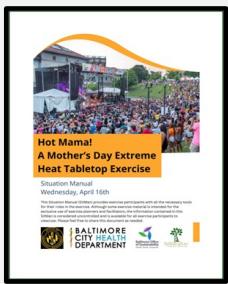


Interagency Collaboration & Recommendations



Extreme Heat Working Group Programs/ Projects

Hot Mama! A Mother's Day Extreme Heat TTX



EPA Cool Corridor Project



Extreme Heat and Early Childhood Roundtable with Harvard



Extreme Heat Recommendations

Description

- Builds on Maryland State guidance
- Proactive measures to mitigate extreme heat
- Utilizing a multi-agency approach through the Subcabinet format

Considerations

- Climate Action Plan
- Sustainability Plan
- Disaster Preparedness Planning Project (DP3)

Types of Recommendations

- Internal actions for municipal employees
- External actions for public services



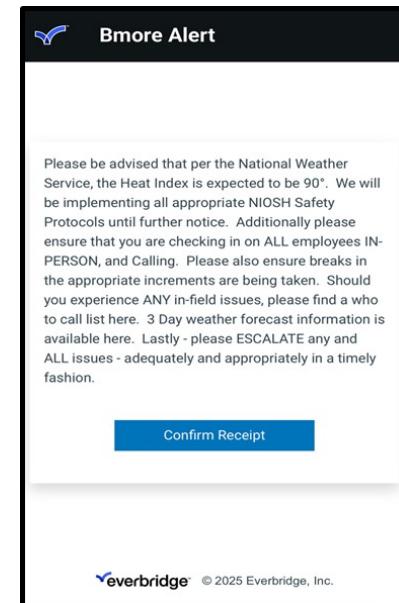
Internal Recommendations

Code Red Extreme Heat Season

- Adapt DPW Heat Illness Prevention Plan for all agencies
- Provide heat safety training and develop enforcement requirements for supervisors
- Determine if some positions could telework on Code Red Days
- Appoint an Extreme Weather Officer

Events During Code Red Extreme Heat Days

- Mandate hydration, heat safety, and cooling plan for city events
- Execute extreme heat protocols in alignment with other extreme weather hazards



“...toward a more resilient, equitable, and sustainable city.”



External Recommendations

Events

- Incorporate extreme heat protections for eventgoers at large outdoor events
- Require heat safety plans
- Align response with that of other extreme weather events

Be Sun Smart: Heat Safety During Pregnancy



Pregnancy can make you more likely to get sick on very hot days. Heat exposure may also be dangerous for your developing baby. Your body must work harder to cool both you and your developing baby.

Follow these tips to help keep you and your baby safe on hot days.

- Stay Hydrated: Drink plenty of water throughout the day, before feeling thirsty.
- Avoid Direct Sun and Peak Heat Hours: Stay indoors between 10am and 4pm, if possible. Stay in the shade when outdoors.
- Plan Travel and Appointments During Cooler Times: Schedule appointments in the morning or evening when it's cooler.
- Wear Lightweight, Breathable Clothing: Wear loose-fitting, light-colored clothing.
- Rest Often: Rest often and avoid heavy activity.
- Cool Down the Body: Take a cool shower or place a cool, damp washcloth around your neck or wrists. Avoid using fans in closed rooms or rooms with temperatures in the mid 90s or higher.

Watch out for signs of heat-related illness, which include:

 Unusually heavy sweating	 Feeling lightheaded or dizzy	 Confusion
 Cramping	 Nausea	 Seek medical care if you experience these symptoms.

On Code Red Extreme Heat days, several Baltimore City agencies coordinate the opening of cooling centers to offer air-conditioned spaces and cool water for residents.

Cooling center locations and hours can be found at the link below:
<https://health.baltimorecity.gov/emergency-preparedness-response/code-red>



External Recommendations

Public Services

- Include cooling interventions into community plans and designs for significantly renovated City-owned buildings
- Increase immediate interventions for vulnerable populations using existing networks
- Assess potential for expanding weatherization assistance program criteria for vulnerable populations beyond Federal criteria
- Promote extreme heat campaign at the start of Code Red season
- Sponsor a mayoral climate art competition



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Recommendations

Projects

- Leverage City investment projects to accept donations and sponsorships via the Baltimore Civic Fund Account #245
- Increase cool bus stop shade structures through partnership opportunities with MTA and DOT.
- Include placemaking for climate responsive public art in municipal capital projects



Additional Considerations

Reaching individuals with Access and Functional Needs

- Utilize BMORE ALERTs
- Implement an informational campaign during extreme heat season to encourage good heat-related health and safety practices
- Activate Community Emergency Response Teams (CERT) to perform door-to-door canvassing



Extreme Heat Working Group Next Steps

BCHD	DOP BOS	OEM
<ul style="list-style-type: none"> Moving Harvard workshop projects forward via Cooler Homes, Schools and Indoor Spaces Continue to lead Code Red Extreme Heat Planning Efforts Increasing the ability for community members to visit and access Cooling Centers 	<ul style="list-style-type: none"> Moving Harvard workshop projects forward via Cooler Neighborhoods Cool Corridor for East Baltimore Cool Trainers (weatherized for Community Resiliency Hubs for Unhoused individuals Increase Hydro Sustainability in neighborhoods Provide Incentives to come to the Community Resiliency Hubs during Code Red Extreme Heat Days 	<ul style="list-style-type: none"> Moving Harvard workshop projects forward Communications Projects Enhance public messaging to Baltimore residents utilizing BMORE ALERT, Social Media campaigns, sharing one pagers at Social Service organizations such as WIC and CAP Centers Pursue funding for City-Owned portable Water Trailer to mitigate heat-related illness or dehydration during city events



