

THE DISTRICT OF  
COLUMBIA'S

# EXTREME HEAT ADAPTATION STRATEGY

★ ★ ★  
KEEP  
COOL  
—  
—  
DC

★ ★ ★ DEPARTMENT  
OF ENERGY &  
ENVIRONMENT

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

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# LETTER FROM MAYOR MURIEL BOWSER



Dear Washingtonians:

The impacts of climate change are not distant threats. Washington, DC is experiencing warmer, more humid, and more prolonged summers than ever before. Summer temperatures are projected to increase by up to 10 degrees over the next 60 years, and our number of heat emergency days is expected to more than triple by 2050. Extreme heat is not just uncomfortable—it is dangerous. Heat can deteriorate infrastructure, spur power outages, and most critically, harm the health of District residents.

To better adapt to the climate challenges of the future and to respond to the extreme heat we already face today, I hope you will read the District of Columbia's heat adaptation strategy: **Keep Cool DC**, and learn more about our other related plans including **Climate Ready DC**.

**Keep Cool DC** is our comprehensive strategy to adapt to hotter days by reducing the drivers of extreme heat and protecting District residents from the dangers of high temperatures. This plan will make sure that residents have the knowledge and resources to stay cool during heat emergencies, and will guide the District's efforts to make our neighborhoods more resilient to heat.

**Climate Ready DC**, our strategy to become more resilient to climate change, calls for the reduction of outside air temperatures through expanded green space, tree planting, and innovative techniques like cool roofs. We are working hard to keep our urbanized areas cool and are well-equipped to respond to heat emergencies. But we have more to do to protect all District residents, particularly those most vulnerable to extreme heat, as the District warms.

By working together, and through the collaborative efforts of the District Department of Energy and Environment and other District agencies, we will be far better suited to address the impacts of climate change and extreme heat so that all Washingtonians can live healthier, safer, stronger, and more equitable and resilient lives.

Sincerely,

A handwritten signature in black ink that reads "Muriel Bowser". The signature is fluid and cursive, with the first name "Muriel" and last name "Bowser" clearly legible.

Muriel Bowser  
Mayor

# INTRODUCTION TO HEAT



## WHAT IS EXTREME HEAT?

**Extreme heat**, often referred to as a “heat wave,” is an extended period of unusually high temperatures (95°F) frequently accompanied by high humidity.

Extreme heat is a dangerous hazard that can pose serious health risks to people. Heat can also cause significant infrastructural and economic challenges. While hot weather may seem like just an inconvenience to some, it can be deadly. Extreme heat is the leading cause of climate-related deaths in the United States.

Dehydration, heat exhaustion, and heat stroke are direct health impacts of extreme heat that require immediate medical intervention. Heat also causes indirect health complications, such as birth defects and mental health stress, and can aggravate respiratory illnesses like asthma by trapping pollutants and impairing air quality.

Extreme heat can also deteriorate infrastructure (e.g., railway lines) and strain essential services (e.g., power outages may occur as a result of high energy use from air conditioning).

## WHY IS A HEAT ADAPTATION STRATEGY NEEDED?

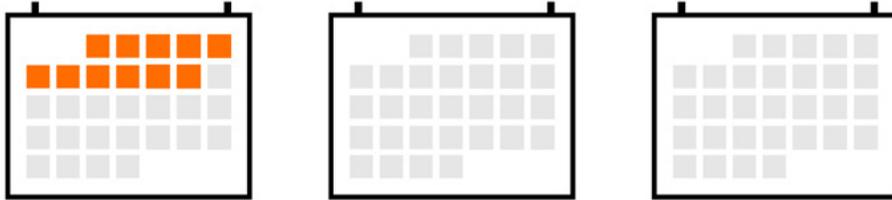
Like many places around the world, the average temperatures in the District have been trending dramatically warmer since the previous century.<sup>1</sup> The District Department of Energy and Environment (DOEE)’s Climate Projections & Scenario Development showed that summer temperatures are projected to increase by up to 10 degrees over the next 60 years.<sup>2</sup> The number of heat emergency days each year (i.e., days above 95°F) is expected to more than triple by 2050. By 2080, **the District could see as many as 75 days above 95°F!** Humidity can make the temperature feel even hotter. For example, if the air temperature is 94° F with 60% humidity, the temperature will feel like 110° F.

With temperatures projected to increase and heat waves expected to occur more frequently and severely, it is critical for the District of Columbia to continue acting to reduce the drivers of increasing temperatures, while protecting residents and building community resilience.

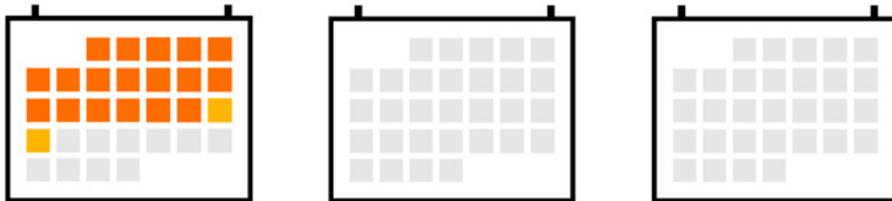
<sup>1</sup> [National Oceanic and Atmospheric Administration \(NOAA\) National Centers for Environmental Information \(NCEI\), \*Climate at a Glance\*](#)

<sup>2</sup> [DOEE, \*Climate Projections & Scenario Development\*](#)

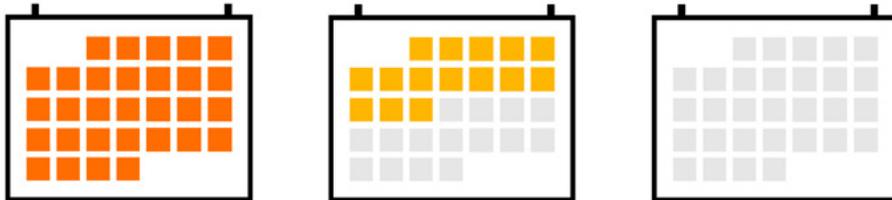
**Baseline:** 11 days / dias



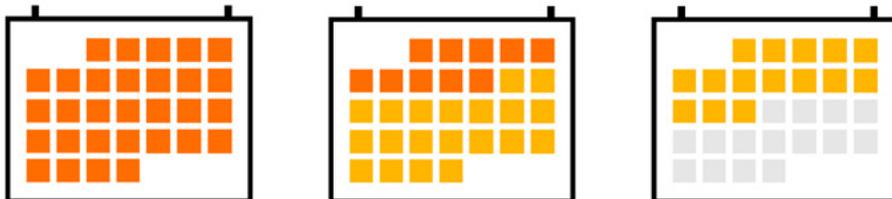
**2020s:** 18-20 days / dias



**2050s:** 30-45 days / dias

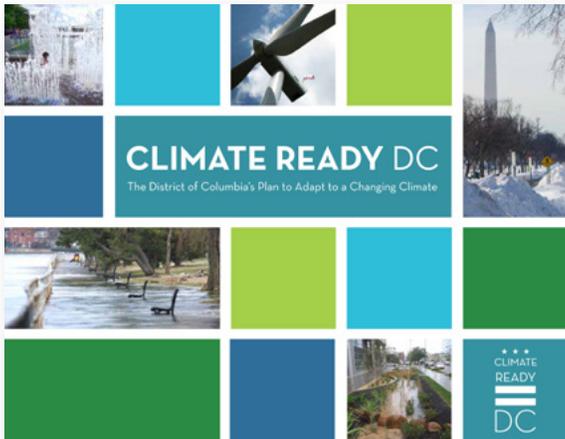


**2080s:** 40-75 days / dias



- Above 95° (low emission scenario) | Más de 95° (escenario de bajas emisiones)
- Above 95° (high emission scenario) | Menos de 95° (escenario de altas emisiones)

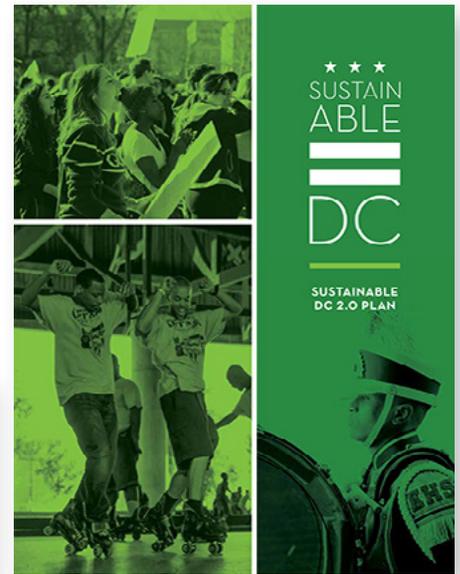
This initiative builds upon several District plans advanced under the leadership of Mayor Muriel Bowser, including:



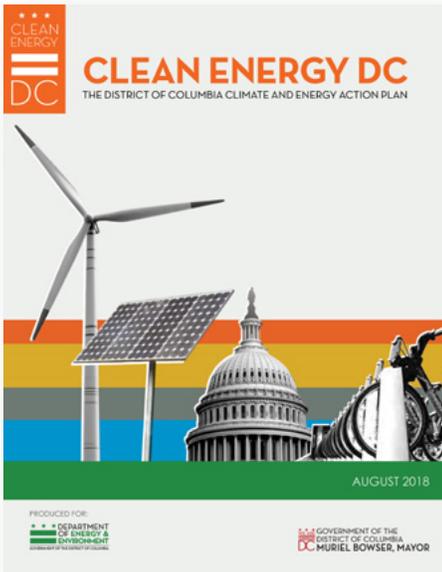
**Climate Ready DC** is the District's climate adaptation plan and lays out ways that the District will prepare for the overall impacts of climate change.



**Resilient DC** is the District's overall resilience strategy and outlines the ways that the District will survive, adapt, and thrive in the face of many different kinds of chronic stresses and acute shocks.



**Sustainable DC 2.0** is the District's overall plan to make DC the healthiest, greenest, most livable city for all residents.



**Clean Energy DC** is the District's plan to achieve 50% reduction of greenhouse gas emissions by 2032.



**Carbon Free DC** is the District's plan to achieve carbon neutrality by 2050.



GOVERNMENT OF THE DISTRICT OF COLUMBIA  
MURIEL BOWSER, MAYOR

The **Heat Emergency Plan** is the District's plan to activate cooling centers for residents to seek relief when the temperature or heat index reaches 95 degrees.



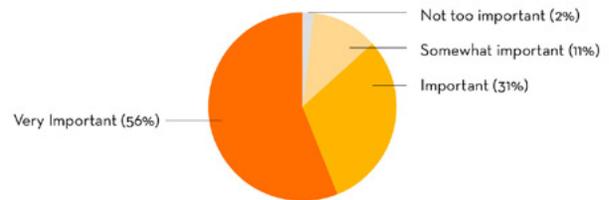
This strategy, **Keep Cool DC**, complements these ongoing efforts across District government by focusing on the ways that we will continue to **cool down the city** and **keep residents safe**.

# COMMUNITY VOICES

Regardless of projections for a hotter future, District residents already cope with heat today. During the development of this strategy, DOEE engaged District residents to learn more about their experiences with extreme heat and discuss various methods to address heat. DOEE partnered with the Georgetown Climate Center to host focus groups of District residents, workers, and service providers, and DOEE distributed a survey to nearly 500 residents. Below are key themes that were voiced:

- Most people prefer to stay in their homes during periods of extreme heat.
- The high cost of energy is a common barrier to air conditioning use, and renters especially face challenges.
- Some residents are unaware of existing cooling resources and programs. Educational outreach is needed in multiple languages and through various channels to reach all residents.
- Safety, cleanliness, and maintenance concerns deter residents from visiting existing parks and green spaces.
- Many residents are interested in more shade trees and green spaces in their neighborhoods.

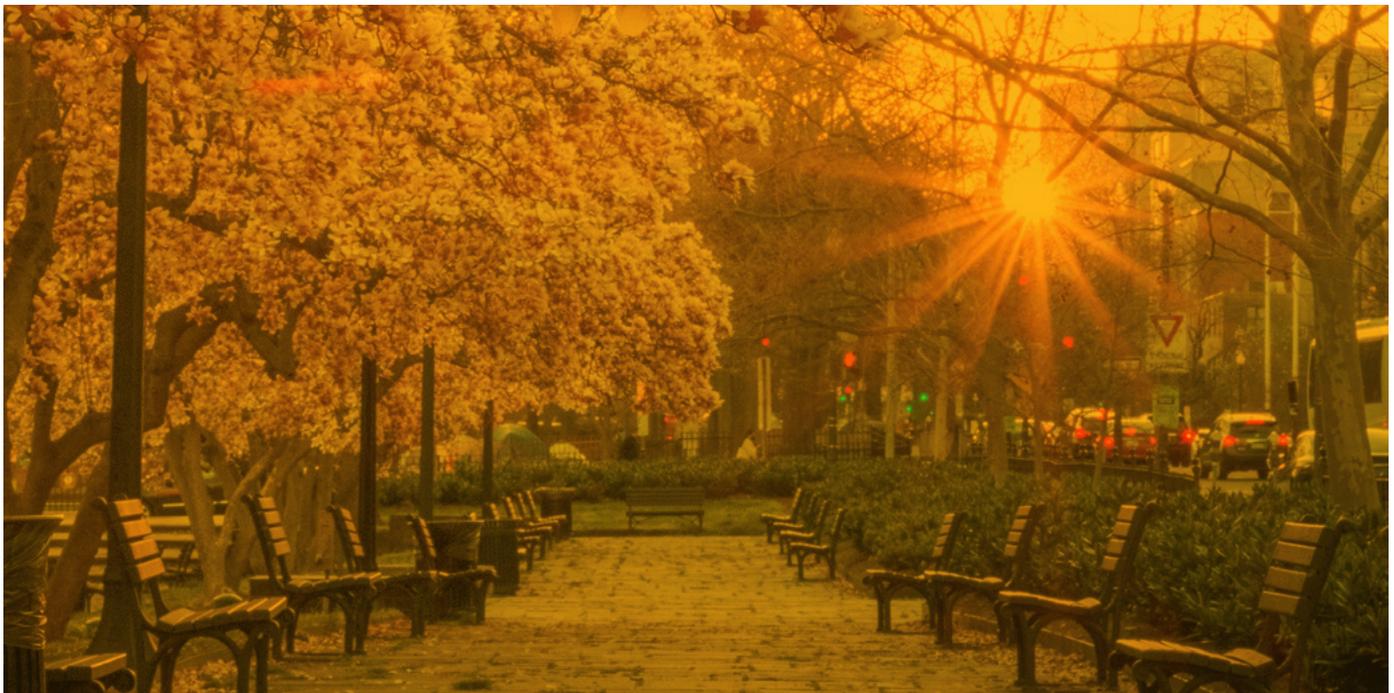
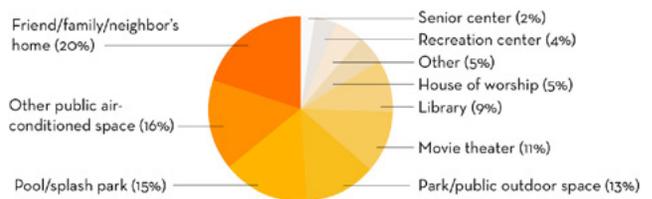
**How important of an issue do you consider extreme heat in your community?**



**On extreme heat days, are you more likely to:**



**If you leave your home during extreme heat, where are you more likely to go?**



Here are some of the stories residents shared:



## HEAT WHILE COMMUTING

Many residents are exposed to heat on their commutes, including walking or biking in the heat and waiting at bus stop or poorly ventilated Metro stations. One resident remembers a summer day when he had to stop and rest in a bus shelter while commuting due to “fear of passing out.” He said, “**there were no other places to stop and rest under shade** because it was all residential buildings,” emphasizing the value of trees and shading structures on high heat days.

## HEAT AT HOME

Air conditioning is a popular and effective way to stay cool indoors during the summer; however, some apartment buildings charge residents an extra fee for window AC units. This can lead to residents choosing not to use their AC units or using them improperly. For example, one resident’s apartment building charges a fee per AC unit per month. To save a little money by avoiding this fee, this resident used her window AC unit with the window shut. However, without proper ventilation, **waste heat from the AC unit made the room warmer** and the lack of circulation prevented a breeze, further amplifying the heat. This woman had to seek medical care after experiencing heat stress and difficulty breathing.



## HEAT AT WORK

Residents who work outdoors are exposed to heat for prolonged periods of the day, which can pose serious threats to their health. One resident used to work cleaning wooded areas, removing waste, and treating invasive species. Working in the woods means wearing long sleeves and pants year-round. “**Being fully clothed on a hot summer day is unbearable,**” they said. “We had a water cooler that was never clean and never had ice. I couldn’t work under those conditions,” they added.

# WHY IS THE DISTRICT WARMING?

In recent years, the District of Columbia has experienced changes in temperature driven in part by climate change and the urban heat island effect. For example, the average annual number of very hot days has increased since 1985 and nighttime temperatures are trending dramatically warmer since 2009.<sup>3</sup> Summers are lasting longer compared to last century.<sup>4</sup>

## CLIMATE CHANGE

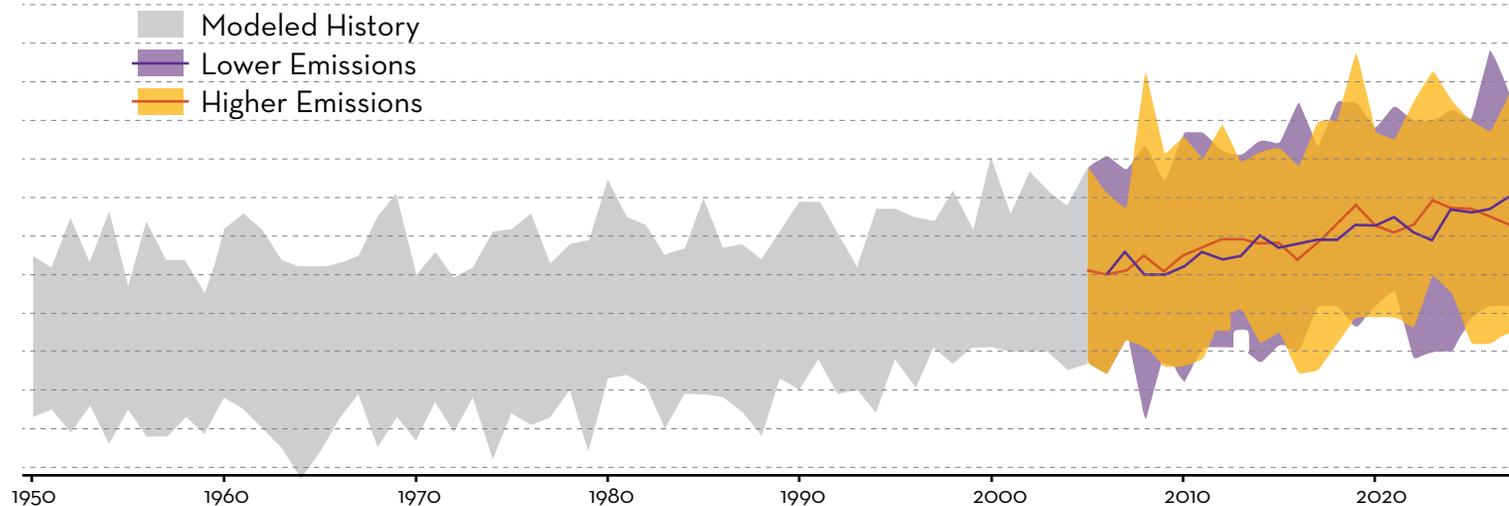
Scientists have demonstrated that human activity (such as burning fossil fuels) is causing an increase in global temperatures and changing weather patterns from their historic trends. Check out the data from the National Environmental Modeling and Analysis Center's Climate Explorer below to see how the climate is expected to change in DC.

In addition to rising temperatures from climate change, the District experiences the Urban Heat Island (UHI) effect. The UHI effect occurs in areas where sunlight is absorbed and retained by paved surfaces and roofs. In dense urban areas, this absorbed heat is combined with heat released by technologies such as air conditioners and automobiles to create an "island" that is significantly warmer than surrounding suburban or rural areas. The presence of trees and vegetation can help keep temperatures cool by deflecting radiation from the sun, providing shade, and releasing moisture into the atmosphere. Neighborhoods with fewer trees and greater concentrations of impervious surfaces (or water-resistant surfaces such as pavement, buildings, and roads) absorb and retain more heat.

## URBAN HEAT ISLAND

3 [NOAA NCIS, Maryland and the District of Columbia - State Climate Summaries 2022](#)

4 [Wang, J., et al. \(2021\), Changing lengths of the four seasons by global warming. Geophysical Research Letters, 48](#)



# DISPROPORTIONATE HEAT RISK

Heat is disproportionately experienced across the District. Some neighborhoods have fewer trees or more pavement than others, causing the UHI effect to leave some neighborhoods almost 17° F hotter than others! DOEE conducted a heat exposure and sensitivity analysis to better understand where the District is most exposed to heat and where the most heat sensitive residents live. The results from this analysis will help to target resources and inform and prioritize heat intervention strategies.

## HEAT IN THE DISTRICT

“Ambient air temperature” is the temperature residents perceive when outdoors. The **Ambient Air Temperature** map shows how heat can vary across the District.

## HEAT EXPOSURE: WHERE IS THE DISTRICT MOST EXPOSED TO HEAT?

The **Heat Exposure Index** map combines measurements of air temperature, tree canopy cover, and impervious surface area to evaluate which areas of the District are most exposed to heat.

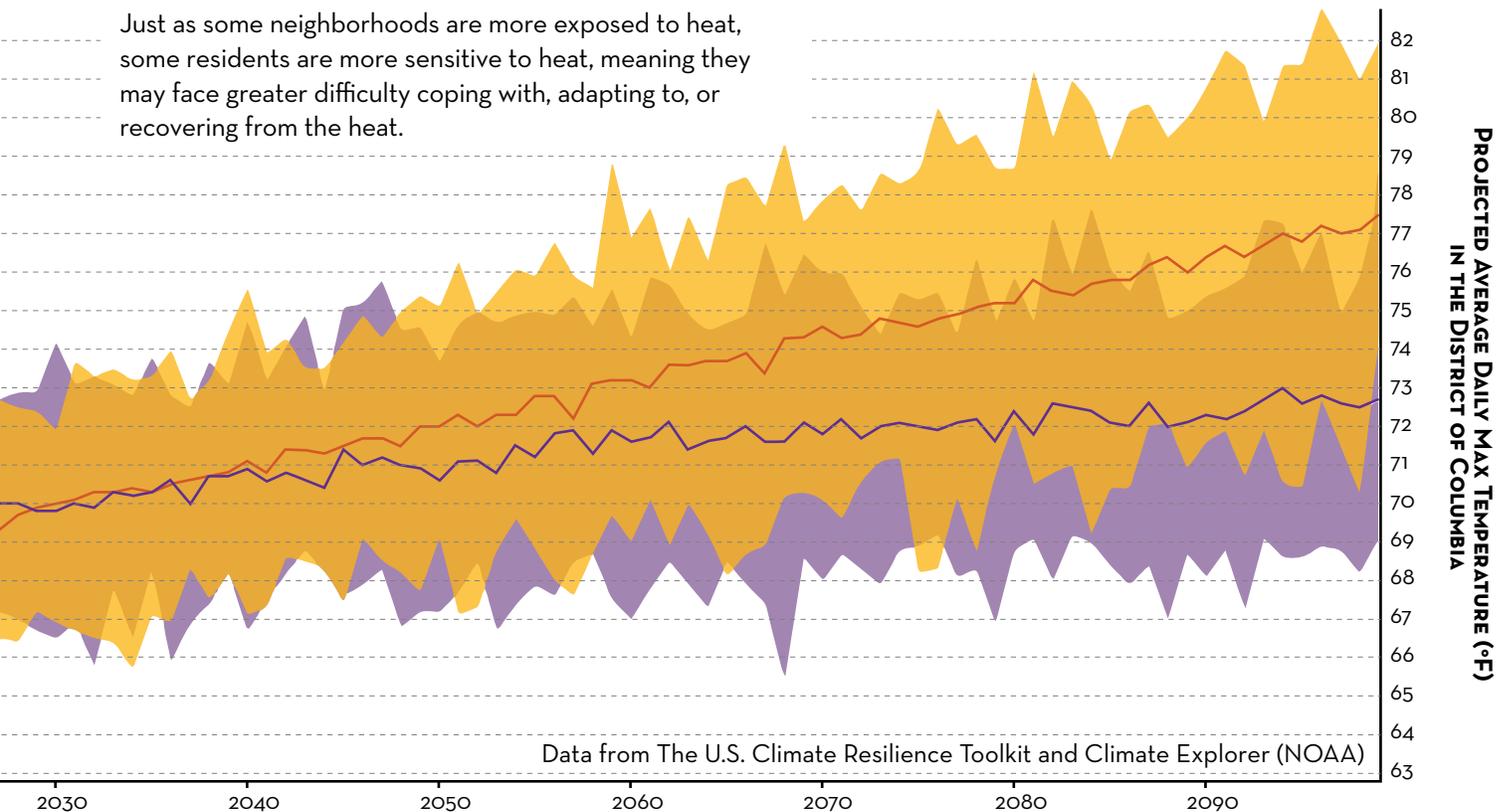
## HEAT SENSITIVITY: WHERE DO THE MOST SENSITIVE RESIDENTS LIVE?

Just as some neighborhoods are more exposed to heat, some residents are more sensitive to heat, meaning they may face greater difficulty coping with, adapting to, or recovering from the heat.

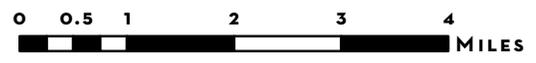
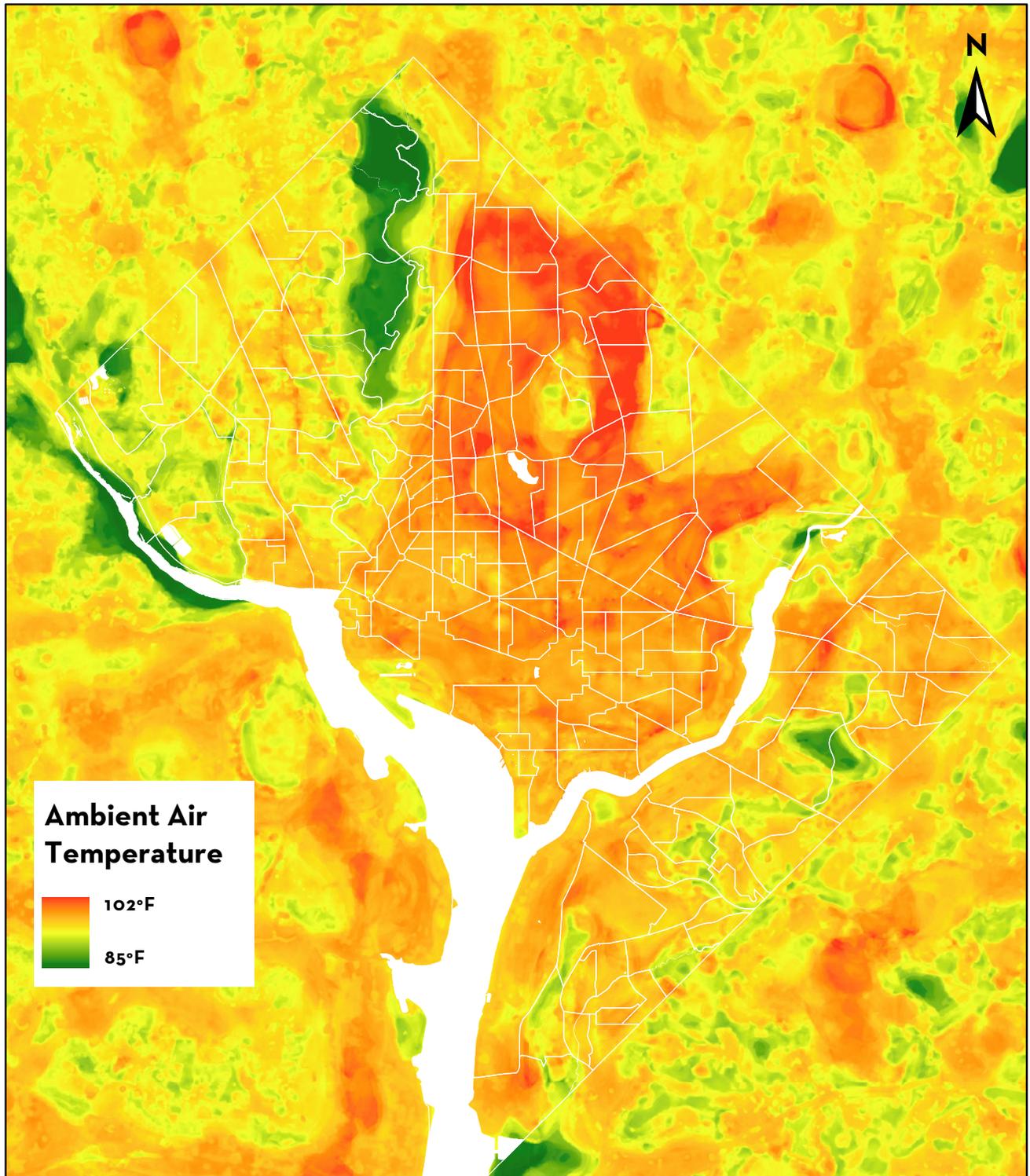
Some characteristics, such as age, health status, and income level, can influence an individual’s sensitivity to heat. Some populations, such as communities of color and households with limited English proficiency, are more susceptible to the adverse impacts associated with extreme heat. The **Heat Sensitivity Index** map combines the following nine socio-economic, demographic, and health variables to help identify where the most heat sensitive residents live: (1) older adults (65+); (2) young children; (3) low-income households; (4) people of color; (5) people with disabilities; (6) households with limited English proficiency; (7) prevalence of asthma; (8) prevalence of obesity; and (9) prevalence of coronary heart disease.

## HEAT EXPOSURE-SENSITIVITY: WHAT PARTS OF THE DISTRICT ARE MOST HEAT EXPOSED AND HEAT SENSITIVE?

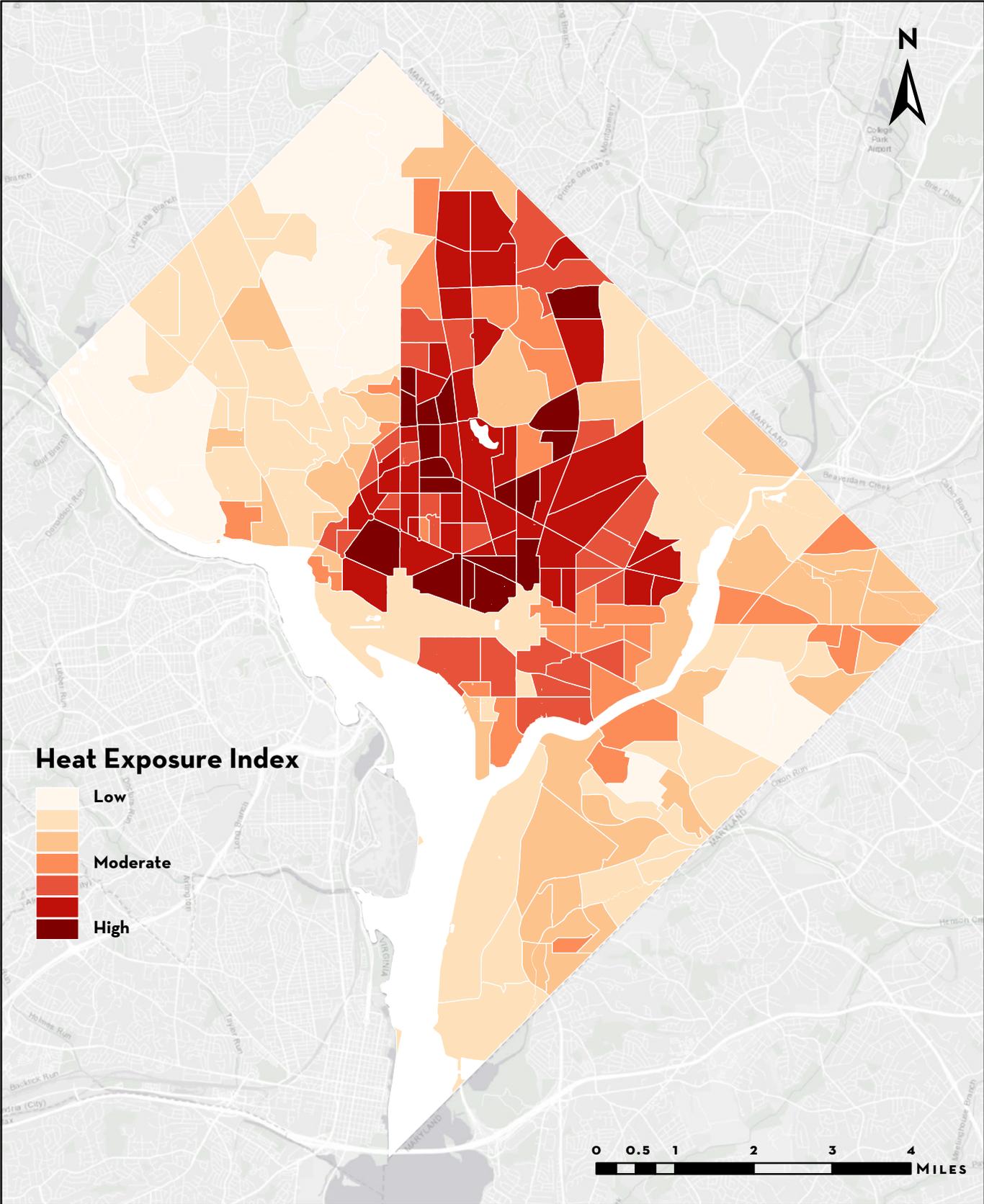
To help decision-makers prioritize heat mitigation and adaption investments, the Heat Exposure Index and Heat Sensitivity Index described above were combined to create the Heat Sensitivity-Exposure Index. This map shows the areas of the District that are most heat exposed and are home to heat sensitive residents.



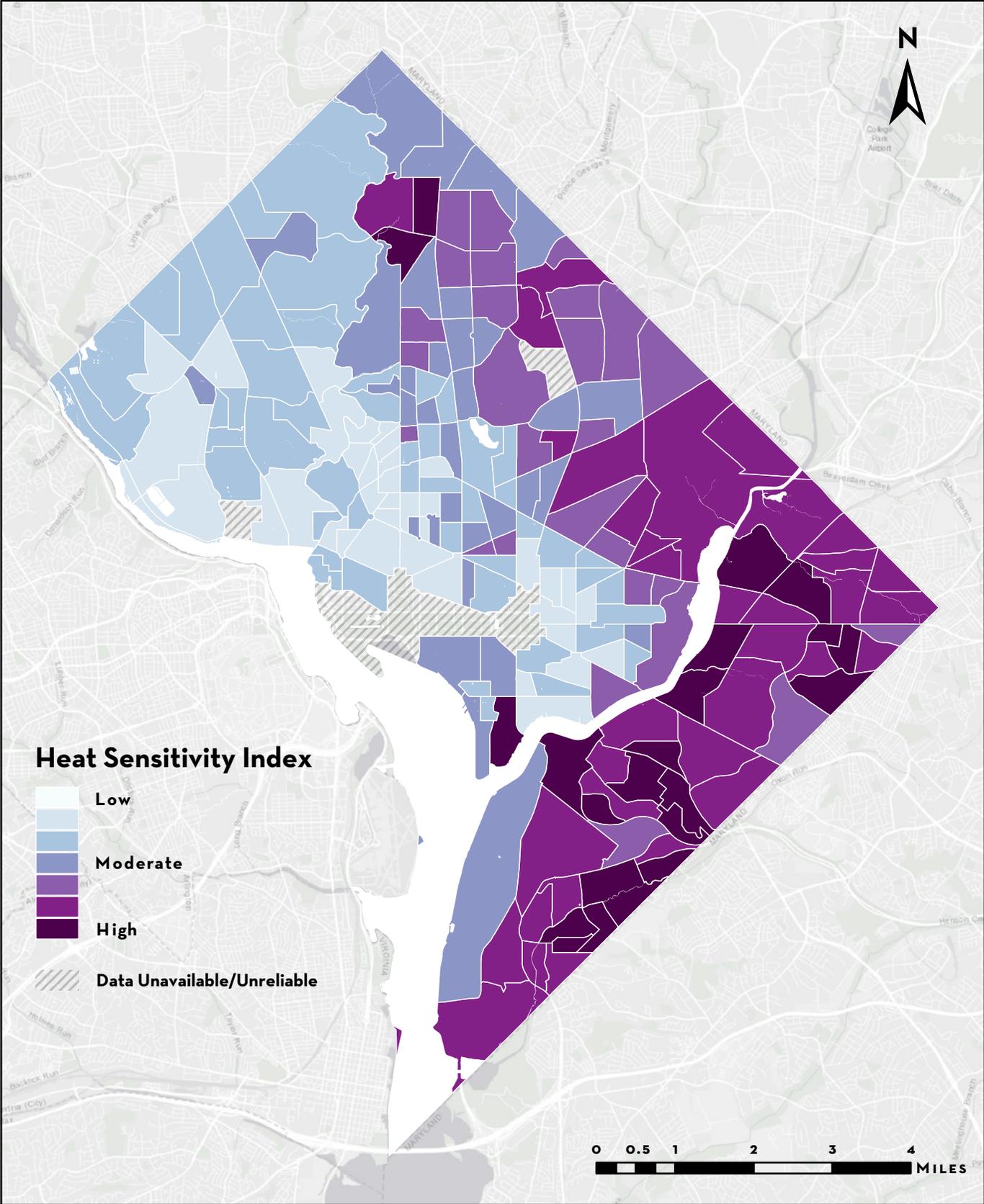
# 2019 Ambient Afternoon Air Temperature (August)



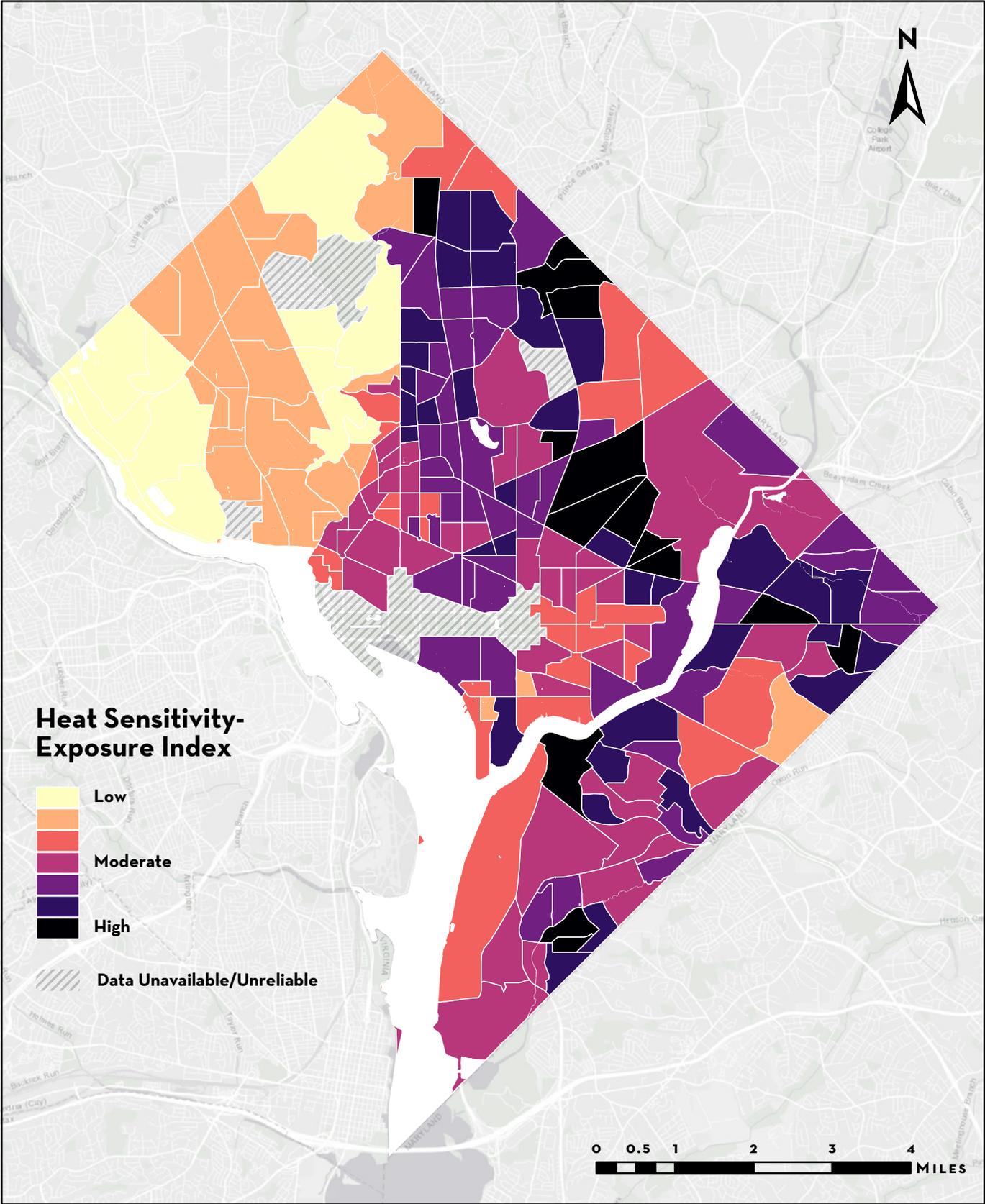
# 2020 Heat Exposure Index



# 2020 Heat Sensitivity Index



# 2020 Heat Sensitivity-Exposure Index



# WHAT YOU CAN DO TO KEEP COOL

## INDIVIDUALS

You can take steps to keep yourself and others safe during a heat emergency. Your first tool in a heat emergency is knowledge: stay informed on emergency status through local radio, television and official social media accounts, and download the free Homeland Security and Emergency Management Agency (HSEMA) app or [Alert DC](#) to receive updates on your mobile device.

### Take the following tips into consideration to keep yourself safe during the summer:

- Seek relief at a cooling center. The District activates cooling centers when the temperature or heat index reaches or exceeds 95° F.
- Avoid going outside during peak heat hours, between 10:00 a.m. – 4:00 p.m.
- Rest in shade if you have to be outside.
- Drink plenty of water (even if you don't feel thirsty!) and avoid alcoholic or caffeinated beverages.
- Wear light-colored, loose-fitting clothes.
- Take cool showers to help you cool down.
- Seek immediate medical attention if you feel dizzy, nauseous, and/or experience muscle aches.

### To help keep others safe, consider taking the following steps:

- Check on heat sensitive neighbors, such as the elderly and neighbors with disabilities or chronic illnesses.
- Never leave children or pets alone in vehicles, even with the windows cracked.
- Learn to recognize the symptoms of dehydration, heat stress (e.g., heavy sweating, fatigue, cramps and chills) and heat stroke (e.g., no sweating, headache, confusion), and know what to do when someone around you is struggling with the heat.
- Advocate for or install shade in your neighborhood (e.g., trees or shade structures). See the “Cooling Down” section below.

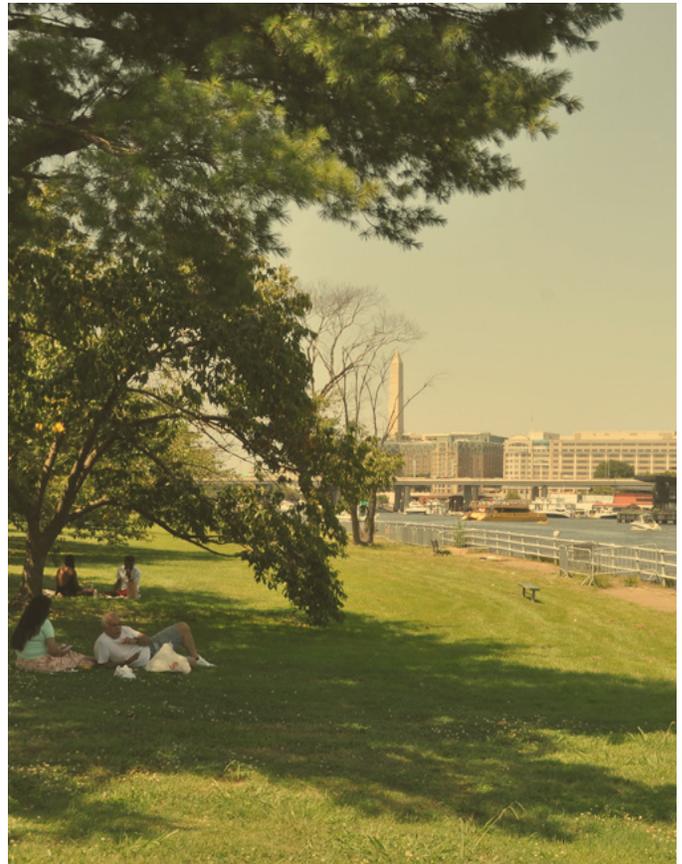
## ORGANIZATIONS

Businesses, nonprofits, and other employers can take several actions to help protect community members from the heat.

- Advocate for or install shade near your place of work.
- Use your space to offer residents a break from the heat.
- Provide care and resources to your employees who might be exposed to heat while working, such as providing shade, water, and minimizing outdoor work in the hottest hours of the day.

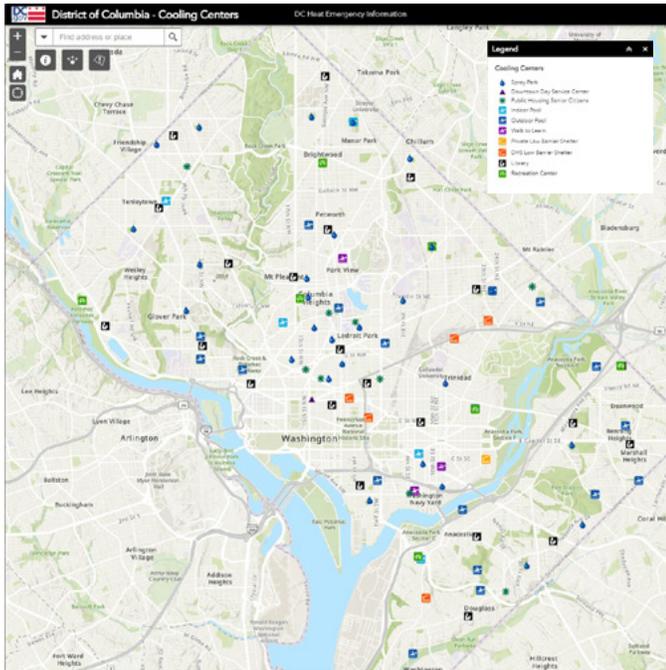
## STAY INFORMED

To learn more about the health impacts of heat exposure and safety tips, see the Overexposure fact sheet on the following pages. To learn more about risk factors and pre-existing health conditions that can worsen extreme heat exposure, see the Understanding Risk fact sheet. Visit ReadyDC's extreme heat site ([ready.dc.gov/extremeheat](https://ready.dc.gov/extremeheat)) for more information on what to do before, during, and after a heat emergency.



## COOLING CENTERS IN THE DISTRICT

A cooling center is an air-conditioned publicly accessible building, set up to provide relief and safety for the public during extreme heat or a heat wave. The District government activates cooling centers when the heat index (temperature and humidity) reaches 95° F. District residents can find the closest cooling center to them at [heat.dc.gov](http://heat.dc.gov).



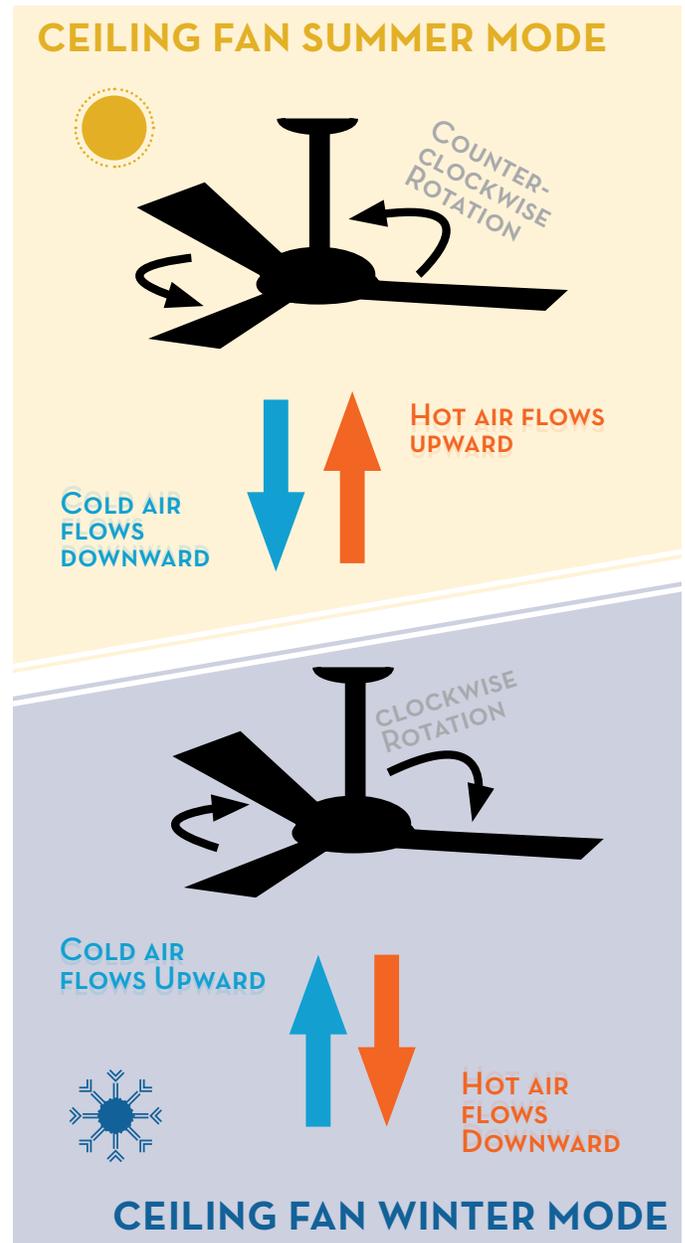
## FAN SAFETY

Did you know running a fan when indoor temperatures are above 95°F is actually more harmful than helpful? Fans do not cool the air. Temperatures must be cooler than your body temperature.

- **Above 95°F:** Using a fan above 95°F can inhibit sweating, the body's natural way of thermal regulating, making it more difficult to lose heat. When indoor temperatures are above 95°F, stay hydrated and seek a cooling center to escape the heat.
- **Below 95°F:** When indoor temperatures are below 95°F, fans can help circulate cooler air, cooling the body off. Place fans near open windows to blow cooler outdoor air into the room.

## Did you know ceiling fans have a summer mode?

Ceiling fans should rotate counterclockwise in the summer to help push down cool air to the ground. In the winter, ceiling fans should rotate clockwise to draw up cool air toward the ceiling, displacing the warmer air that rises.



# EXTREME HEAT OVEREXPOSURE

## HEAT EXHAUSTION

Heat exhaustion occurs when the body overheats, often accompanied by dehydration. Can progress to heat stroke without proper treatment.

### KNOW THE SIGNS

- Heavy Sweating
- Weakness & Fatigue
- Fast, Weak Pulse
- Muscle Cramps
- Cold Chills
- Nausea
- Dizziness

### TREATMENT

- Rest in Shade or Air Conditioned Space
- Drink Water
- Remove Extra Clothing
- Wade in Shallow Water

## HEAT STROKE

Heat stroke can be fatal and requires immediate medical attention.

### KNOW THE SIGNS

- No Sweating
- High Body Temperature
- Fast, Strong Pulse
- Altered Mental State
- Throbbing Headache
- May Lose Consciousness
- Confusion

### TREATMENT

- CALL 911 IMMEDIATELY
- Take to the Hospital
- Apply Cold Compress
- Do Not Give Fluids



## //////////////////// TIPS FOR STAYING COOL //////////////////////

### STAY HYDRATED

Drink plenty of water and avoid caffeinated or alcoholic beverages.

### REST IN COOL SPACES

Take breaks in shaded or air conditioned spaces. Avoid strenuous outdoor activity.

### CHECK ON NEIGHBORS

Check in on elderly neighbors, children, and pets regularly during periods of extreme heat.

### USE FANS PROPERLY

Do **NOT** use fans when indoor temperature is >95°F as this can inhibit sweating (i.e. temperature regulation).

CALL THE SHELTER HOTLINE AT 202-399-7093 IF YOU SEE SOMEONE OUTSIDE EXPERIENCING HOMELESSNESS IN NEED OF SHELTER OR COOLING RELIEF FROM THE HEAT, OR CALL 911 IF THREAT TO SAFETY AND HEALTH IS IMMINENT.

Visit [ready.dc.gov/extremeheat](http://ready.dc.gov/extremeheat) and [heat.dc.gov](http://heat.dc.gov) to learn more about extreme heat, DC's Heat Emergency Plan, and cooling resources available near you!

# EXTREME HEAT

## UNDERSTANDING RISK

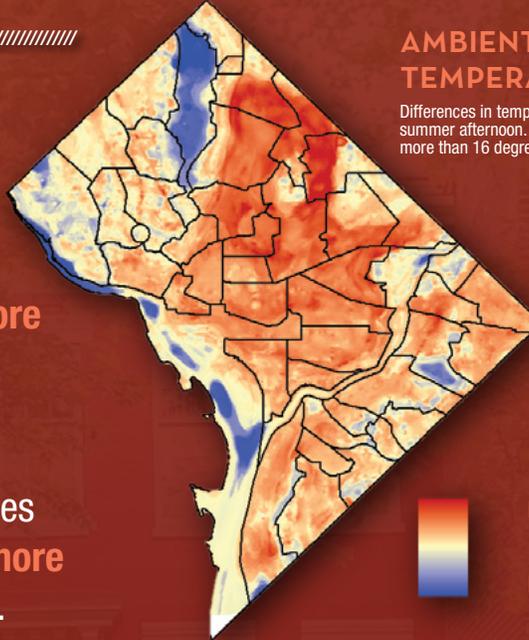
EXTREME HEAT IN  
WASHINGTON DC

### ////// DID YOU KNOW? ////

Extreme heat causes more deaths than any other weather-related hazard.

Climate change will cause more frequent, severe, and longer-lasting heat waves.

Neighborhoods with fewer trees and more hard surfaces are more susceptible to extreme heat.



### AMBIENT AIR TEMPERATURE MAP

Differences in temperature collected during a summer afternoon. Some neighborhoods are more than 16 degrees hotter.



HIGH: 101.9°F

LOW: 85.2°F

### ////// WHO IS MORE SENSITIVE TO EXTREME HEAT? ////

Certain characteristics influence an individual's ability to: adapt to, cope with, or recover from extreme heat.

EXTREME HEAT SENSITIVITY

#### AGE



OLDER ADULTS



YOUNG CHILDREN

#### HEALTH



CHRONIC ILLNESSES



DISABILITIES



BEING OVERWEIGHT



BEING PREGNANT

#### LIVING CONDITIONS



LACKING AIR CONDITIONING



LIVING OR WORKING OUTDOORS



OWNING PETS

CALL THE SHELTER HOTLINE AT 202-399-7093 IF YOU SEE SOMEONE OUTSIDE EXPERIENCING HOMELESSNESS IN NEED OF SHELTER OR COOLING RELIEF FROM THE HEAT, OR CALL 911 IF THREAT TO SAFETY AND HEALTH IS IMMINENT.

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# KEEPING DC COOL

## STRATEGIES

Keep Cool DC includes nine overarching strategies for the District of Columbia to address the risks of extreme heat. These strategies are organized into two sections: Cooling Down and Staying Safe. Some of these strategies identify new opportunities for the District to take action, and some of them identify ways to expand existing agency activities. Some of the strategies

may be pursued in the short-term, while others may require more time for implementation. Together, these strategies provide guidance on how the District can prepare for and adapt to extreme heat.

Multiple District agencies will collaborate on implementing these strategies, including:

### KEEP COOL DC AGENCY PARTNERS

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<u>Acronym</u>	<u>Agency</u>
DOEE	Department of Energy and Environment
DACL	Department of Aging and Community Living
DC HEALTH	DC Health
DCHA	District of Columbia Housing Authority
DCPL	District of Columbia Public Library
DCPS	District of Columbia Public Schools
DCSAA	District of Columbia State Athletic Association
DDOT	District Department of Transportation
DGS	Department of General Services
DHS	Department of Human Services
DMPED	Deputy Mayor's Office for Planning and Economic Development
DOB	Department of Buildings (formerly Department of Consumer and Regulatory Affairs)
DOES	Department of Employment Services
DPR	Department of Parks and Recreation
DPW	Department of Public Works
DSLBD	Department of Small and Local Business Development
HSEMA	Homeland Security and Emergency Management Agency
MPD	Metropolitan Police Department
OCA	Office of the City Administrator
OCTO	Office of the Chief Technology Officer
ODR	Office of Disability Rights
OP	Office of Planning
OPC	Office of the People's Counsel
OSSE	Office of the State Superintendent of Education
OTA	Office of the Tenant Advocate
PSC	District of Columbia Public Service Commission
WMATA	Washington Metropolitan Area Transit Authority

# COOLING DOWN

**This section describes the strategies that the District will pursue to combat urban heat.**

Because of the UHI effect, certain neighborhoods retain more heat as buildings, roads, and other hard surfaces replace trees and green spaces. High heat can impact public health, damage critical infrastructure and equipment, raise energy costs and increase the risk of power outages. With thoughtful planning and design, we can equitably cool

down the District. Trees are effective at lowering temperatures, and innovative designs—such as green roofs, energy efficient buildings, reflective surfaces, pervious pavements, and green infrastructure—can help keep our city cool.

To help cool down the District, DOEE will work closely with partner agencies listed under the following strategies to identify next steps, action items and deliverables.



## STRATEGY 1: INCREASE COOL SPACES

Improve access to shade, cool spaces, and drinking water in the hottest areas of the District and in places where residents and visitors spend the most time outdoors.

1.1

### Cool Neighborhoods

Work with community-based organizations, faith-based organizations, and others in neighborhoods most vulnerable to heat to identify, design, and implement heat reduction strategies that best address local needs.

#### PARTNER AGENCIES

DOEE, OP, DDOT, DPR, DGS, DC Health, DCHA, and HSEMA

1.2

### Cool Businesses

Collaborate with business communities to understand needs and improve shade to protect residents against extreme heat. Ample shade can support businesses by making commercial corridors more walkable and comfortable.

#### PARTNER AGENCIES

DOEE, DMPED, DSLBD, OP, and DDOT

1.3

### Cool Commutes

Invest in additional cooling strategies such as shade trees and bus shelters along busy transit corridors. Residents reported struggling with heat during commutes, especially when waiting for the bus or while walking or biking to work.

#### PARTNER AGENCIES

DDOT, WMATA, DOEE, and HSEMA

1.4

### Cool Schools

Pursue green playground design of shaded sanctuaries where schools can safely hold class outside and children can engage with nature. Traditional schoolyards include asphalt that can get hot enough to fry an egg on some summer days; thus, putting children at high health risk.

#### PARTNER AGENCIES

DCPS, DOEE, DDOT, OSSE, and DGS

1.5

### Cool and Accessible Parks

Maintain existing green spaces and expand their use by investing in play space, shade trees, splash parks, benches, and adding shaded pedestrian and cycling trails where possible. Parks offer District residents the opportunity to enjoy the cooling benefits of nature, but residents reported that not all parks are welcoming, clean, safe, shaded or accessible.

#### PARTNER AGENCIES

DOEE, DPR, DDOT, and MPD

## STRATEGY 2: DESIGN FOR HEAT

Ensure that all new buildings and developments decrease, rather than contribute to, the UHI.

2.1

### Cool Codes

Use recent advancements in architectural and landscape design to update codes, regulations, and incentives, such as the Green Area Ratio and the Green Construction Code, to ensure that all new buildings and major redevelopments reduce their contributions to the UHI. Coordinate with and provide technical assistance to the development community to assist in this effort.

#### PARTNER AGENCIES

DOB, DOEE, OP, and HSEMA

2.2

### Cool Capital Planning

Incorporate cooling improvements such as cool pavement into regular street upgrades and capital improvement projects. The District plays an important leadership role by testing cool design solutions and ensuring that our own buildings and infrastructure provide maximum cooling benefits.

#### PARTNER AGENCIES

OCA, DDOT, DGS, DOEE, and HSEMA

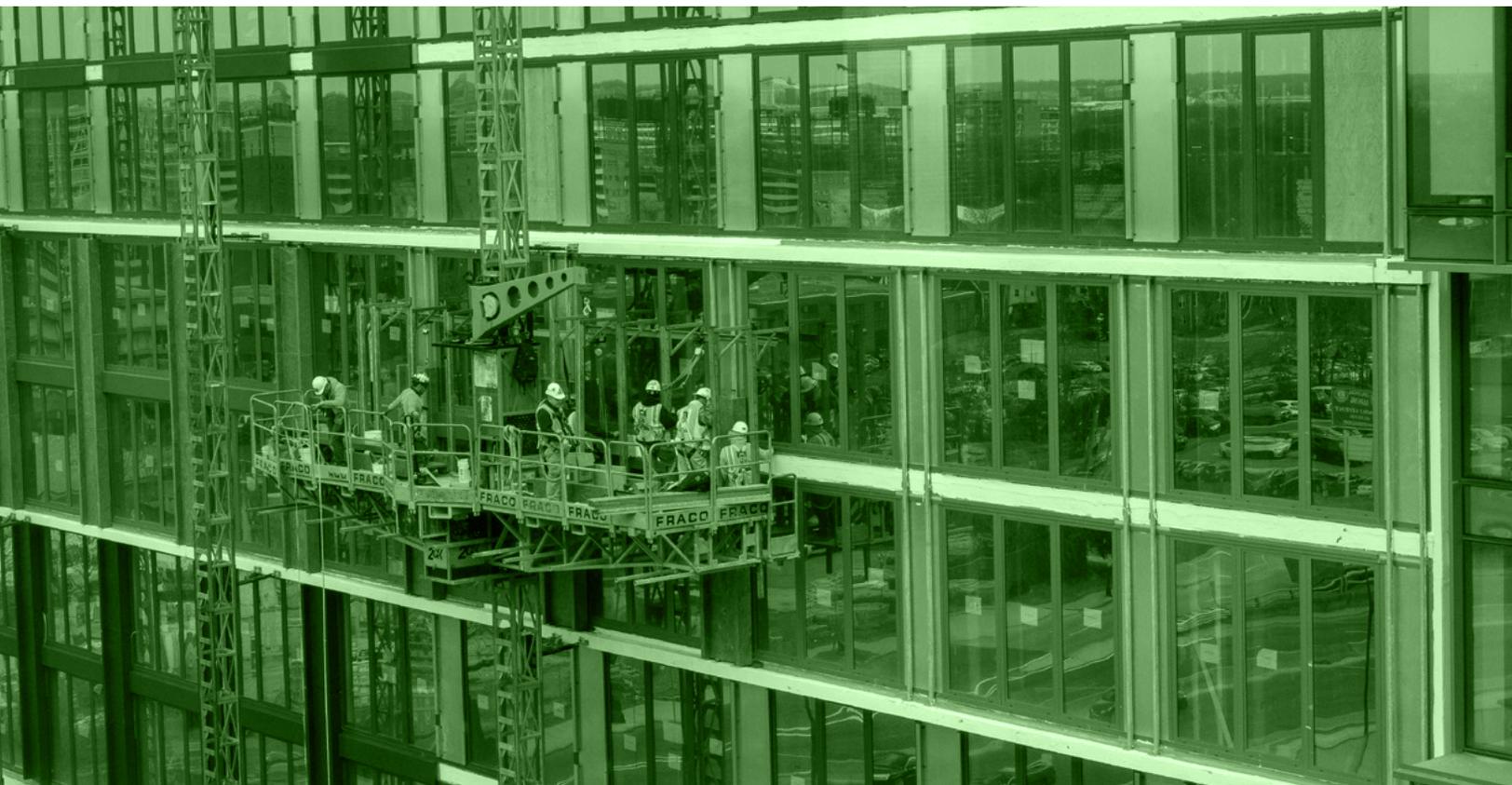
2.3

### Cool Neighborhood Plans

Integrate UHI reduction planning into small area and neighborhood planning efforts. While individual buildings and parcels can contribute to a cooler District, change also requires action at a larger scale.

#### PARTNER AGENCIES

OP and HSEMA



## STRATEGY 3: ENHANCE TREE EQUITY

Increase equitable access to healthy, well-maintained trees. Trees are vital to health and climate resilience, and the District has established ambitious goals to expand tree canopy.

3.4

### Cool Trees

Continue to use the latest climate science and local tree expertise to choose tree species that will provide shade and thrive in a changing climate. A warming climate will shift the growing range of certain tree species.

#### PARTNER AGENCIES

DDOT and DOEE

3.2

### Trees For All

Use regularly updated maps of heat vulnerability to prioritize public plantings where trees are needed most. Many lower-income neighborhoods and communities of color in the District have less tree canopy and hotter temperatures than higher-income neighborhoods. Target and expand incentive programs, such as RiverSmart, to increase trees on private property in the most heat exposed and sensitive communities.

#### PARTNER AGENCIES

DDOT, DOEE, and HSEMA

3.3

### Tree Communities

Partner with community-based organizations to expand community participation in tree planting decisions and maintenance to improve District residents' relationships with trees. While trees can provide significant value to communities, they can also become a nuisance or a hazard if unmaintained or planted without community support.

#### PARTNER AGENCIES

DOEE, DDOT, and HSEMA

3.4

### Tree Protection

The District has an impressive urban forest in both public and private spaces. Focus on tree care and tree protection to ensure the long-term health of these existing trees, ensure trees have sufficient soil access allowing them to mature and provide maximum shade, and invest in structural soil to provide existing and future trees plenty of room to grow.

#### PARTNER AGENCIES

DOEE, DDOT, and HSEMA

## STRATEGY 4: KEEP LEARNING

The District has increased its understanding of heat sensitivity and exposure through research included in this plan, but there is still more to learn. Continue to study the UHI effect and heat mitigation strategies through collaboration with local and regional partners.

4.1

### Updated Heat Maps

Regularly update and evaluate the distribution of urban heat and its disproportionate population risks as new data becomes available.

#### PARTNER AGENCIES

DOEE, HSEMA, DC Health, and OCTO

4.2

### Heat Studies

Collect, monitor, and evaluate real world data measuring impacts of heat interventions throughout the city to better understand which strategies provide the greatest cooling benefit, in partnership with local research institutions.

#### PARTNER AGENCIES

OCTO, DC HEALTH, DOEE, and HSEMA

4.3

### Cool Competitions

Host a cool building and landscape design competition to accelerate creative solutions to extreme heat and spark innovation.

#### PARTNER AGENCIES

OP, DOEE, and HSEMA

4.4

### Cool District

Through careful planning, cities worldwide have found innovative, large-scale cooling techniques for reducing the UHI, such as ventilation corridors. Explore these techniques as well as local opportunities for implementation.

#### PARTNER AGENCIES

DOEE, OP, DDOT, and HSEMA

4.5

### Cool Region

Continue to work with regional partners to build multi-jurisdictional approaches to combat the negative effects of urban heat at the regional scale.

#### PARTNER AGENCIES

DOEE, OP, and HSEMA

# STAYING SAFE

**This section describes how the District will keep residents safe on the hottest days.**

Climate change will make days hotter, nights warmer, and heat waves longer and more frequent. While combatting the UHI can reduce risks, the District will still experience dangerous heat events. We can save lives by preparing for heat, raising awareness of the signs of heat stress

and heat stroke, and ensuring all residents can easily find relief.

To help the District stay safe during extreme heat, DOEE will work closely with partner agencies listed under the following strategies to identify next steps, action items and deliverables.



## STRATEGY 5: IMPROVE COOLING CENTERS

During heat emergencies, the District government opens cooling centers for residents to seek relief. Cooling centers are most often recreational facilities, libraries, and other public buildings with air conditioning. Meanwhile, many residents seek refuge from the heat by going to the movies, museums, neighborhood cafés, or other privately-owned places.

5.1

### Resilience Hubs

Invest in resilience hubs in all neighborhoods and provide resources to ensure these facilities are prepared for heat, including back-up power and accessibility. Resilience hubs are trusted community facilities connecting residents to resources in preparation for and in response to emergencies.

#### PARTNER AGENCIES

DOEE, DPR, HSEMA, DHS, and DACL

5.2

### Cooling Center Standards

Develop and implement minimum standards for cooling centers operations, including back-up power and accessibility. Cooling centers must remain in operation during extreme conditions.

#### PARTNER AGENCIES

HSEMA, DHS, ODR, DPR, DACL, and DCPL

5.3

### Cooling Center Outreach

Engage residents to determine best ways to educate their communities about cooling center locations, hours of operation, and available transportation assistance. Cooling centers only help residents if they know where they are located and can easily access them.

#### PARTNER AGENCIES

HSEMA, DHS, ODR, DPR, DACL, DCPL, and DC Health

5.4

### Cooling Center Programming

Engage residents to determine and implement enjoyable activities to entice residents to spend time in cool places on the hottest days. Residents are more likely to go to cooling centers if they are enjoyable places to pass time.

#### PARTNER AGENCIES

DPR and DCPL

5.5

### Business Cooling Centers

Build partnerships with businesses in the hottest neighborhoods and publicize those businesses offering cooling resources and water to residents. Businesses can help residents beat the heat and improve their bottom line by providing cool places.

#### PARTNER AGENCIES

DSLBD, HSEMA, and DHS

## STRATEGY 6: EDUCATE RESIDENTS ABOUT HEAT RISKS

Residents can better protect themselves and their neighbors if they can identify dangerous heat symptoms and know how to respond.

### 6.1

#### More Heat Health and Safety Education

Create materials to help residents know when someone is experiencing heat stroke and heat stress and how to appropriately respond. Disseminate these materials at community events and in public parks. Focus outreach efforts on heat vulnerable communities.

##### **PARTNER AGENCIES**

DHS, DC Health, DOEE, HSEMA, and DACL

### 6.2

#### Tiered Heat Warnings

As the District grows hotter, heat emergency days could be declared nearly every day during the summer. To avoid complacency and to differentiate between a hot day and a dangerous heat wave, explore adopting a tiered heat warning system.

##### **PARTNER AGENCIES**

DHS, DC Health, and HSEMA

### 6.3

#### Accessible Heat Information

To reach those who most need them, translate key resources into multiple languages, experiment with diverse methods for outreach, and improve the content of heat preparedness websites such as [ready.dc.gov/extremeheat](https://ready.dc.gov/extremeheat) and [heat.dc.gov](https://heat.dc.gov). Residents and businesses can also help to reduce heat-related stress on the electric grid by maximizing passive, efficient, and time-sensitive cooling strategies. Develop and disseminate educational materials on how to implement these no-cost and low-cost cooling techniques.

##### **PARTNER AGENCIES**

DHS, DC Health, DOEE, HSEMA, DSLBD, and DACL

## STRATEGY 7: SUPPORT SAFETY AT HOME

Most District residents prefer to stay home on hot days, though often struggle with keeping their homes cool because they either do not have or cannot afford to run air conditioning.

7.1

### Maximum Air Temperature Standards

Explore new maximum air temperature standards to ensure safe and cool conditions for renters. While building codes require building owners provide heating for indoor air temperatures above 68° F, no such rules exist for cooling during the summer. Building owners that do not meet temperature standards should be held accountable and residents who report non-compliance must be protected from retaliation.

#### **PARTNER AGENCIES**

OTA, DCRA, and DOEE

7.2

### Better Cooling Technique Education

Residents may not be aware of cost-effective cooling and ventilation techniques, such as pre-cooling, opening windows, and safely running fans. Develop and disseminate educational materials on how to implement these no- and low-cost cooling techniques.

#### **PARTNER AGENCIES**

DOEE, DC Health, DHS, and DACL

7.3

### Expanded Cooling Assistance

The District aids income-qualifying residents by subsidizing their electricity bill and repairing or replacing their heating and air-conditioning systems. Expand participation in these programs by improving access and awareness.

#### **PARTNER AGENCIES**

DOEE

7.4

### Heat Ambassadors

Elderly residents living alone are highly vulnerable during a heat wave and checking in on them is often all it takes to ensure they stay safe. Create a heat ambassador program, through which trained ambassadors check on vulnerable residents during extreme heat events.

#### **PARTNER AGENCIES**

DOEE, HSEMA, Serve DC, DHS, and DC Health

## STRATEGY 8: SUPPORT SAFETY OUTDOORS

Not all residents have the luxury of spending hot days in cool indoor spaces. The District must keep those who live, work, or play outdoors safe.

8.1

### Safe Work

The District allows construction to occur between 7:00 a.m. and 7:00 p.m. without special permits, obligating workers to be outdoors during the hottest parts of the day. Explore adjusting allowable hours of construction to allow outdoor work to happen during cooler hours. Create and disseminate educational heat safety materials for outdoor workers.

#### PARTNER AGENCIES

DPW, DOB, DC Health, DHS, DSLBD, and DOES

8.2

### Safe Outdoor Living

Some District residents live outdoors with few protections from the summer sun. Continue to educate people experiencing homelessness about available resources, including access to free showers, air-conditioned spaces, and hydration resources.

#### PARTNER AGENCIES

DC Health and DHS

8.3

### Safe Sports

Sports and athletic activities can be dangerous on hot days. Develop clear guidelines for sports teams, and partner with DCPS to ensure student athletes stay safe in warm weather.

#### PARTNER AGENCIES

DCPS, DC Health, DCSAA, and OSSE

## **STRATEGY 9: ENSURE CLEAN AND RELIABLE POWER**

Pursue protections to ensure residents can maintain power in the heat. When many people turn up their air conditioner on a hot day, it can stress the grid and cause outages. Sometimes, a utility will deliberately shut off power to some consumers to avoid equipment failures or widespread outages.

### **9.1**

## **Critical Backup Power**

Develop a master list of critical facilities and identify options to make sure these facilities can stay cool during outages. Explore new backup generation technologies that harness renewable energy generation and storage. Some facilities— such as cooling centers, hospitals, and fire stations—must maintain power to provide essential services. Traditional emergency backup generators often cannot provide enough power to support cooling systems, so additional backup power may be necessary. Emergency backup generators often run on fossil fuels, causing air pollution and greenhouse gas emissions with direct health impacts to residents.

### **PARTNER AGENCIES**

DOEE and HSEMA

### **9.2**

## **Reliable Grid**

Energy grids must prepare for a warmer future without reducing service reliability. Work with Pepco and PJM Interconnection to help them better account for increased heat risk in their load forecasts and emergency response planning.

### **PARTNER AGENCIES**

DOEE, PSC, and OPC

# GOING FORWARD

Responding to the impacts of climate change will require efforts across District government. DOEE will coordinate implementation of this plan and work with the partner agencies listed under each strategy to identify next steps. DOEE and other agencies will continue to engage with stakeholders and District residents about the best ways to adapt to the challenges posed by extreme heat.



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