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Tree Stewardship Improves Community Resilience and Equity

November 16, 2023

New Jersey League of Municipalities Conference

CFMP Guidelines Update

Levon Bigelow
November 16, 2023



NJ URBAN & COMMUNITY FORESTRY



Agenda

Background

NJUCF Overview

New Guidelines

Data & Community

What is Urban Forestry?

The art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society.

~ Helms, The Dictionary of Forestry



NJ Shade Tree & Community Forestry Assistance Act (N.J.A.C. 13:1L-17.1 et. seq.)

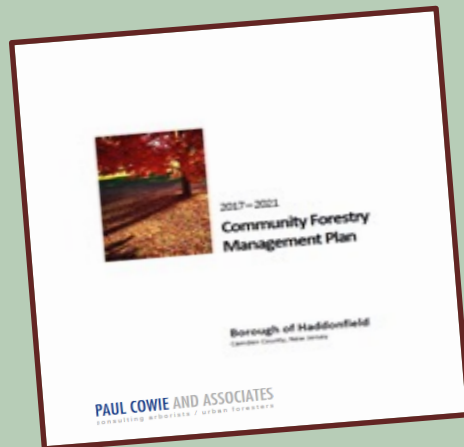


- December 5, 1996
- Establishes the expanded role of the State's Urban & Community Forestry program
- Provides the basis for local governments to reduce or eliminate liability associated with local tree care programs and shade tree commissions
- Establishes the NJ Community Forestry Council
- Created the **Treasure Our Trees** license plate



NJ URBAN & COMMUNITY FORESTRY

To encourage and support the stewardship and effective management of trees and forest ecosystems in New Jersey communities through technical and financial assistance.



Planning



Training and Education



Management

CFMP Guidelines Sections

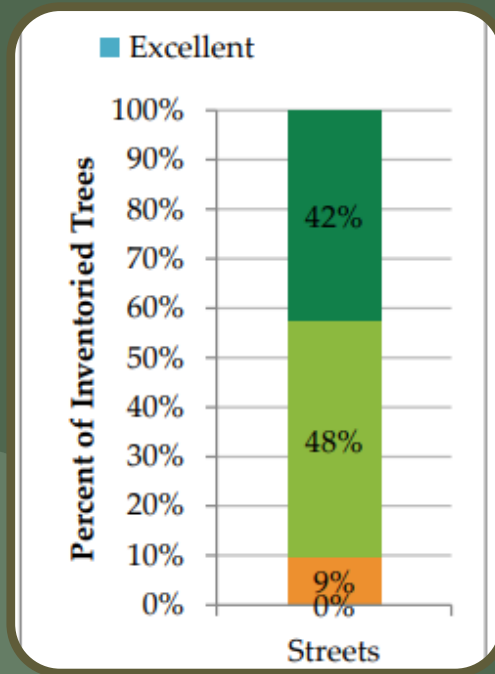
Intro & Background

Program Capacity

*Community Engagement and Well-being

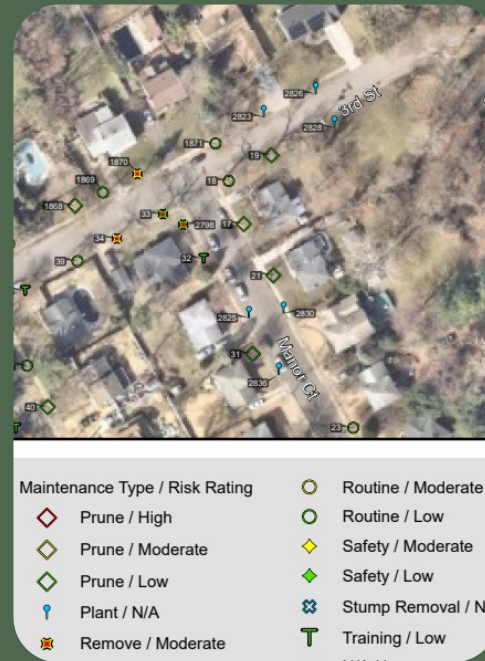
Plan Implementation

Major Changes



Inventory

Now required for CFMP



Mapping

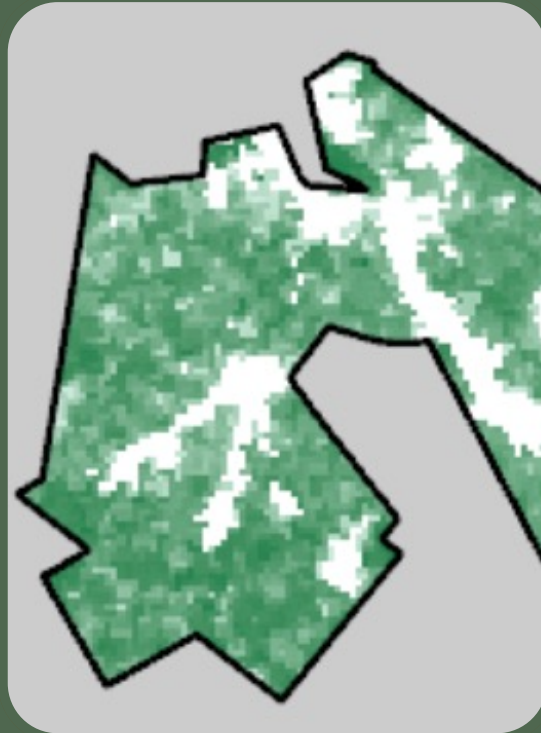
New Requirements



Goals/Objectives

New way of thinking around goals/elements/objectives/ action items

Mapping Examples

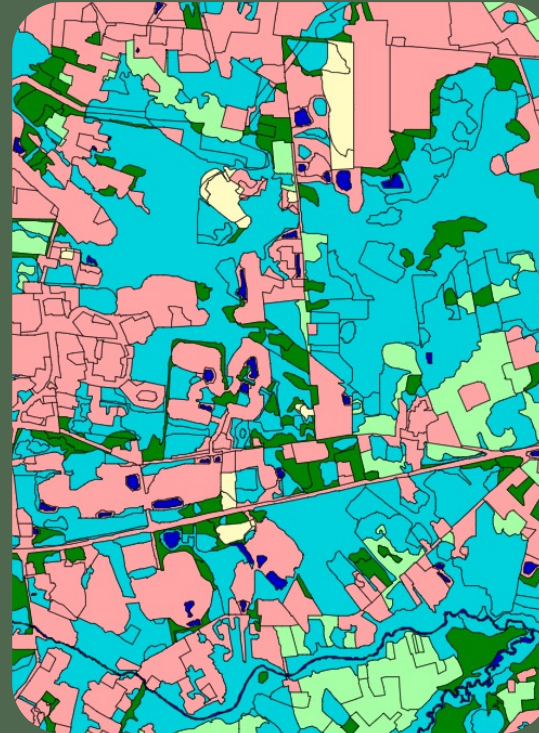


Canopy Cover

NJ Forest Adapt

iTree Canopy

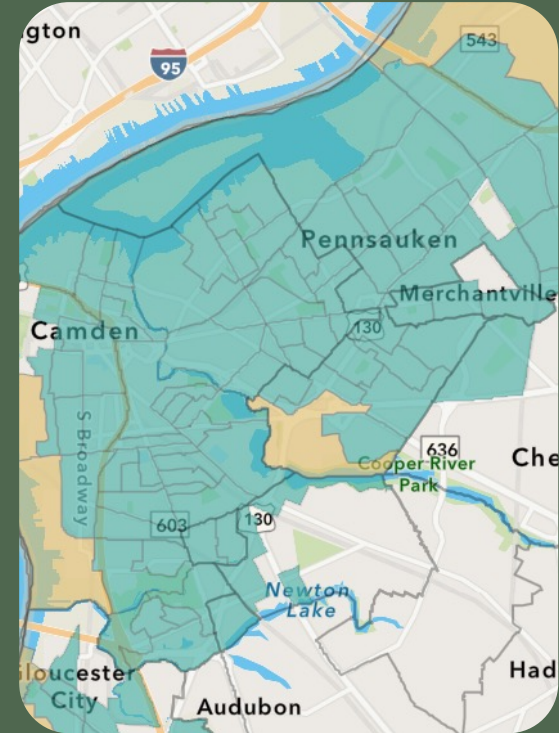
American Forests Tree Equity



Land Use/Land
Cover

NJ GeoWeb

NJ Forest Adapt



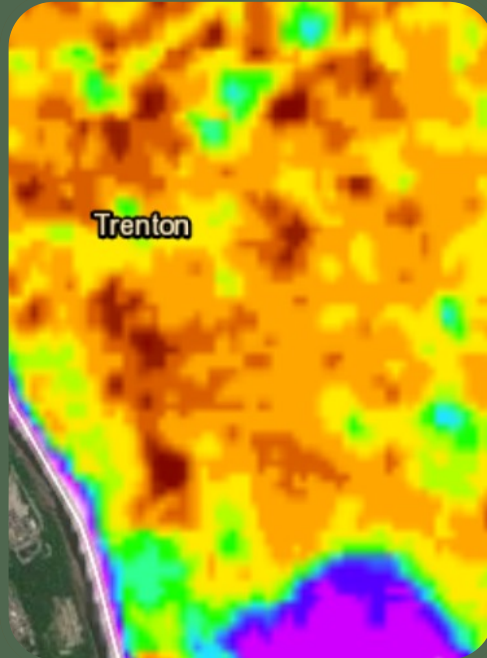
Overburdened/EJ

NJDEP EJ Office

Other Maps

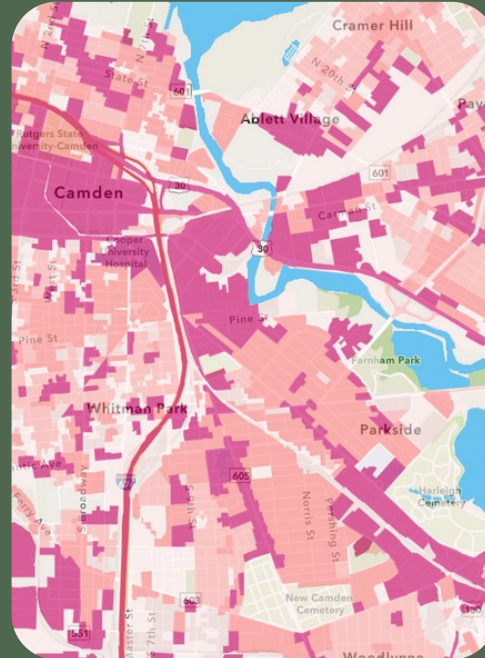


Inventory



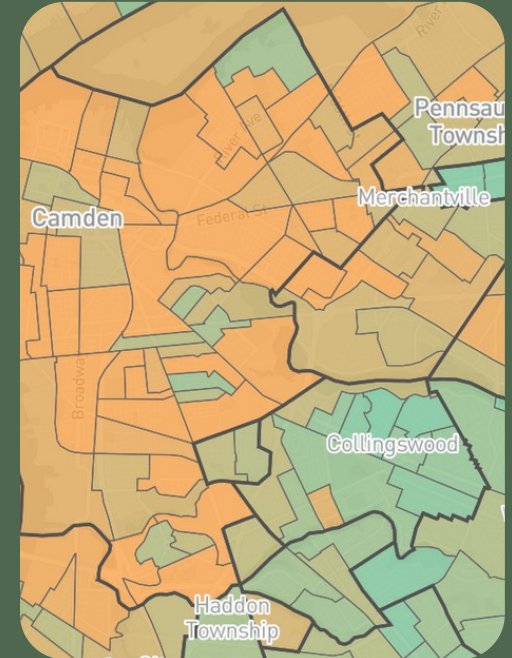
Heat Map

Sustainable Jersey



Impervious Surface

NJ GeoWeb



Tree Equity

American Forests

CFMP

Section:

Community Engagement and Well-being

How do you engage with the Community?

How was CFMP Developed?

- Input from Consultant Forester, Shade Tree Commission, etc?

How will CFMP be disseminated?

Expand on Benefits of Trees and how Decisions are made around Equitable Distribution of trees

What Challenges or Barriers have there been?

Thank you!

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The Value of a Shade Tree Commission

Kristin Ace

Chairperson, Morristown Shade Tree Commission

kakat3@verizon.net



Tree Stewardship Improves Community Resilience and Equity



Pam Zipse, Executive Director
pzipse@njtreefoundation.org
@njtrees



Tree Stewardship Improves Community Resilience and Equity



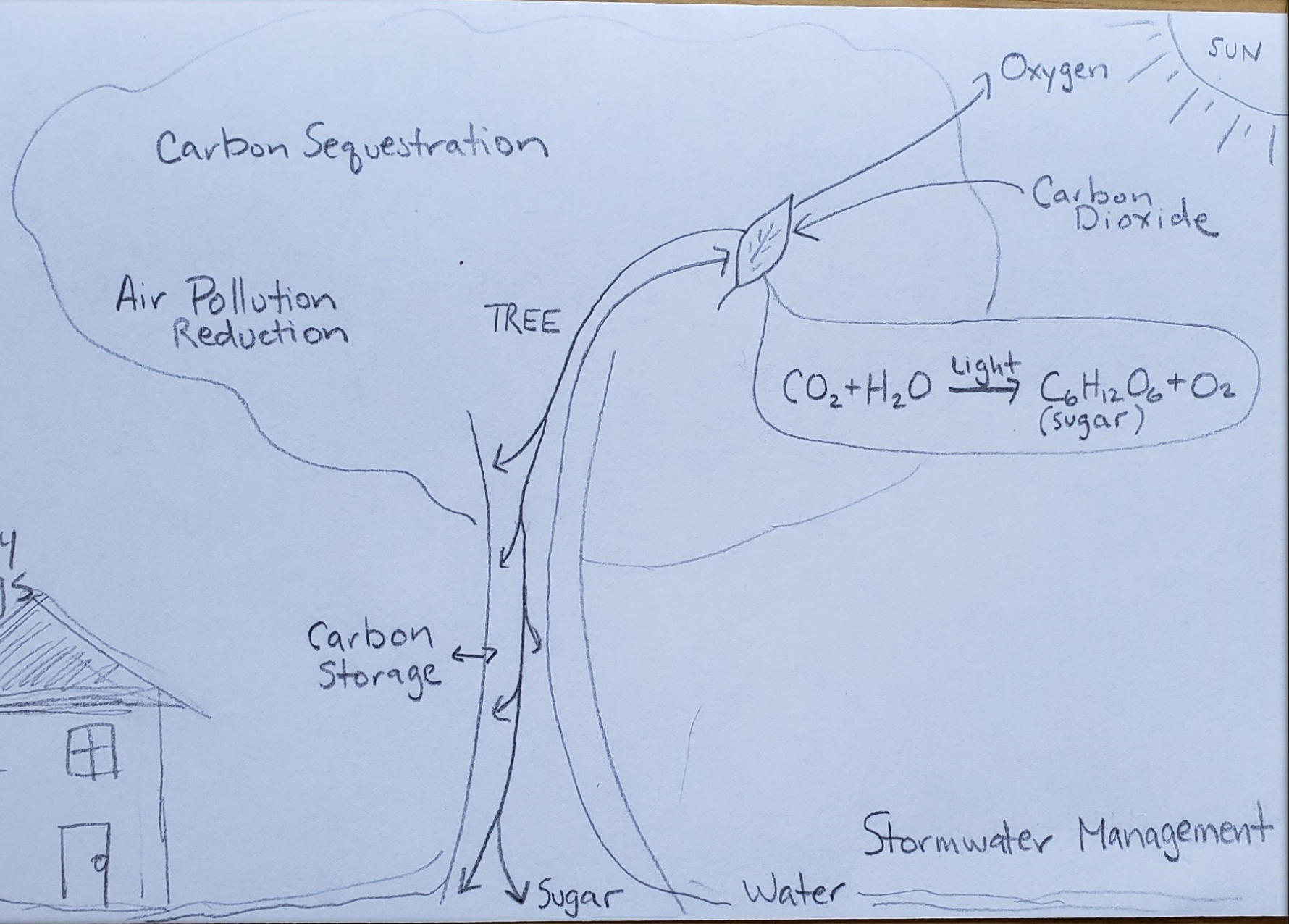
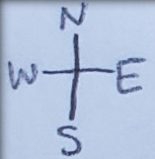
Royden Street, Camden 2002 before trees



NJ Tree Foundation Planting
Royden Street, Camden 2002 after trees

Trees make a difference!





Carbon Sequestration

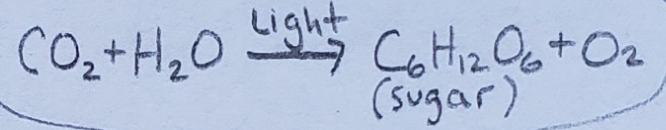
Air Pollution Reduction

TREE

Oxygen

Carbon Dioxide

SUN



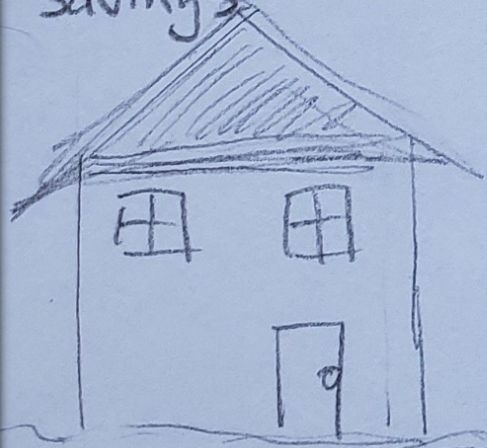
Carbon Storage

Sugar

Water

Energy Savings

Stormwater Management



To derive the benefits...

The trees must live and grow!



Plant at the speed of trust

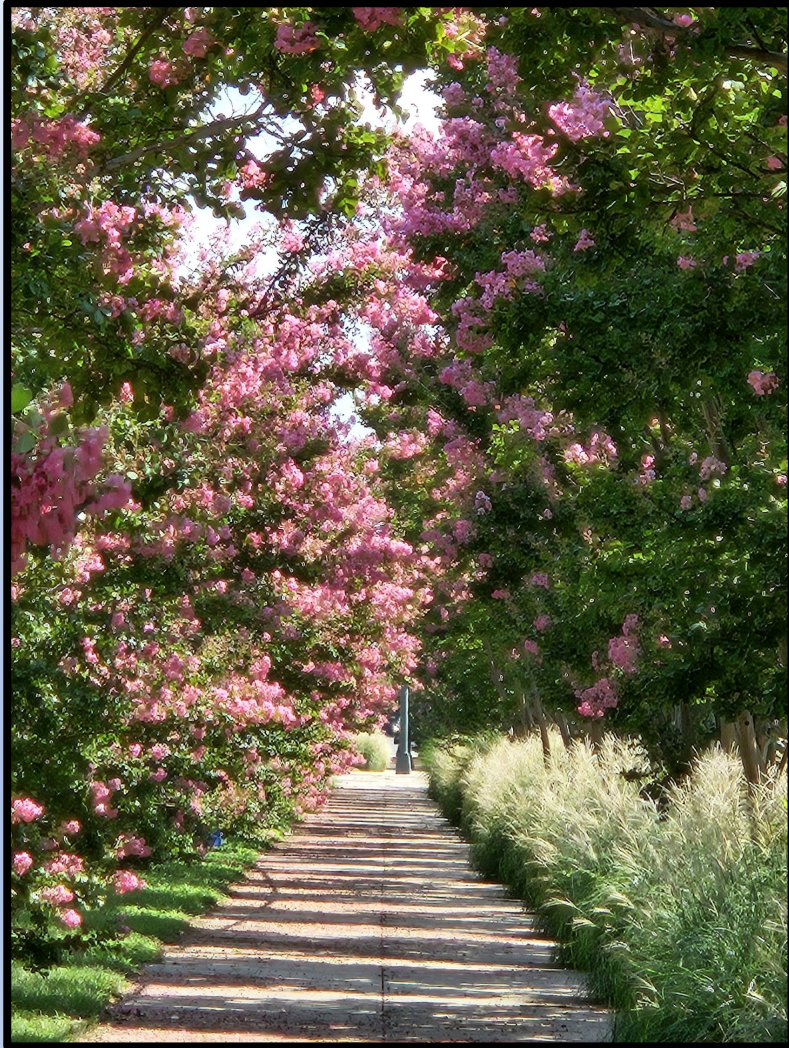


Think about (and talk with) the people who live where you want to plant trees...

- Listen
- Collaborate



What are the Community Priorities





It is a great time to be in Urban Forestry

(There is so much money for tree planting...)

- **Inflation Reduction Act (IRA)**
 - \$1.5 billion nationwide
 - \$22.8 million in New Jersey!
- **Natural Climate Solutions (RGGI)**
 - \$24 million across New Jersey (includes marsh projects)
- **Trees for Schools (Sustainable Jersey) (RGGI)**
 - \$4.55 million across New Jersey
- **NJUCF Stewardship Grants**
 - \$600,000.00 across New Jersey



Find other meaningful metrics for success

Not just counting trees...



Find the Joy...



Pam Zipse, Executive Director
pzipse@njtreefoundation.org
@njtrees



The background features a series of concentric circles in light gray, some solid and some dashed, creating a sense of depth and movement. A large, vibrant blue oval is centered on the page, containing the main text. A thick, black, curved shape is positioned behind the blue oval on the left side, resembling a stylized 'C' or a swoosh.

Newark The Sustainable City

Jonathan Gordon

City of Newark

Department of Administration

Office of Sustainability



CLIMATE RISKS: 1.5°C VS 2°C GLOBAL WARMING

EXTREME WEATHER

100% increase in flood risk. vs 170% increase in flood risk.

SPECIES

6% of insects, 8% of plants and 4% of vertebrates will be affected. vs 18% of insects, 16% of plants and 8% of vertebrates will be affected.

WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100. vs 410 million urban residents exposed to severe drought by 2100.

PEOPLE

9% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years. vs 28% of the world's population (2 billion people) will be exposed to extreme heat waves at least once every 20 years.

ARCTIC SEA ICE

Ice-free summers in the Arctic at least once every 100 years. vs Ice-free summers in the Arctic at least once every 10 years.

SEA-LEVEL RISE

46 million people impacted by sea-level rise of 48cm by 2100. vs 49 million people impacted by sea-level rise of 56cm by 2100.

OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

CORAL BLEACHING

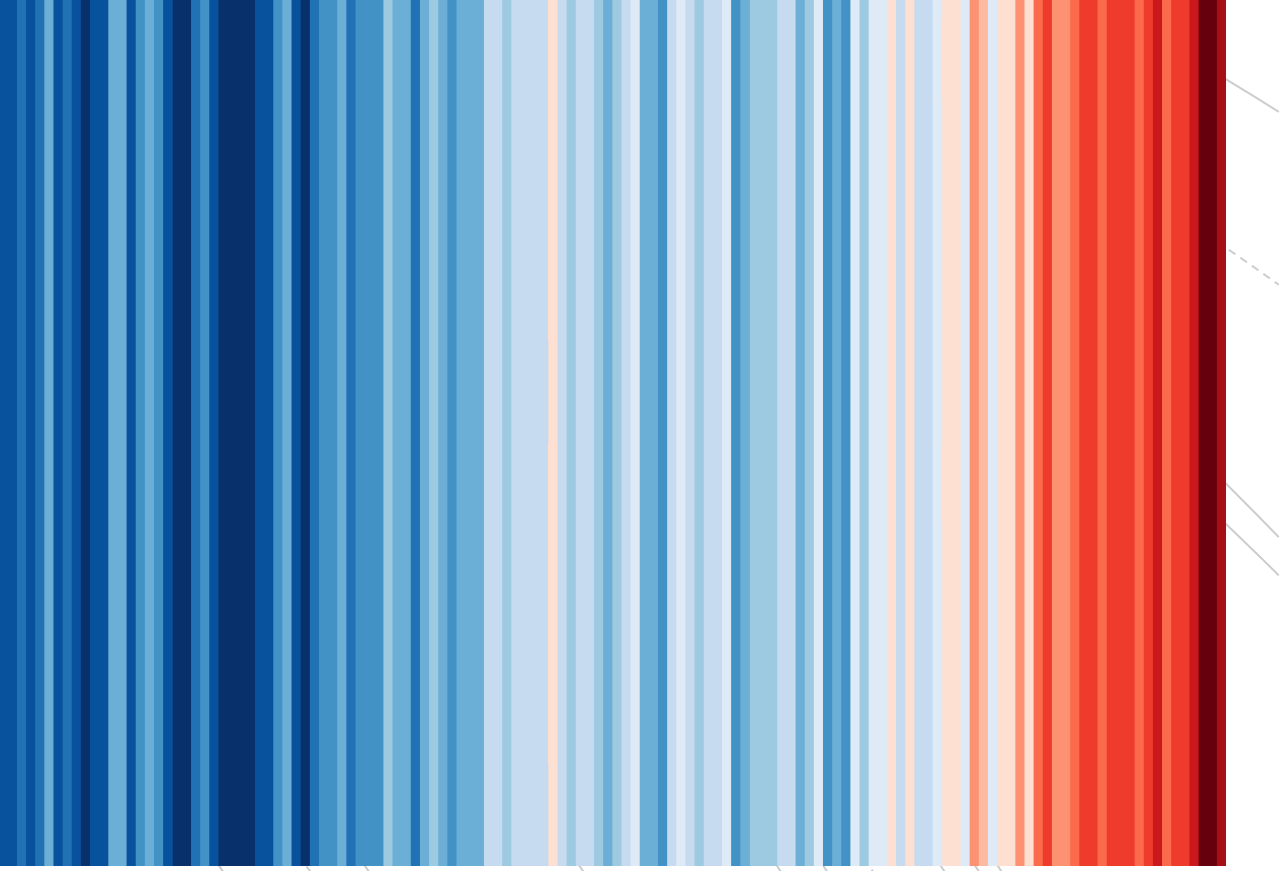
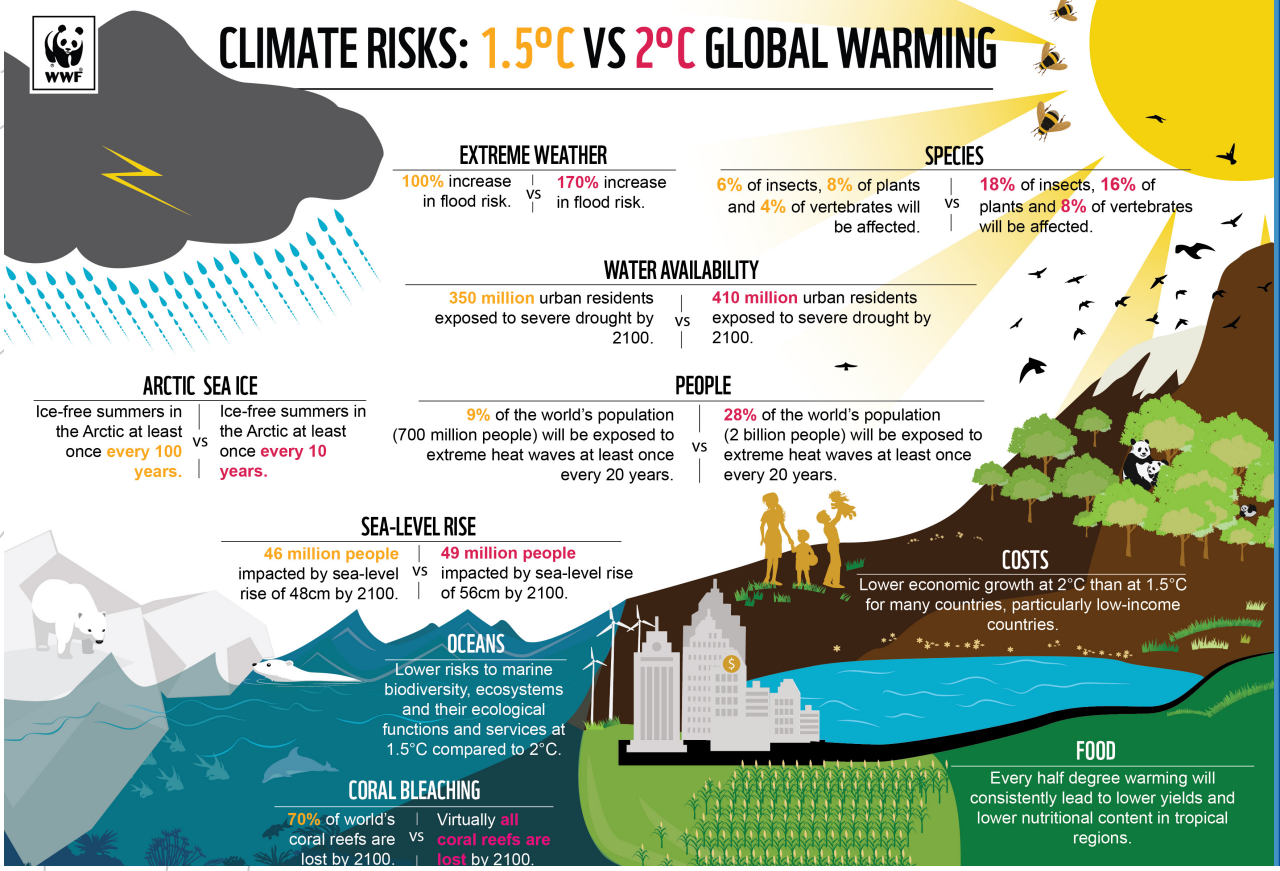
70% of world's coral reefs are lost by 2100. vs Virtually all coral reefs are lost by 2100.

COSTS

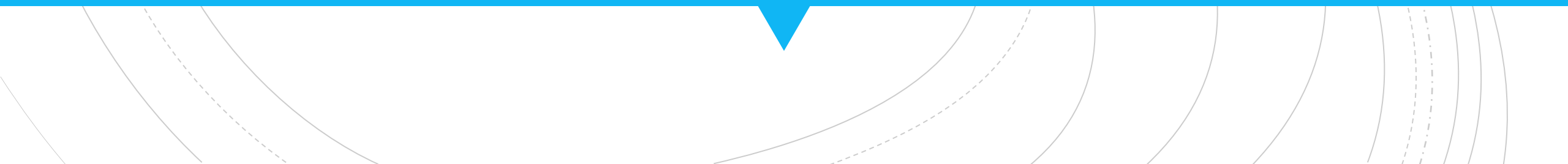
Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

FOOD

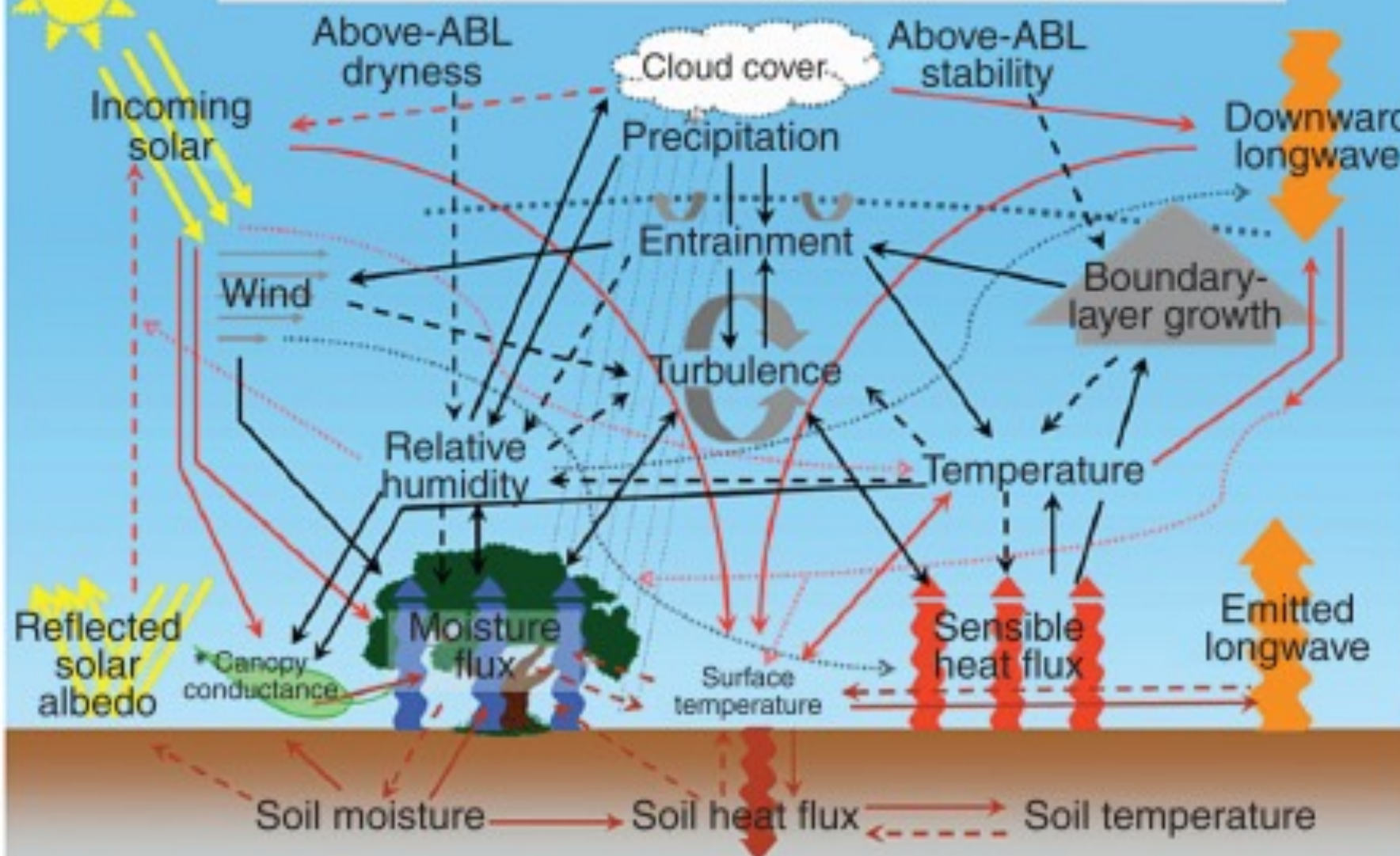
Every half degree warming will consistently lead to lower yields and lower nutritional content in tropical regions.



Climate Change, it's real, real hard to explain, kind of like trees...



Local land-atmosphere interactions



* Positive feedback for C3 and C4 plants and negative feedback for CAM plants for incoming solar; negative feedback above optimal temperatures

———> Positive feedback
 - - -> Negative feedback
 ———> Land-surface processes ———> Surface layer and ABL ———> Radiation

For every 1°C - Double the Conditions

What we consider a 100 year storm or 1% event is now a 50 year storm or 2% event. A 20 year event is now a 10 year event and so on.

- Hurricane
- Drought
- Heat wave
- Etc

Why- For every 1°C increase in global temperature another magnitude of moisture the atmosphere can hold

FIGURE 11 Flooding and extreme heat risk in Newark⁶⁸

High vulnerability areas

- Areas vulnerable both to extreme risk and high flood risk

Urban heat island effect

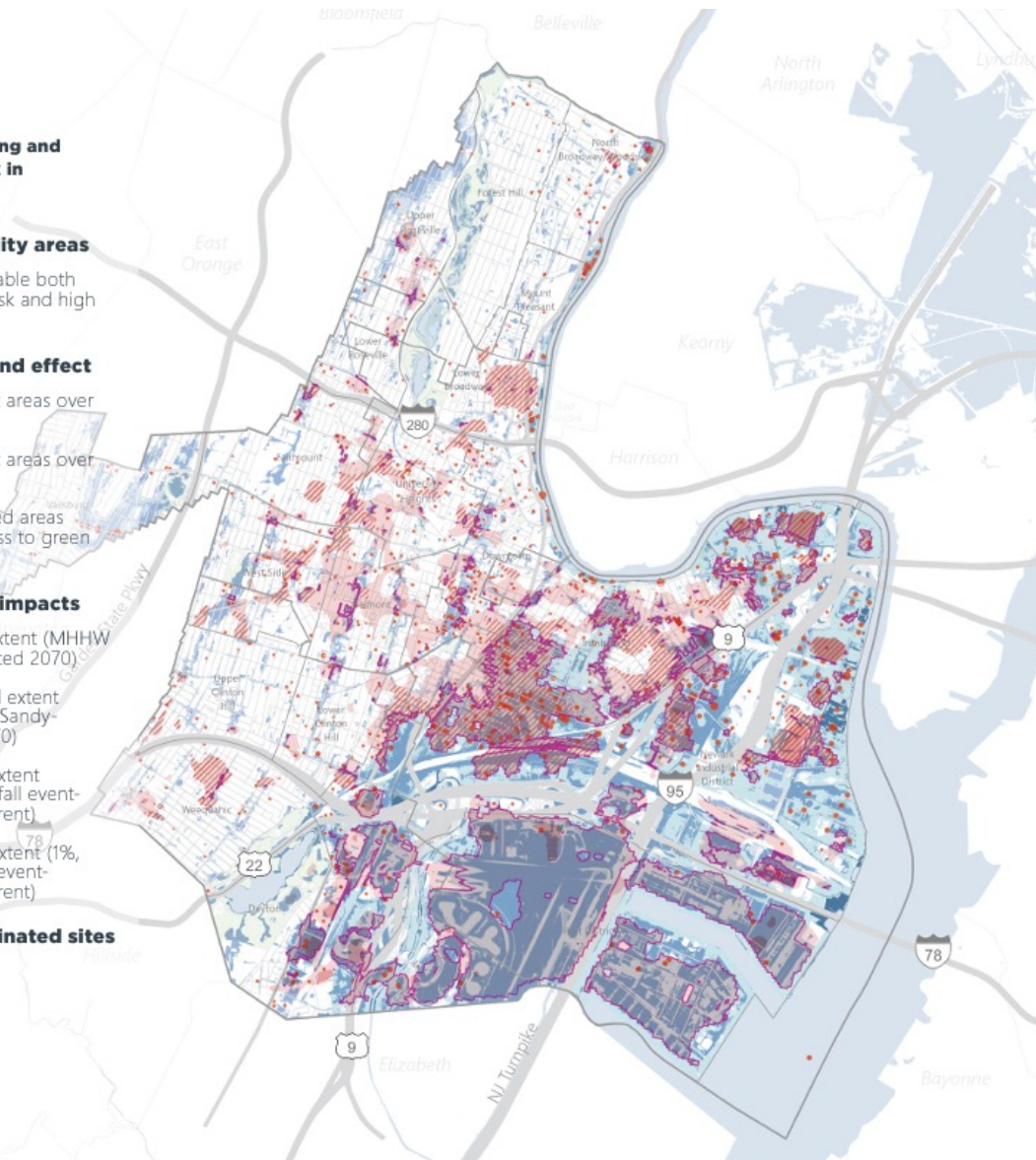
- Extreme heat areas over 100F
- Extreme heat areas over 95F
- ▨ Heat impacted areas without access to green space

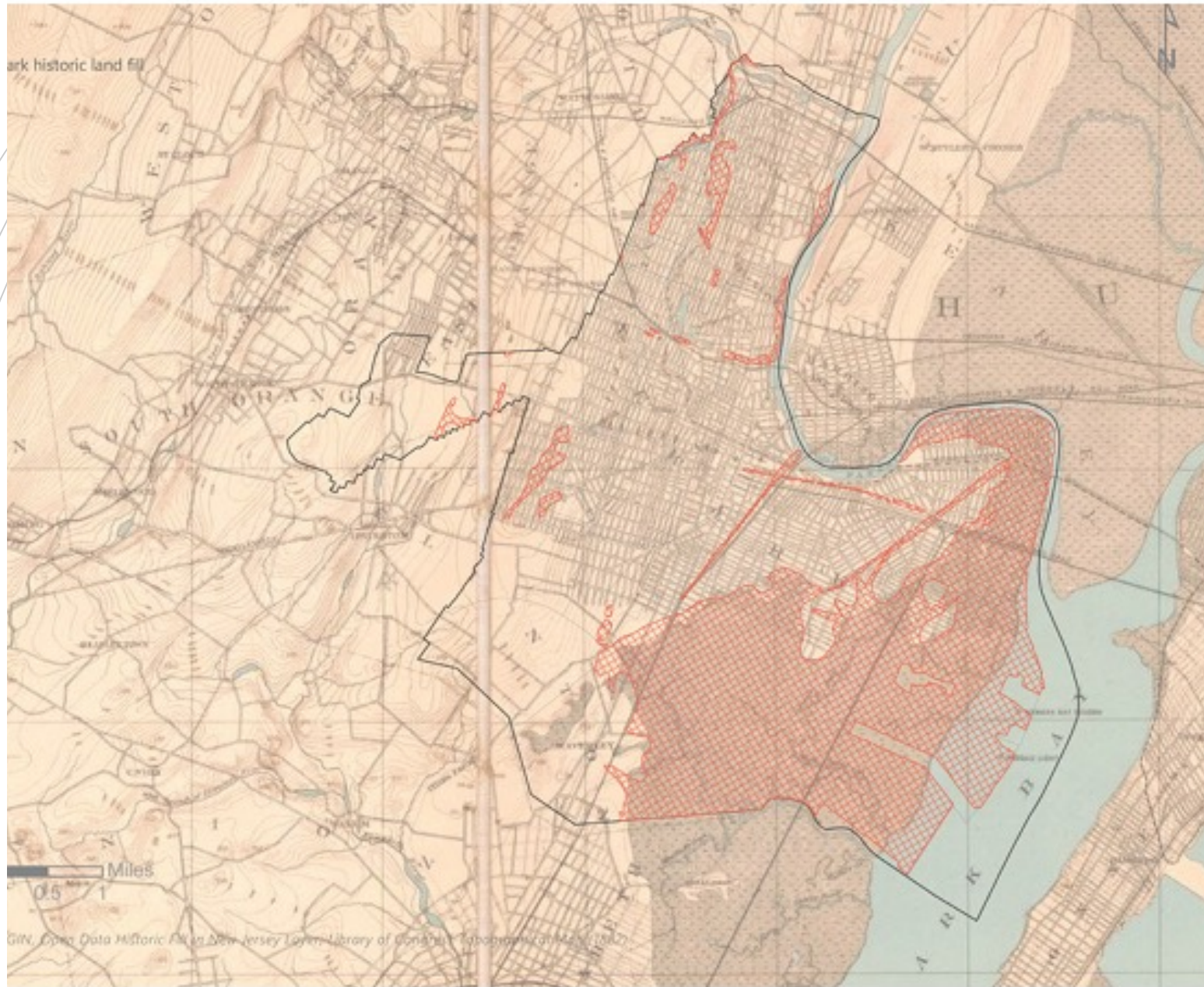
Modeled flood impacts

- Tidal flood extent (MHHW levels-projected 2070)
- Coastal flood extent (Superstorm Sandy-modeled 2070)
- Flash flood extent (2%, 2hr rainfall event-modeled current)
- Areal flood extent (1%, 24hr rainfall event-modeled current)

Known contaminated sites

- Low
- Moderate
- High





Areas where wetlands and marshes were filled in Newark, approximately 5,538 acres in total 25

FIGURE 3 Modeled rainfall flooding³⁵

Area flood extent (1%, 24hr rainfall event)

- < 1ft
- 1-2ft
- 2-5ft
- 5-10ft
- > 10ft

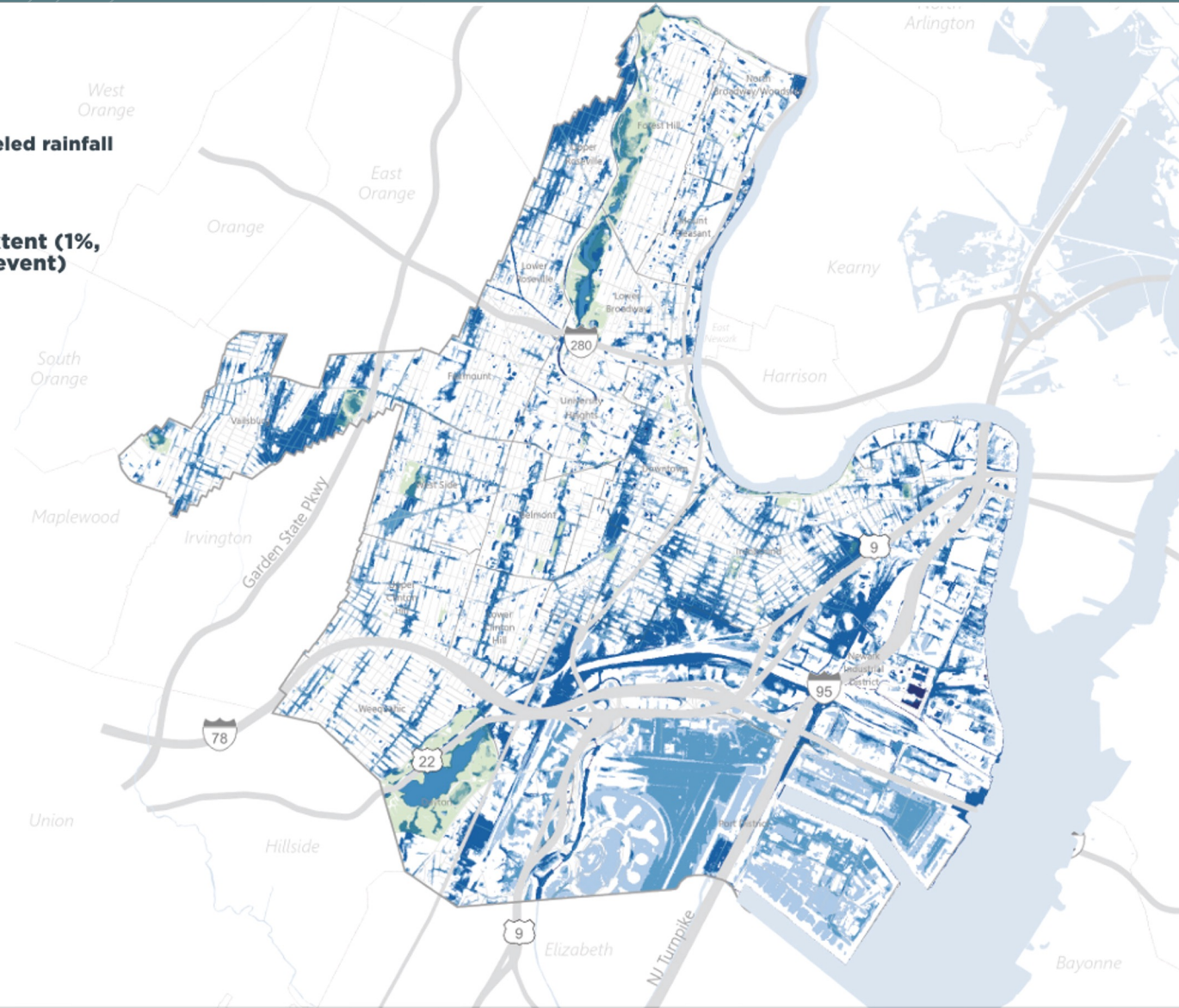
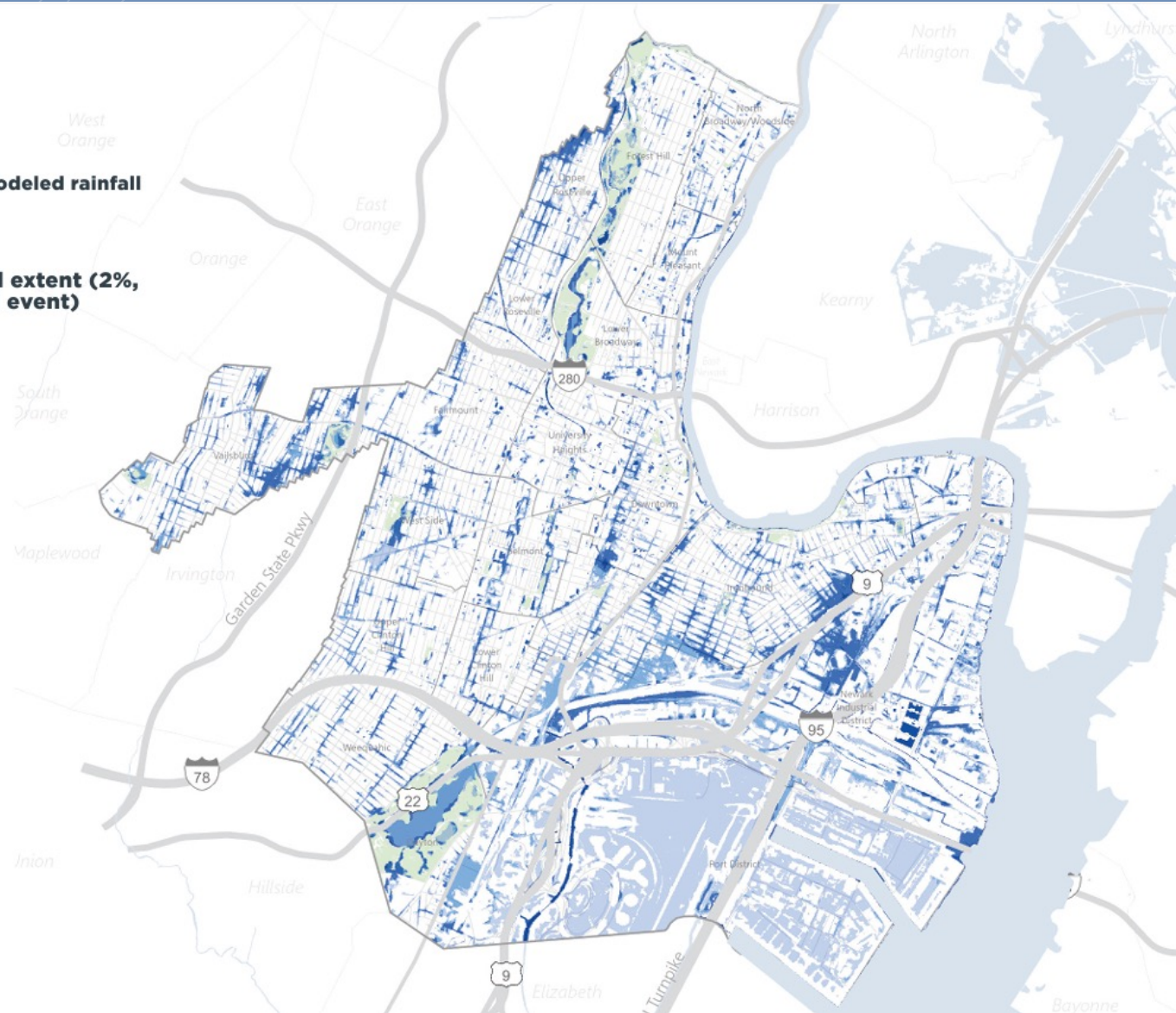


FIGURE 4 Modeled rainfall flooding

Flash flood extent (2%, 2hr rainfall event)

- < 1ft
- 1-2ft
- 2-5ft
- 5-10ft
- > 10ft



Recent extreme weather events

Name	Start date	End date	Landfall	Rainfall	Community impact
Remnants of Hurricane Ida	9/1/2021	09/02/2021	n/a	7.76 inches	Widespread transportation system impacts; homes and cars flooded
Tropical Storm Henri	08/21/2021	08/23/2021	n/a	8.42 inches	Flooded basements, sewer collapse, and sinkholes
Tropical Storm Elsa	07/08/2021	07/10/2021	n/a	1.78 inches	Severe flooding observed
Superstorm Sandy	10/21/2012	10/31/2012	10/29/2012	2-4 inches ¹²	12-foot storm surge; severe infrastructure damage; 255,469 power outages counted in Essex County ¹³
Hurricane Irene	8/21/2011	8/30/2011	8/28/2011	10 inches ¹⁴	Significant property and roadway damage, power outages
Tropical Cyclone Hanna ¹⁵	8/28/2008	9/8/2008	9/6/2008	3.75 inches ¹⁶	Power outages and flooding reports
Remnants of Hurricane Gordon	9/14/2000	9/21/2000	9/18/2000	2.14 inches ¹⁷	Poor drainage leading to flooding in low-lying areas

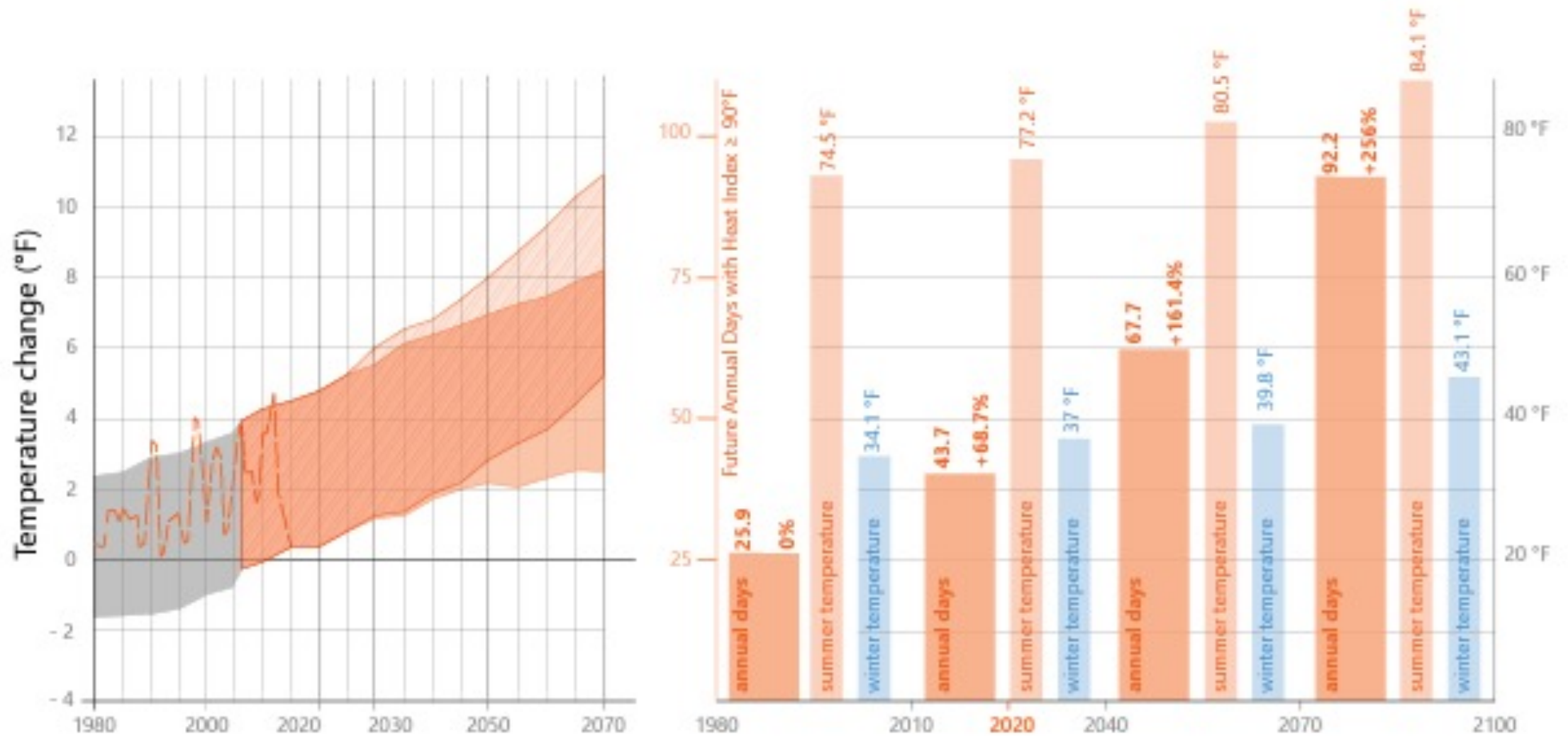
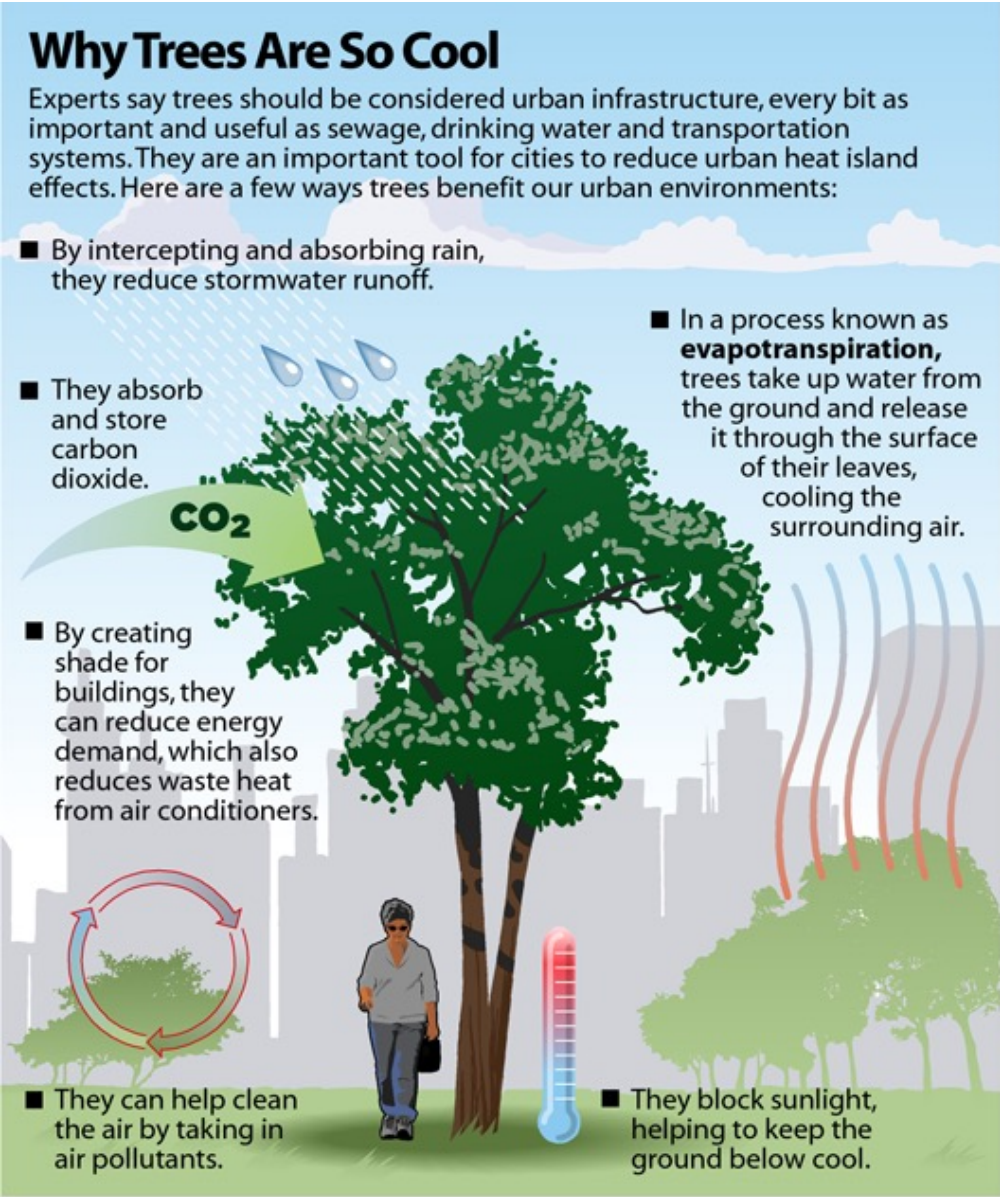


FIGURE 8 Future annual days with heat index $\geq 90^{\circ}\text{F}$; average seasonal temperatures ⁴⁷

Why Trees?

Why Trees Are So Cool

Experts say trees should be considered urban infrastructure, every bit as important and useful as sewage, drinking water and transportation systems. They are an important tool for cities to reduce urban heat island effects. Here are a few ways trees benefit our urban environments:

- By intercepting and absorbing rain, they reduce stormwater runoff.
 - They absorb and store carbon dioxide.
 - In a process known as **evapotranspiration**, trees take up water from the ground and release it through the surface of their leaves, cooling the surrounding air.
 - By creating shade for buildings, they can reduce energy demand, which also reduces waste heat from air conditioners.
 - They can help clean the air by taking in air pollutants.
 - They block sunlight, helping to keep the ground below cool.
- 



MAKE GOD
BIG HOMIE

ton St

THE BOY

ONE WAY

THE BOY





14% to 33%

The Goal







FIGURE 11 Flooding and extreme heat risk in Newark⁶⁸

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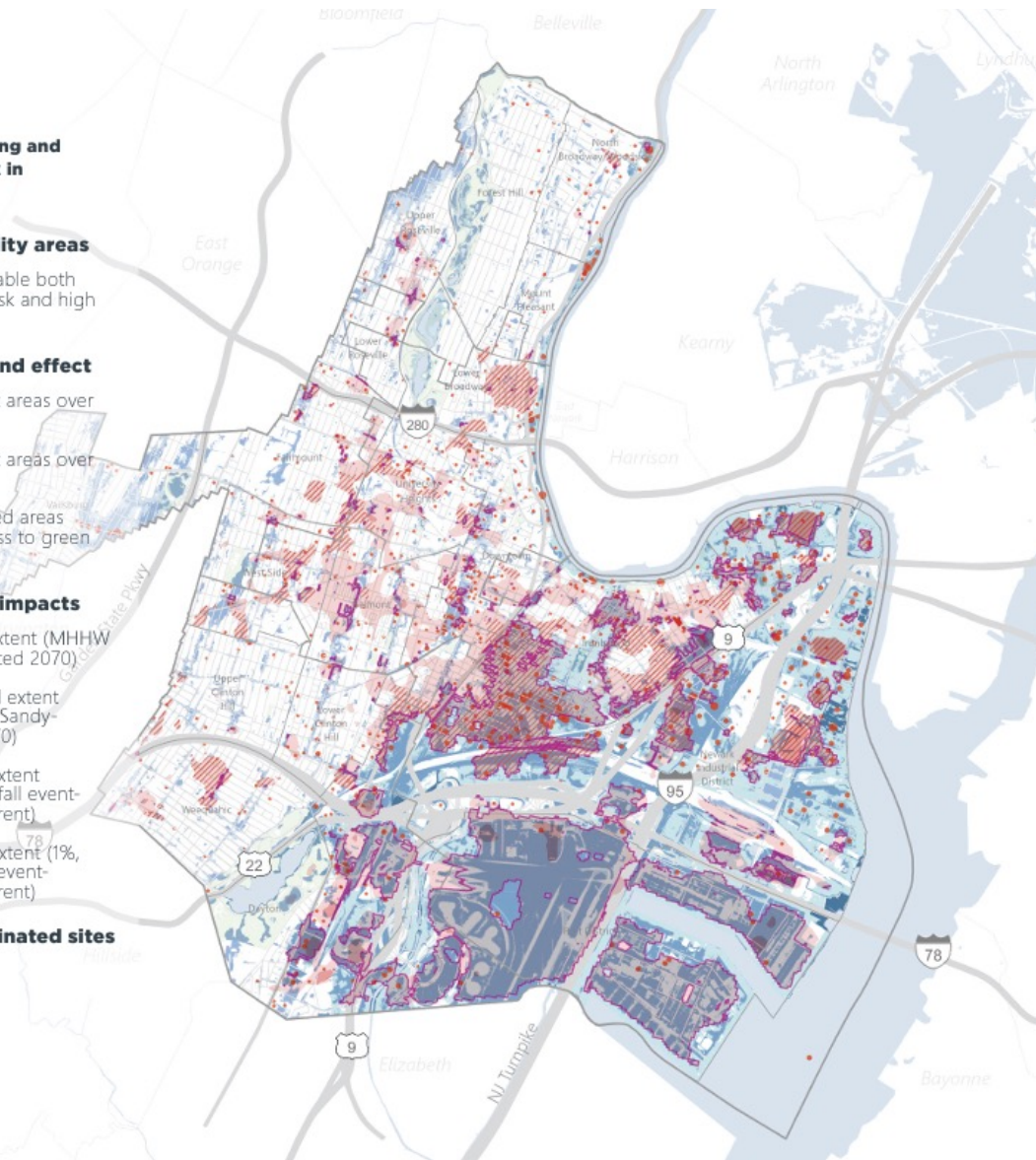
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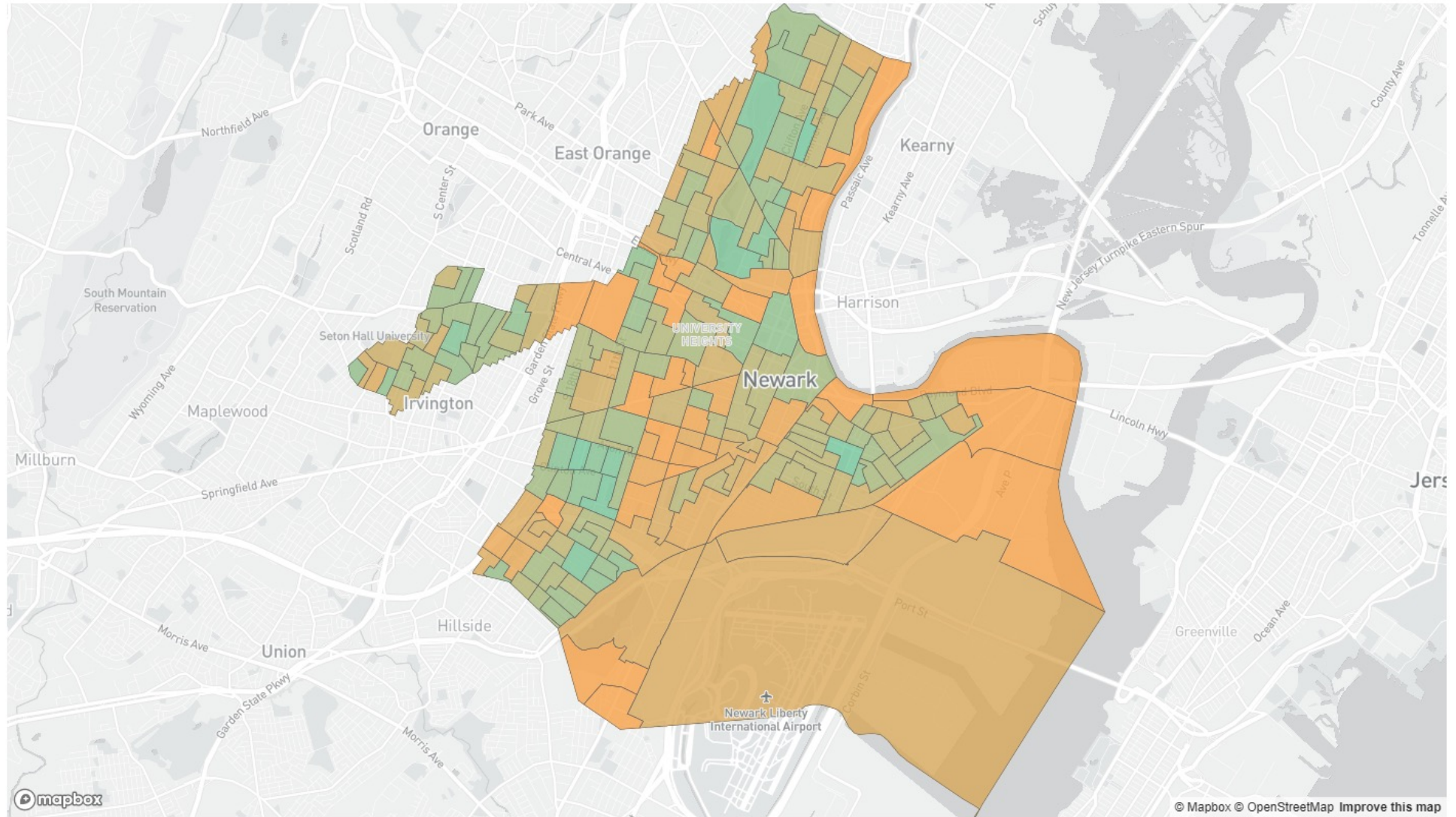
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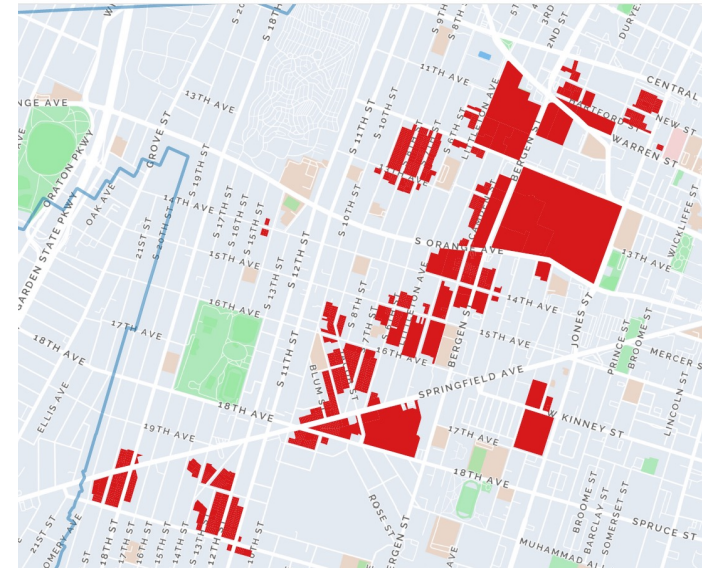
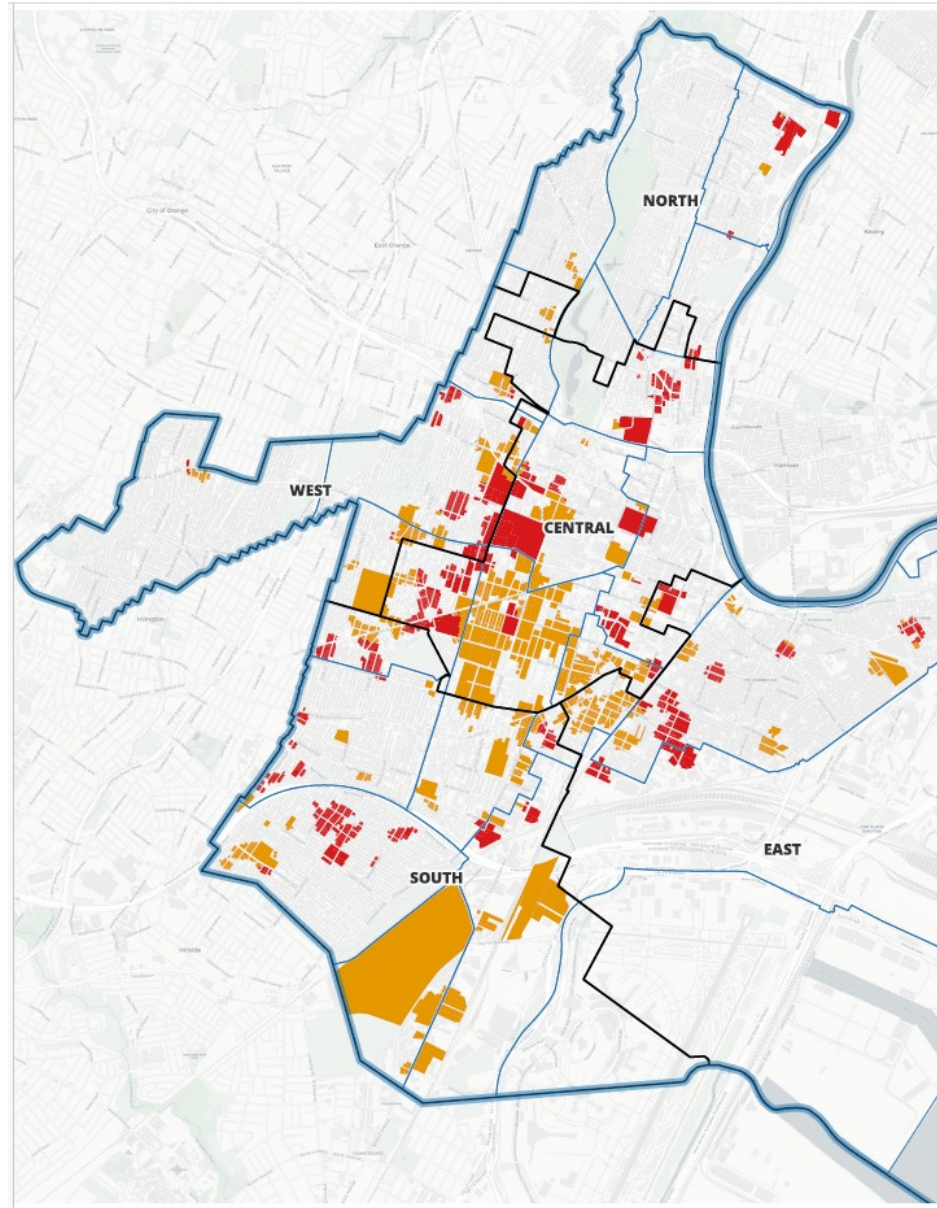
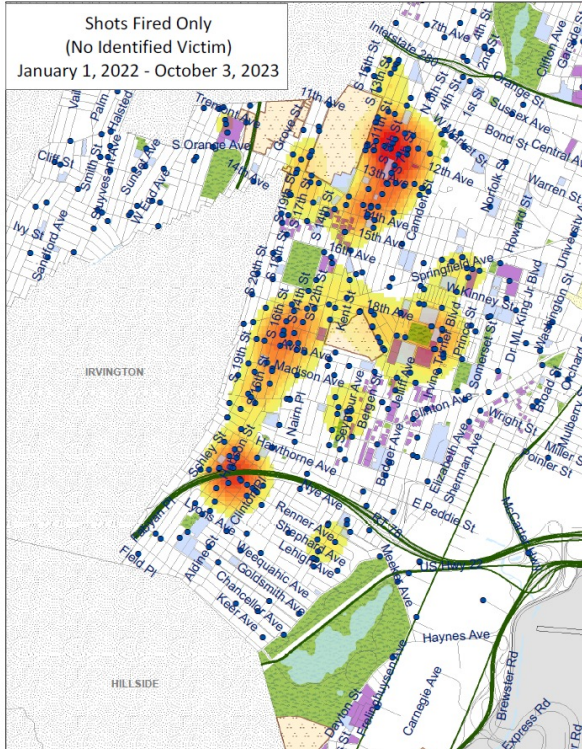
Newark, NJ Tree Equity Score Map



<https://www.treeequityscore.org/>

- Potential Planting Areas
- Tree Map 2013
- Tree Map 2015
- Tree Map 2017
- Tree Map 2019
- Boundary Layers
- Environmental Indicators
- Public Health
- Animated Maps
- Reference Layers









NEWARK GREEN WORKS

Paid Training Program



Be a part of Newark's Green Future! Sign up to complete the National Green Infrastructure Certification Program!

ELIGIBILITY REQUIREMENTS:

- 18 years and older
- High School Diploma or equivalent
- Environmental or outdoor work experience is a plus

Newark residents encouraged.
Re-entry applicants welcome.

To apply: send resume to NewarkWorks2020@gmail.com
Include "Green Infrastructure" in subject line



Next steps

MAINTAIN

- Inventory
- Remove & Replant
- Subsidize
- Annual scheduled pruning

IMPROVE

- Change your land use laws
- Implement Green Infrastructure
- Plant some trees

Thank You



- **Jonathan Gordon**
- Interim Chief Sustainability Officer
- **Office of Sustainability**
- Department of Administration
- **City of Newark**
- 920 Broad Street, Rm. B-12
- Newark, New Jersey 07102
- 973-733-8041
- Gordonj@ci.newark.nj.us
- newarknj.gov/sustainability



Sustainable Jersey Actions for Community Forest Stewardship

Melanie McDermott
Senior Researcher, Sustainable Jersey
mcdermom@tcnj.edu



'Tree actions' earn up to 135 points towards Sustainable Jersey certification

- Community Forestry Management Plan & NJUCF Accreditation (≤ 20 points)
 - Tree Hazard Inventory (10 points)
 - Tree Maintenance Programs (10 points)
 - Tree Planting Programs (10 points)
- Tree Protection Ordinance (10 points)
- Heat Island Assessment & Mitigation Plan (≤ 20 points)
- Community Wildfire Protection Plans (10 points)
- Firewise Community (≤ 15 points)
- Ready Set GO! Fire Company (≤ 15 points)
- Wildfire Safety Council (≤ 15 points)

Sustainable Jersey Underwriters and Sponsors

Program Underwriters



Corporate Sponsors

