HEAT ISLANDS

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HEAT ISLANDS IN NYC

- Learning objectives
- My background
- Heat islands in NYC
  - Health consequences
  - Accessing data
  - Mitigation and adaptation strategies and efforts

ON THE HOTTEST DAYS OF THE SUMMER

WHICH NEIGHBORHOODS IN BROOKLYN ARE THE HOTTEST?

ARE THE COOLEST?

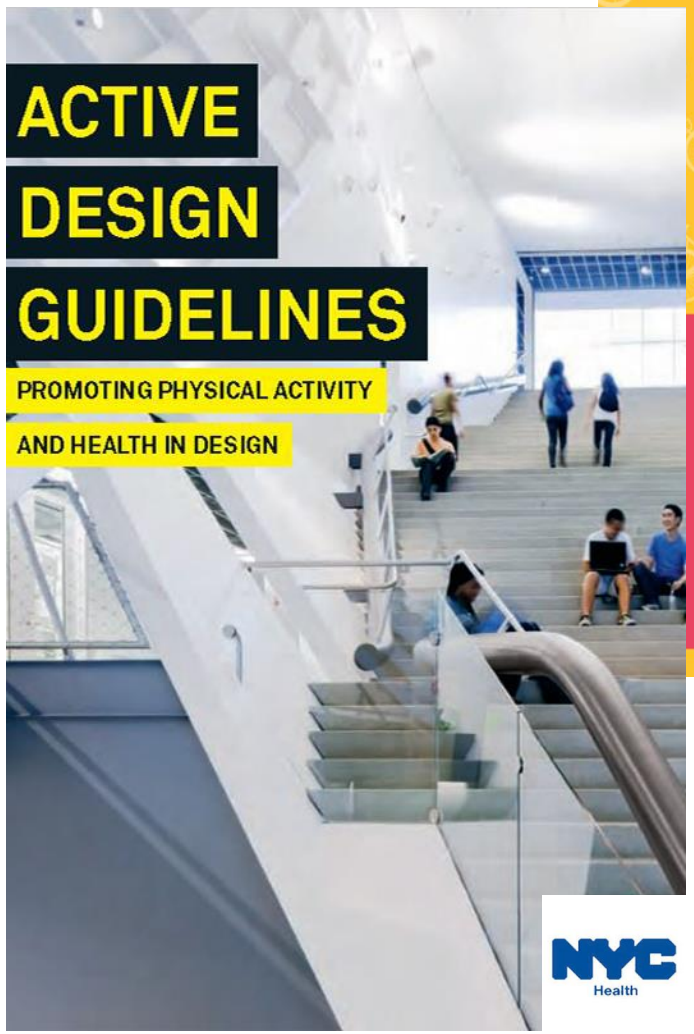
LEARNING OBJECTIVES

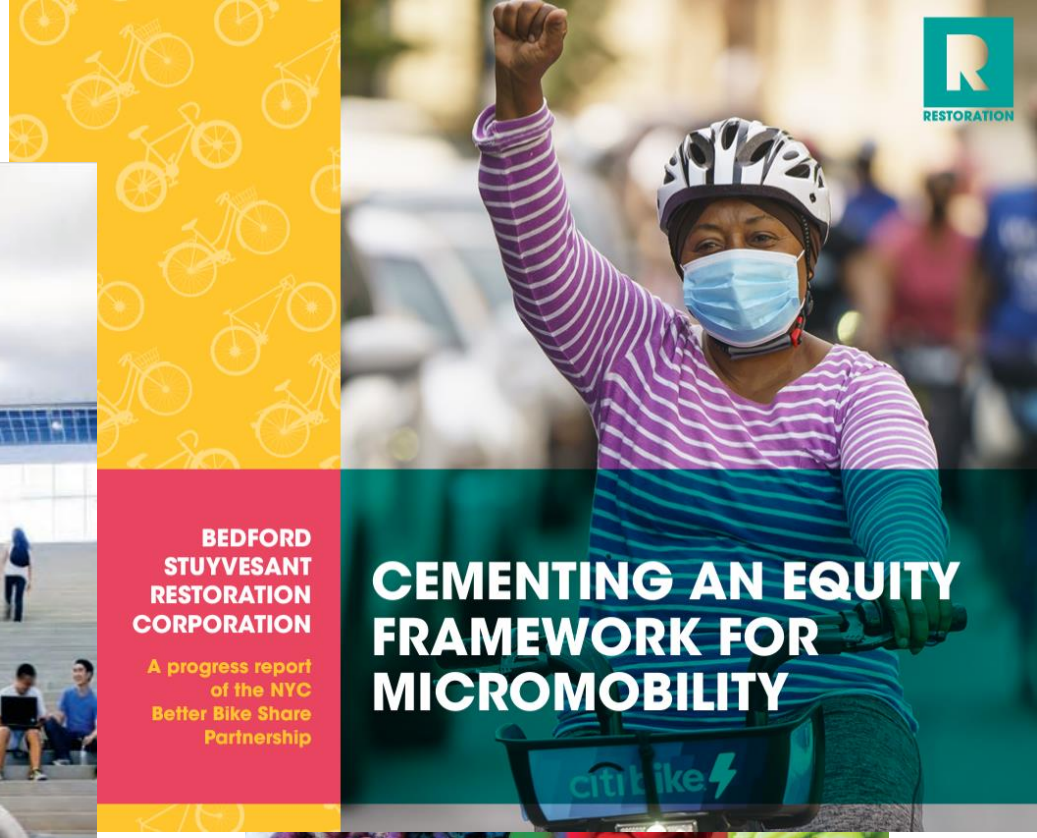
1. Describe the impact of heat islands on health outcomes in NYC
2. Access data for determining heat vulnerability in neighborhoods throughout NYC
3. Describe ongoing mitigation and adaptation strategies to heat islands in NYC

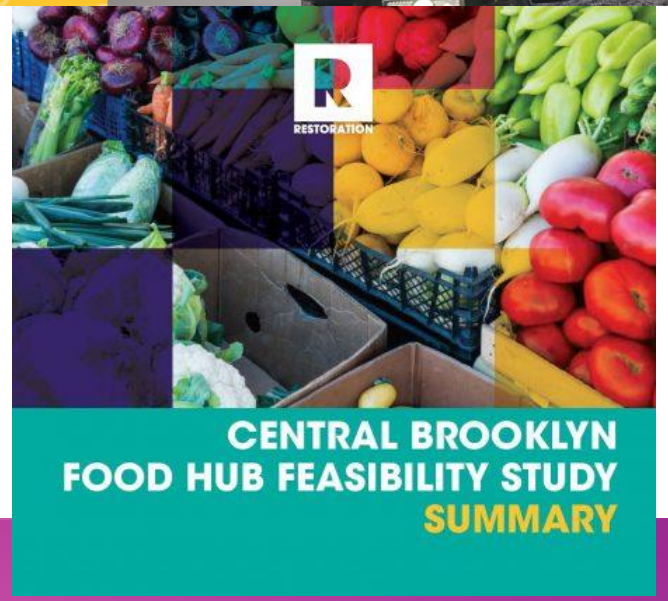
MY BACKGROUND

I have a background in health and nutrition, with a Masters in Public

Experience on the overlap of urban planning, urban design and public health







VOCABULARY

Built environment

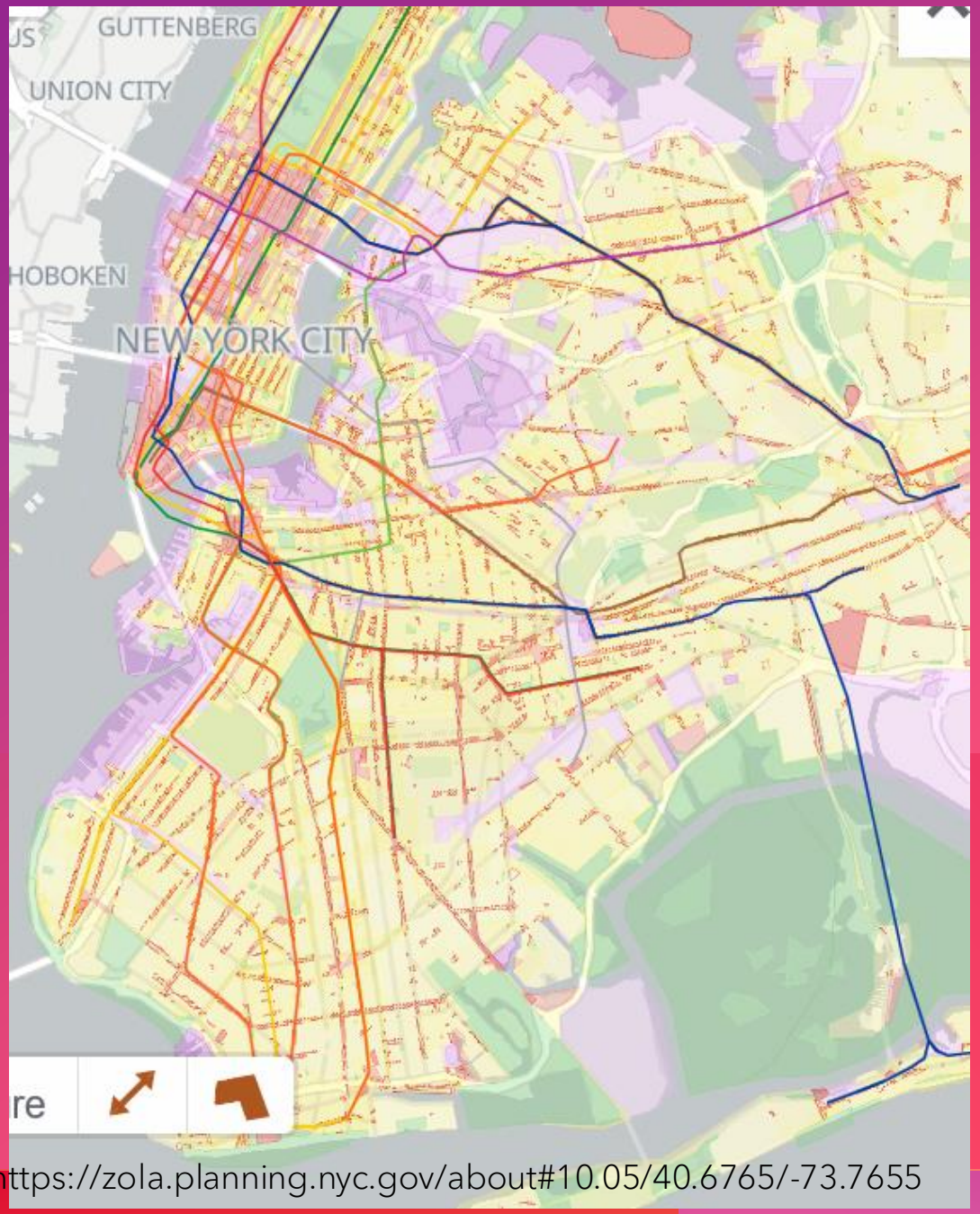
Urban planning

Urban design

Built Environment

Our built environment includes all the human-made physical spaces where we live, recreate and work.

These include our buildings, furnishings, open and public spaces, roads, utilities and other infrastructure.



https://zola.planning.nyc.gov/about#10.05/40.6765/-73.7655

Urban planning is the process of guiding and directing the use and development of land, urban environment, urban infrastructure, and related ecosystem and human services.

Urban design focuses on how the elements of the public realm can be built and arranged to create a positive experience for everyone. Urban design decisions can affect climate risk, public health, safety, social equity, and more.

WHAT IS A HEAT ISLAND OR AN URBAN HEAT ISLAND?

- Heat islands are urbanized areas that experience higher temperatures than outlying areas.
- 6.1 million New Yorkers feel 9 degrees hotter due than they would otherwise due to the heat island effect

Caused by factors such as

- absorption and retention of solar radiation by buildings and pavement
- lack of vegetation to provide shade and evaporative cooling,
- release of heat from vehicles and industrial processes

https://www.climatecentral.org/climate-matters/urban-heat-islands-2023

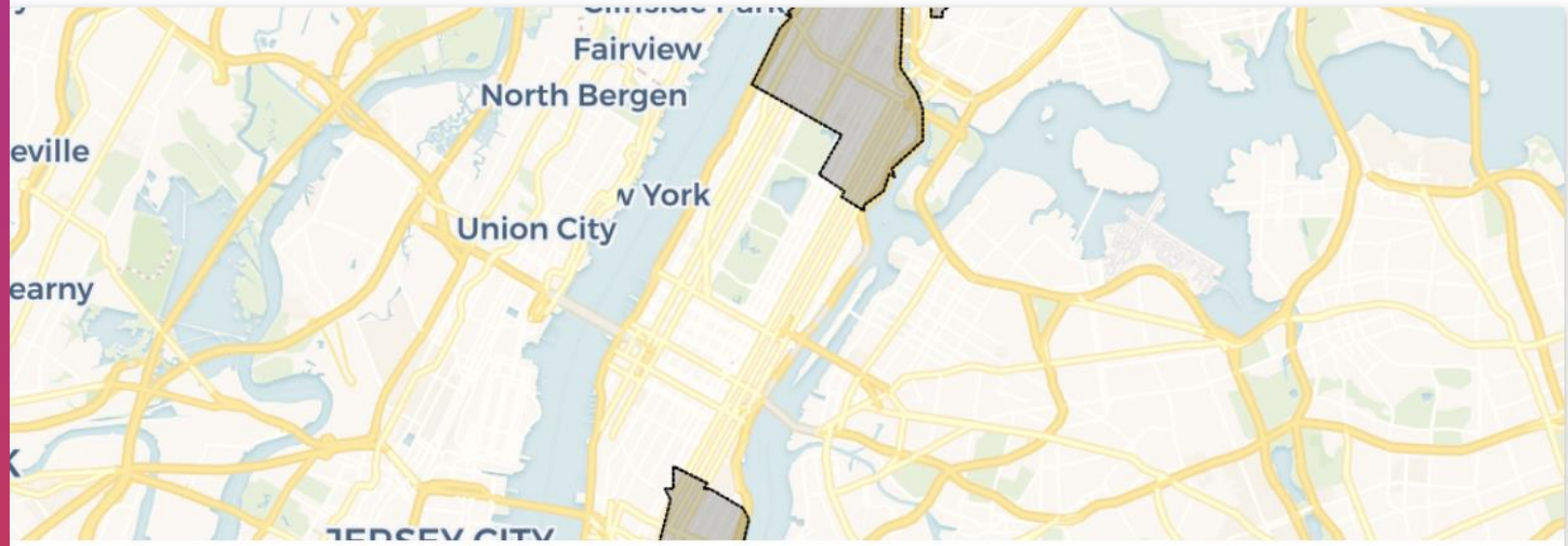
Environment and Health Data Portal

Understand how environments shape health in New York City

About us

Key Topics | Data Stories | Neighborhood Reports | Data Explorer

Featured:



Data on rat inspections

Get data on rat inspections in NYC

New data stories:

Housing creates health Health is determined by many factors, and people tend to be healthier when they have economic ...

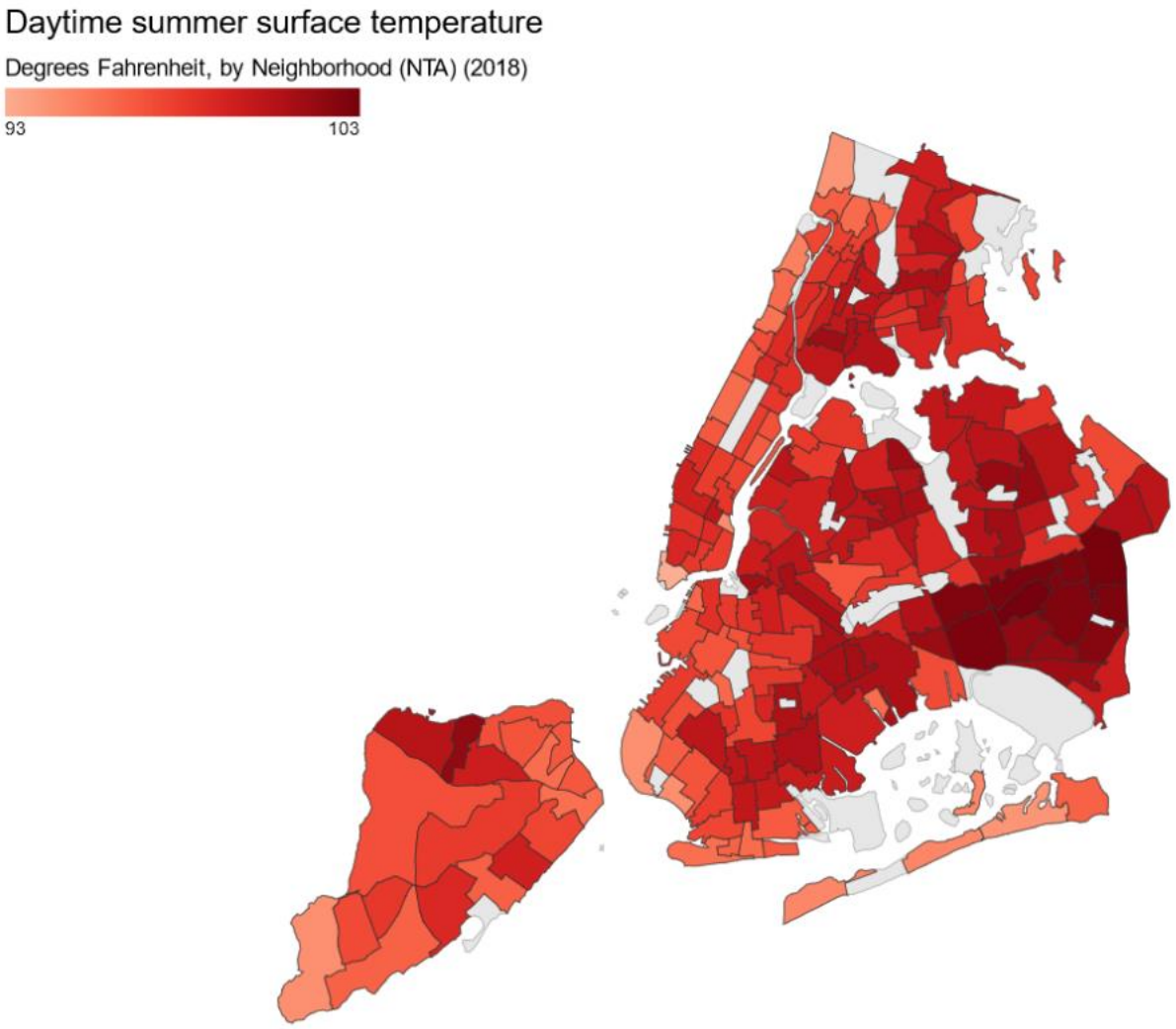
Economic stability creates health Health is determined by many factors, and people tend to be healthier when they have economic ...

Injury deaths in NYC Injury deaths among young and middle-aged adults in New York City: with a focus on homicide and ...

Lead poisoning affects adults too Lead poisoning affects adults too Lead is a harmful metal that can cause serious health issues. When ...

https://a816-dohbesp.nyc.gov/IndicatorPublic/

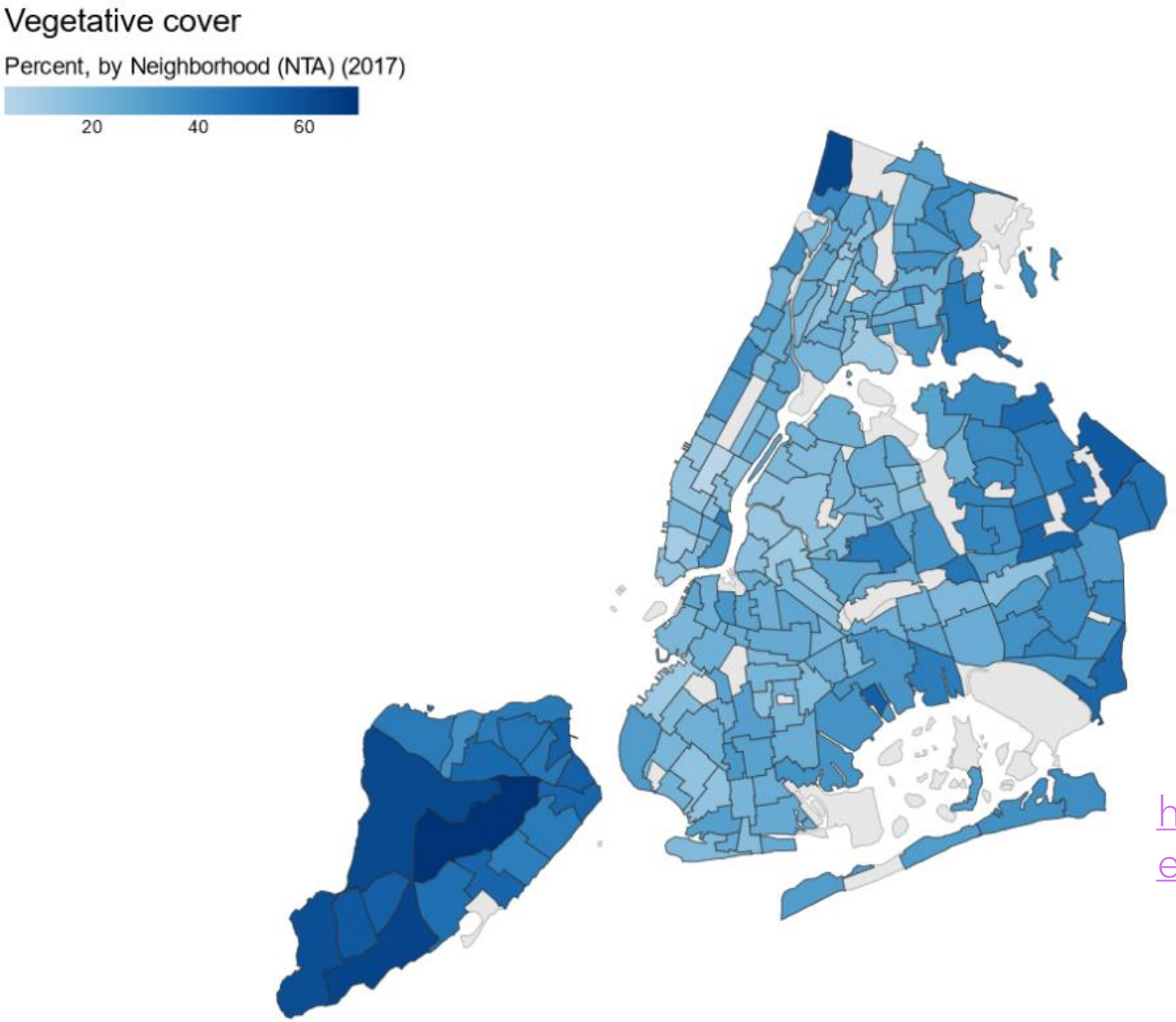
SURFACE TEMPERATURES



Surface temperatures vary based on vegetative cover (which promotes cooling), as well as by materials that retain heat (like paved roads, sidewalks, and buildings). Hotter neighborhoods tend to have more heat-exacerbated deaths associated with extreme heat events.

https://a816-dohbesp.nyc.gov/IndicatorPublic/data-explorer/climate/?id=2141#display=map

VEGETATIVE COVER

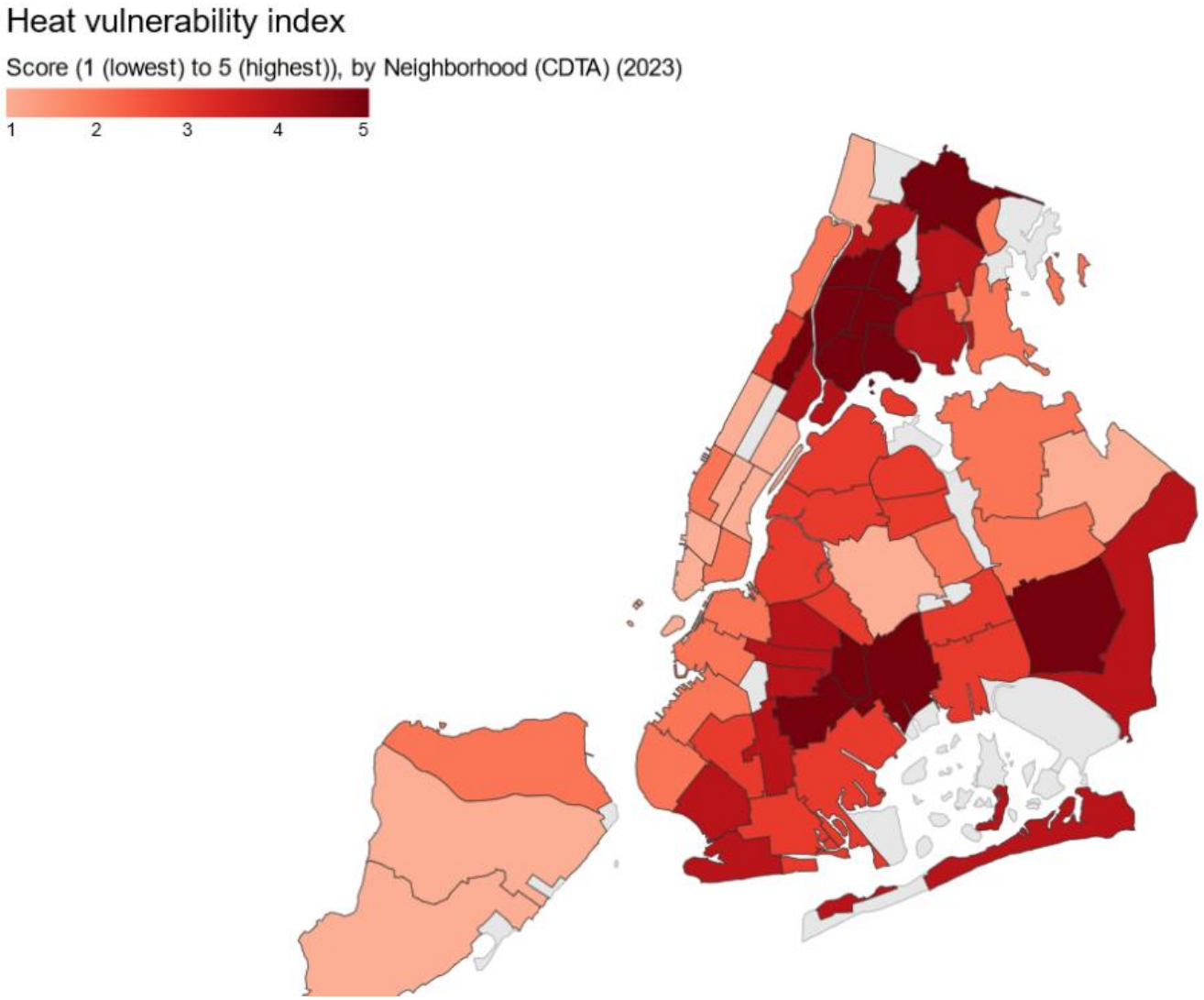


Vegetative cover is the land covered by trees, grass, or other plants instead of a hard surface like roads, sidewalks, or buildings.

Vegetative cover tends to reduce temperatures in the immediate area and may increase air quality.

https://a816-dohbesp.nyc.gov/IndicatorPublic/data-explorer/climate/?id=2143#display=map

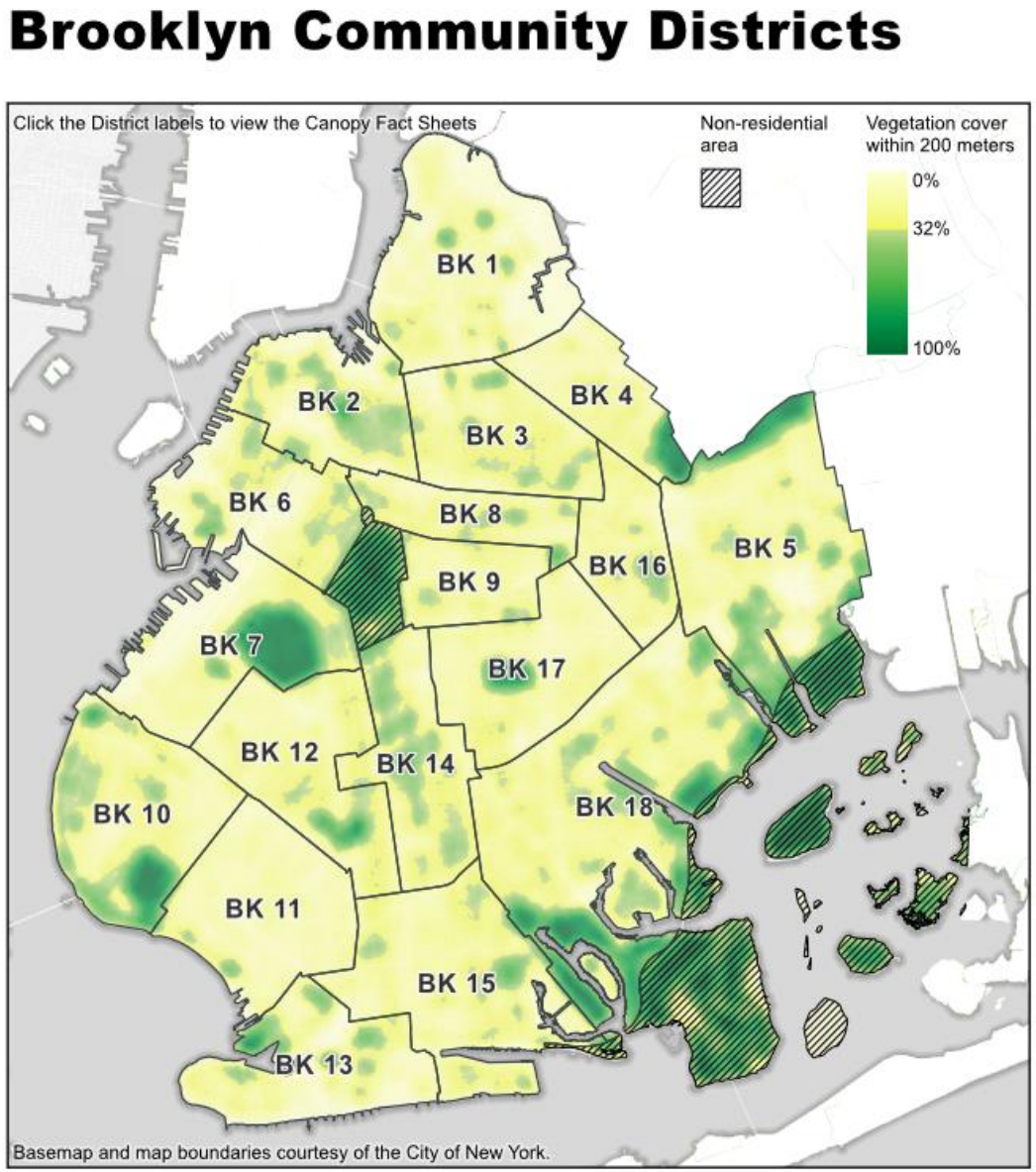
HEAT VULNERABILITY INDEX



The HVI shows the risk of community-level heat impacts, like deaths, due to extreme heat events. surface temperatures

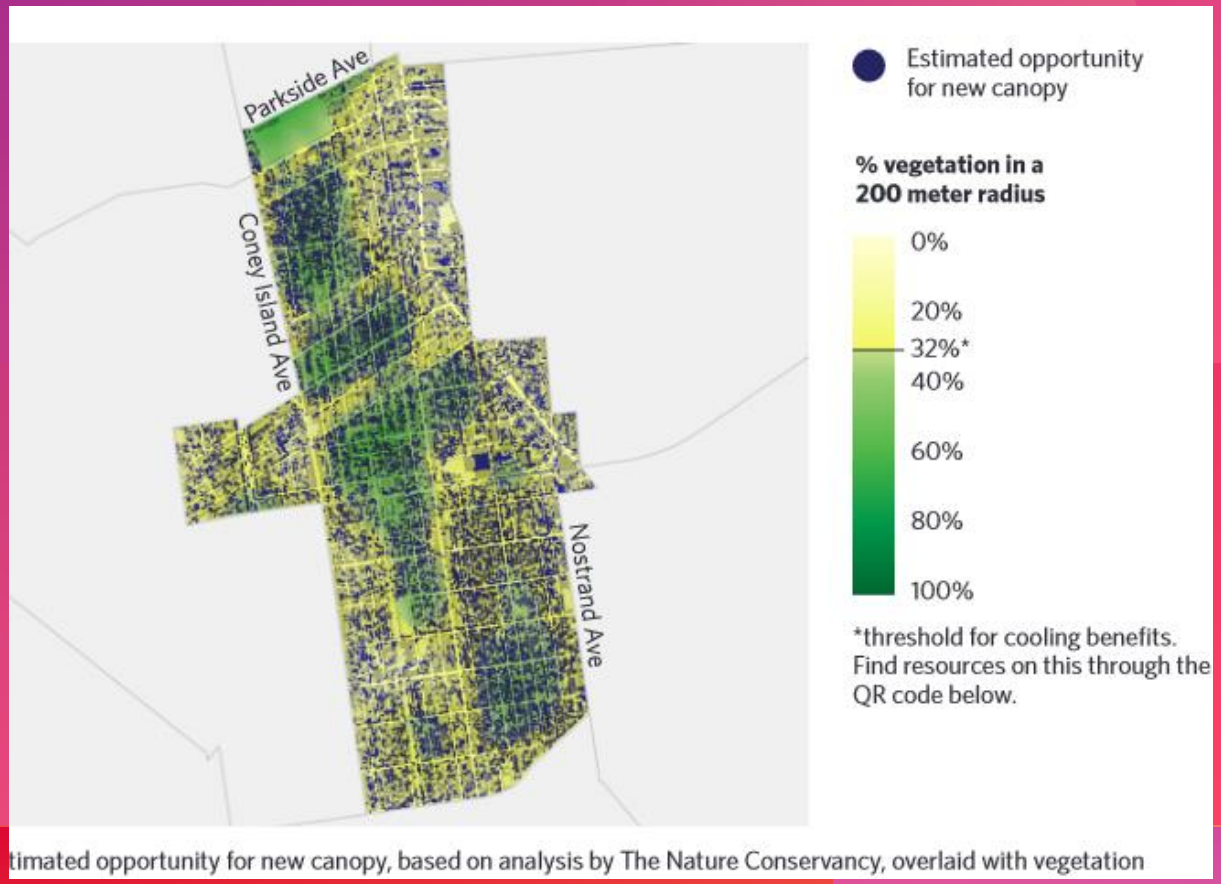
- green spaces
- access to home air conditioning, and
- the percentage of residents who are low-income or non-Latinx Black.

TREE CANOPY COVERAGE



https://www.nature.org/en-us/about-us/where-we-work/united-states/new-york/stories-in-new-york/canopy-factsheets-nyc/

MIDWOOD/ FLATBUSH: COMMUNITY DISTRICT 14



timated opportunity for new canopy, based on analysis by The Nature Conservancy, overlaid with vegetation

Community District Canopy Facts

Brooklyn Community District 14 ranks

12 of 59 Community Districts citywide

1 of 18 in Brooklyn

24.1% of land is covered by tree canopy

2.5% increase in canopy cover (2010 to 2017)

49.1% of canopy is over City-owned lands

44.2% of canopy is specifically over sidewalks and roads

https://www.nature.org/content/dam/tnc/nature/en/documents/Brooklyn-CD-14.pdf

HEALTH OUTCOMES

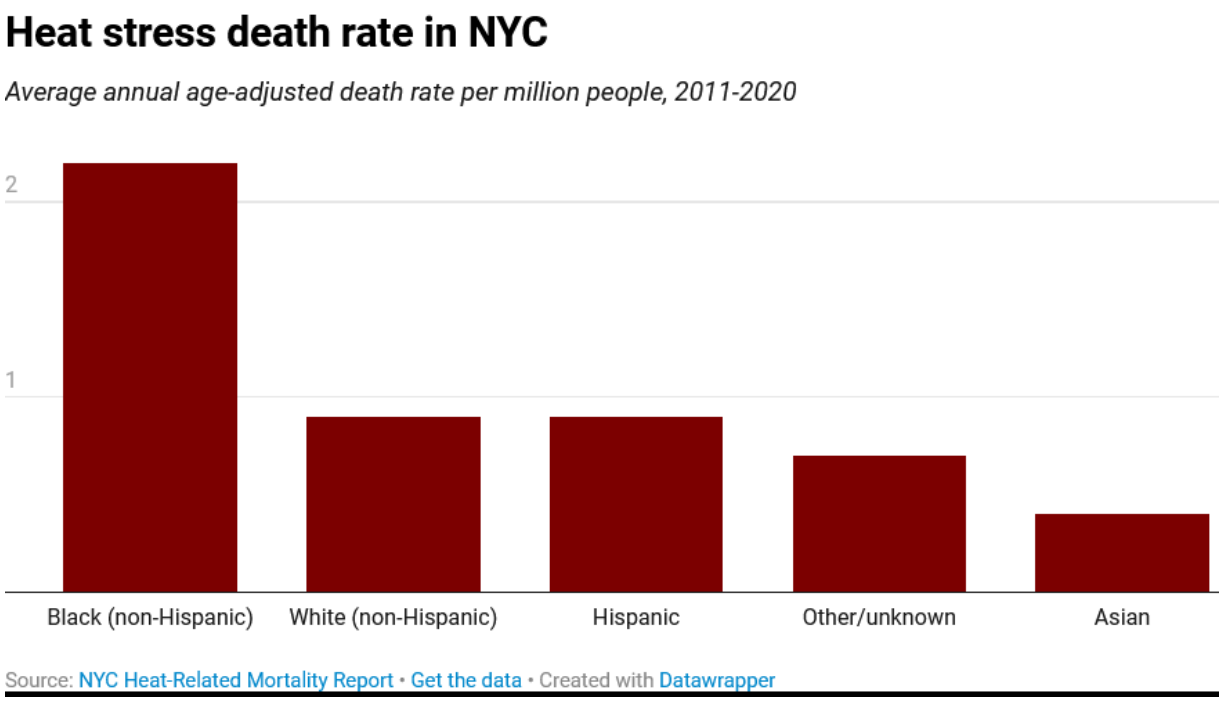
Extreme heat is dangerous.

Heat-related illnesses - including heat exhaustion, muscle cramps, fainting, and heat stroke (the most serious form) - happen when the body cannot cool down enough.

Heat can also worsen chronic conditions, such as cardiovascular diseases or kidney conditions.

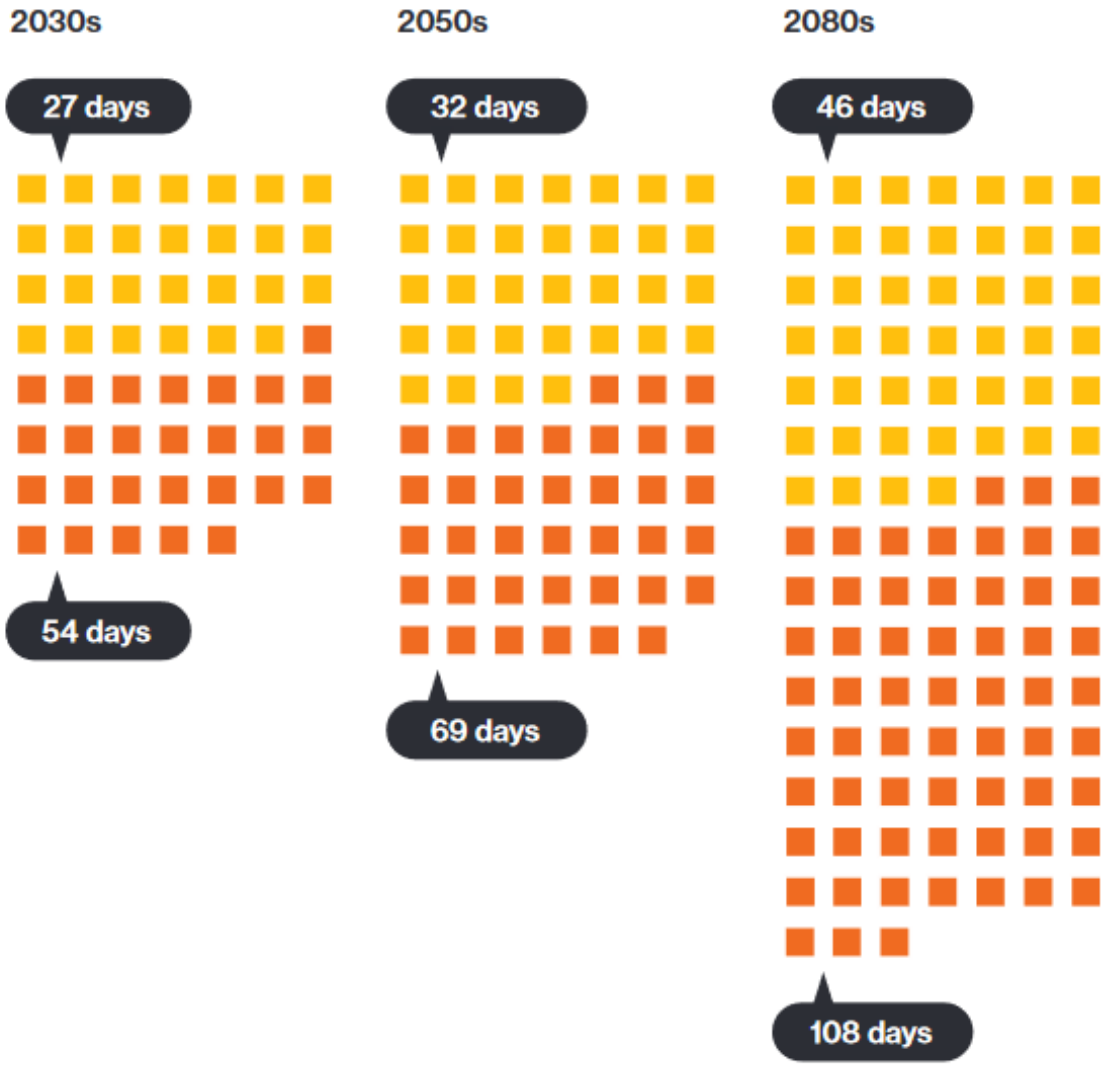
In New York City – and across the country – more people die from heat than from all other natural disasters combined.

HEAT RELATED DEATHS IN NYC



- About 370 people die of heat related deaths in NYC every year.
- Black New Yorkers have an age-adjusted death rate is that is twice as high as that of White New Yorkers from 2012-2021.
- Death rates were higher in neighborhoods with more residents living below the federal poverty line compared with wealthier neighborhoods.
- Heat-stress deaths occurred among all age groups, with the lowest rates among people aged 20 and younger and the highest among people aged 60 and older.
- About two thirds of heat-stress deaths occurred among men.
- Age-adjusted death rates were highest in Brooklyn.

NYC PROJECTED DAYS PER YEAR ABOVE 90 °F



This graphic shows the projected increase in the annual number of days over 90 °F relative to a 1981–2010 baseline of 17 days. Projected increases are shown as low (10th percentile) and high (90th percentile) estimates.

Source: New York City Panel on Climate Change, 2023

Low estimate projected number of days above 90 °F

High estimate projected number of days above 90 °F

Baseline: 17 days

ADAPTATION AND MITIGATION TO EXTREME HEAT IN NYC

MITIGATION AND ADAPTATION STRATEGIES

Mitigation

Adaptation

MITIGATION AND ADAPTATION STRATEGIES IN NYC

Mitigation

- Cool Roofs and reflective pavement
- Congestion pricing, bike lanes and public transport
- Increasing green spaces and urban vegetation to provide shade and evaporative cooling
- Urban design practices that prioritize natural ventilation and passive cooling techniques.

Adaptation

- Air conditioners
- Cooling centers
- Home Energy Assistance Program (assistance with energy bills)
- Cool Roofs
- Trees and vegetation

PlaNYC

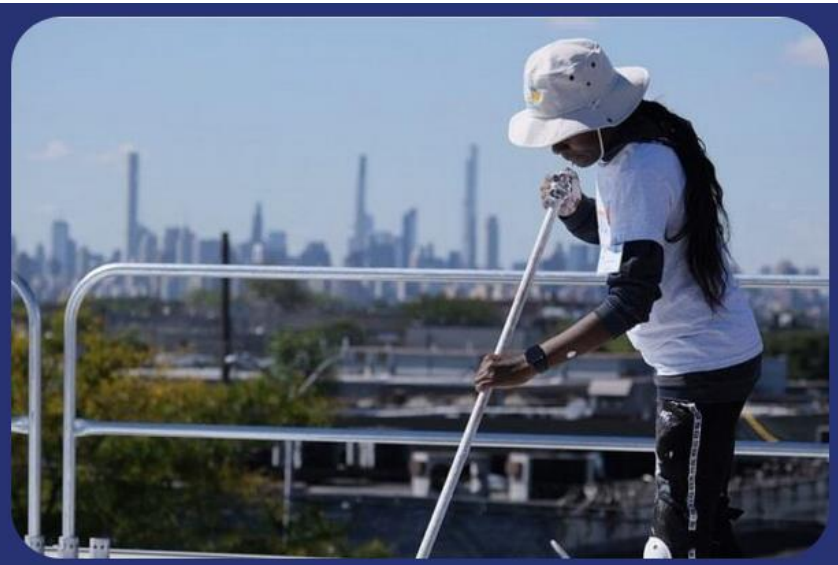
Getting Sustainability Done

INITIATIVE
1 Maximize access to indoor cooling
2 Cool our built environment
3 Achieve a 30% tree canopy cover

https://climate.cityofnewyork.us/wp-content/uploads/2023/06/PlaNYC-2023-Full-Report.pdf

NYC COOLROOFS

NYC CoolRoofs provides paid transitional work opportunities to coat hundreds of thousands of square feet of New York City rooftops, promoting energy efficiency and mitigating the urban heat island effect.



SUSTAINABLE SOUTH BRONX

Sustainable South Bronx (SSBx) provides training for careers in green construction and maintenance. Participants learn about environmental justice; gain hard skills such as carpentry, utilities, building mechanics, and energy auditing; and earn industry certifications that help them stand out in the job market.

THE HOPE PROGRAM

- Job training program for green careers
- Serving residents of neighborhoods bearing the brunt of climate change/urban heat island effect.
- Equipping communities experiencing climate change's consequences at disproportionate levels with tools to adapt and mitigate

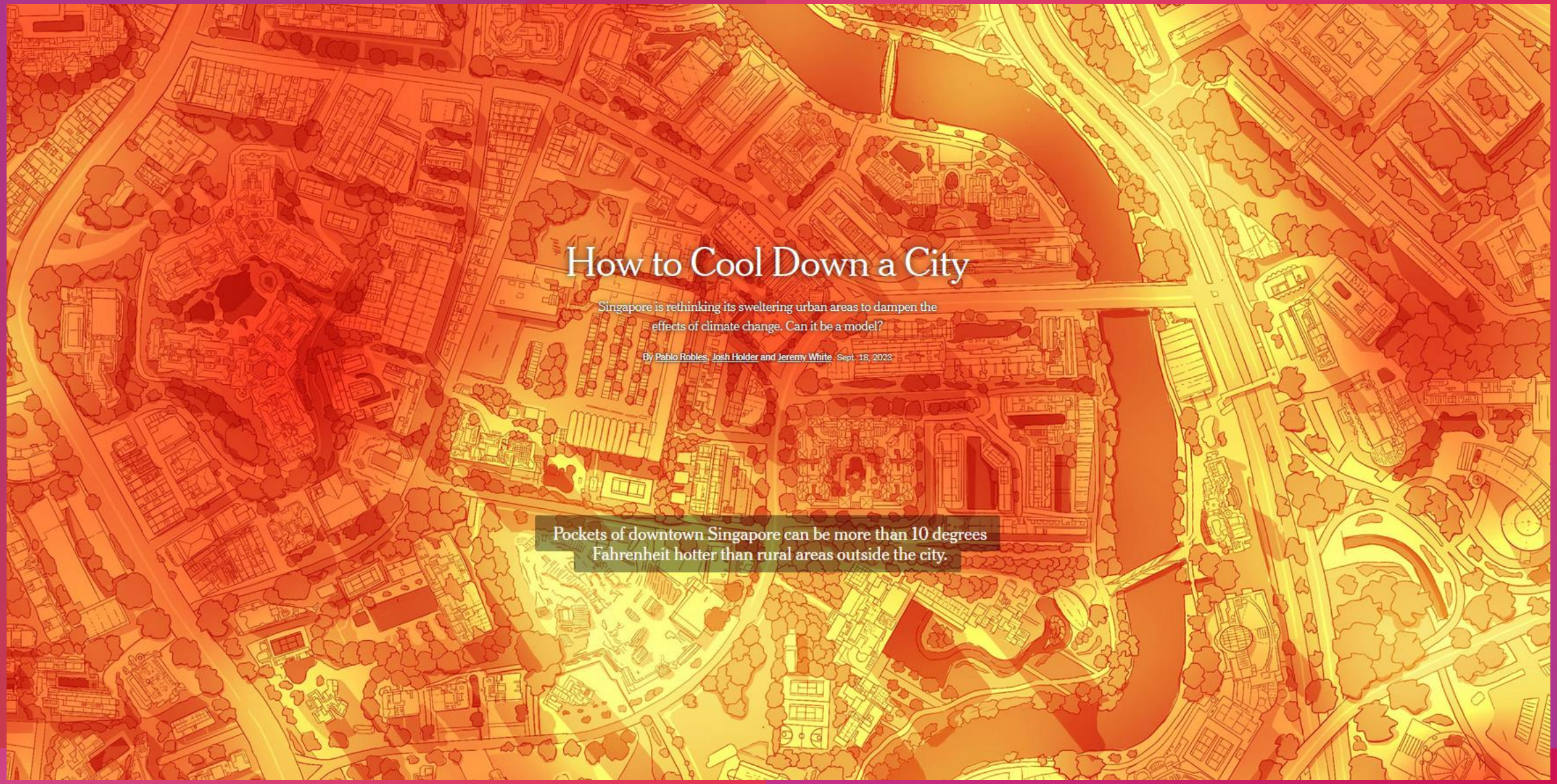
ADVOCACY

The conservancy helped assemble a coalition of 130 public and private sector groups to advocate for increasing the city's tree canopy from 22% to 30% coverage by 2035, under the banner of the Forest for All initiative,

October 2023, the New York City Council passed a groundbreaking bill aimed at expanding its current tree canopy cover from 22% to an ambitious 30%.

Established a dedicated budget and steady funding of urban forestry at the NYC Department of Parks & Recreation.

LESSONS FROM SINGAPORE



THANK YOU!

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