Welcome to our

2021 NYC Candidate School

Infrastructure: Mobility, Wastewater, & Green Infrastructure

February 11th, 2021

5:30 pm - 7:30 pm

NYLCVEF

EDUCATING FOR THE ENVIRONMENT

Transit Equity for Recovery

A briefing for 2021 campaigns

Thursday, February 11, 2021

Kate Slevin
Senior Vice President
Regional Plan Association

Danny Pearlstein
Policy & Communications Director
Riders Alliance

Challenges Facing Our Transit System

- **Infrastructure**
  - Funding for the MTA's 2020-2024 Capital Program
  - Traffic and Priorities on City Streets
  - Reliability and Accessibility
- **Riders**
  - COVID-19 Public Health Concerns
  - Economic Challenges and Affordability
  - Safety on City Streets
  - Access to the Transit Network

An Equitable Transportation-Led Recovery

An Equitable Transportation-Led Recovery

- Fund public transportation
- Improve and expand bus service
- Address climate goals through changes in transit
- Make transit more affordable
- Prioritize accessibility
- Expand opportunities for safe biking
- Achieve vision zero
- Reprioritize the allocation of streetspace

Priorities that Need City Leadership

- **Fund capital work**
- **Stand up for riders**
- **Improve and expand access to transit**
- **Reprioritize how we use City streets**

Fund Capital Work

Challenges for public transit:

- Delayed implementation of congestion pricing
- MTA budget reliance on farebox revenue
- Pandemic impact on capital work

Opportunities for leadership:

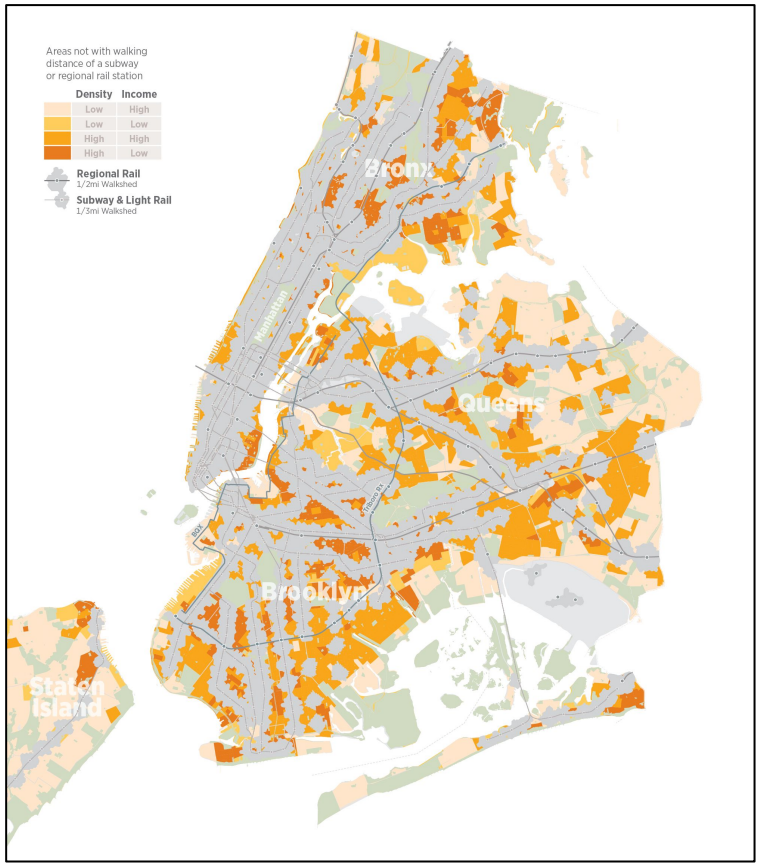
- Interagency cooperation on congestion pricing
- Continued advocacy for federal transit support
- Implement transit options on City streets to connect more neighborhoods

Stand Up For Riders

Opportunities for leadership:

- Mayor gets four seats on MTA board
- Use bully pulpit to advocate for riders
- Lead by example to get people back on transit
- Advocate for regional priorities
- Help fund Fair Fares and Freedom Ticket

Improve and Expand Access



Challenges for public transit:

- 40% cannot walk to subway or rail stations
- Some of the slowest bus speeds in the country
- Limited Access-A-Ride (AAR) options
- Cost and feasibility of subway expansion

Opportunities for leadership:

- Continue to ensure safe, clean streets
- Advocate for better AAR service
- Expand on successful bus redesign projects
- Build support for long-term expansion projects

Case Study: 14th Street Busway

NYCDOT Transit & Truck Priority (TTP)

- Limit access for private vehicles
- Improve safety and operations
- Restrict left turns on the corridor
- Create new pedestrian spaces
- Install curb extensions

Pre-Pandemic Improvements*:

- 24% Increase in Travel Time
- 14% Increase in Bus Ridership
- 94% Increase in Bike Ridership
- 42% Decrease in Pedestrian Injuries

**See Sam Schwartz 14th Street TTP Winter 2020 Quarterly Report*

Case Study: Edward L. Grant Highway

Bus Redesign Challenges:

- High bus-ridership corridor
- Safety issues on wide roadway - a Vision Zero corridor
- Unprotected bike lanes
- Congestion

Redesign Improvements:

- Center-running bus lane
- Boarding islands
- Protected bike lanes
- Pedestrian refuge islands
- Low-cost

Bus Turnaround Campaign: 30 Miles to Go

Opportunity:

- Build on the momentum of accelerated bus lane installation in recent years
- Restrictions on bus lane enforcement cameras have been lifted
- Setup a playbook for what will be a mandated 30 miles/year

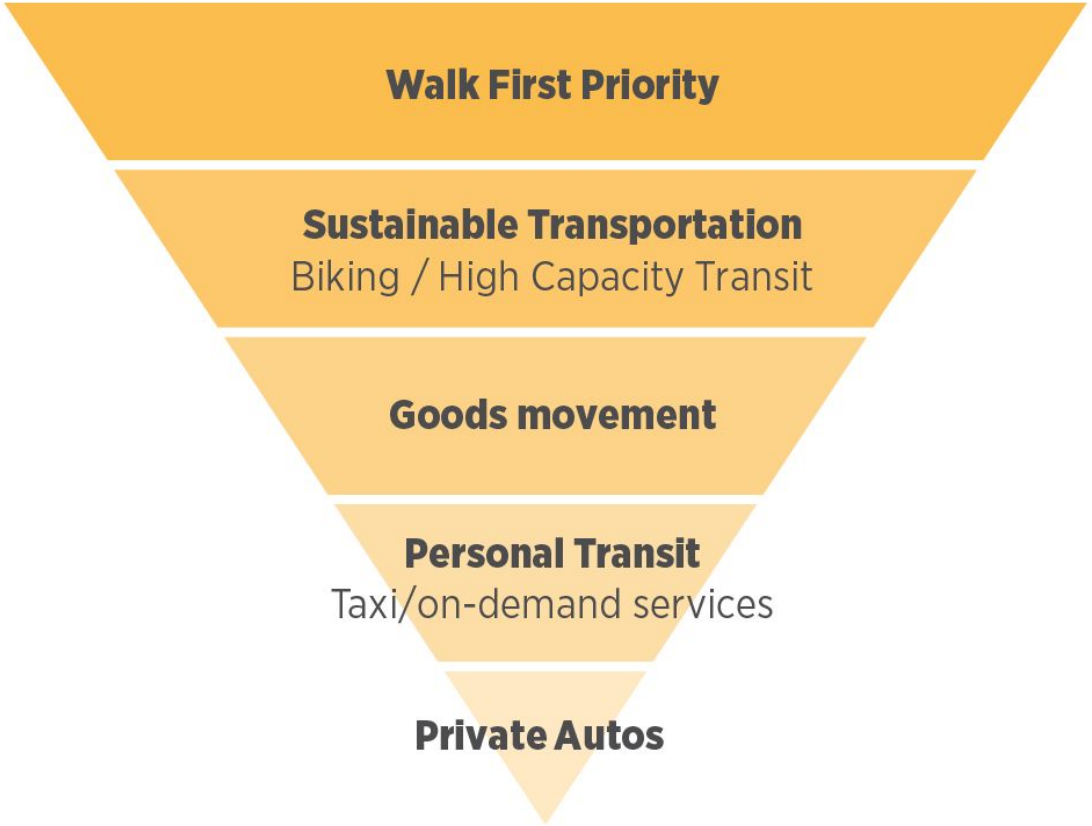
http://busturnaround.nyc/

The Triboro

- Above-ground rail line stretching 24 miles from Co-op City in the Bronx to Bay Ridge in Brooklyn.
- Use of existing rail right-of-way reduces construction cost.
- 24 new stations, transfers to 17 subway lines and 4 commuter rail lines.
- Initial ridership of 100,000 daily commuters.

The tracks are already there — let's put them to use!

Reprioritize the Use of City Streets



Reprioritize the Use of City Streets

THE FIVE BOROUGH BIKEWAY

Opportunities for leadership:

- Repurpose streets to calm traffic and provide more local open space
- Five Borough Bikeway - citywide vision for safe and accessible biking
- Enforcement on streets to clear congestion and speed up bus times
- Open dining, retail and culture

Thank

Equity On Our Streets: A Transportation-Led Recovery Agenda for Candidates
https://rpa.org/latest/news-release/equity-transportation-agenda

Bus Turnaround Coalition
http://busturnaround.nyc/

SAVE THE DATE!
Safe, Equitable and Accessible Streets:
A 2021 Mayoral Candidate Forum on the Future of Transportation in NYC
Thursday, March 25th @ 6:30pm via Zoom and Facebook Live Stream

danny@ridersny.org | @RidersAlliance | **ridersny.org**

kslevin@rpa.org | @RegionalPlan | **rpa.org**

RIDERS ALLIANCE

RPA

Clean School Buses

WHY ELECTRIC SCHOOL BUSES ARE IMPORTANT

Current School Buses

- Current fleet of NYC school buses run on diesel and gasoline

- School buses emit noxious pollutants (carbon dioxide, nitrogen oxide, etc.) that worsens air quality

- NYC students (especially special education students) spend hours a day riding on school buses breathing in harmful fumes

- Students w/respiratory conditions (e.g. asthma) are more likely to get sick from breathing in these fumes, leading to absenteeism and possibly hospital visits

Why Electric School Buses

- Electric school buses are better for the environment
- Most school bus depots are in environmental justice communities.
- Electric school buses mean less diesel traffic in these communities
- Electric school buses improves air quality, which in turn improves the health of children by reducing the exposure to harmful pollutants

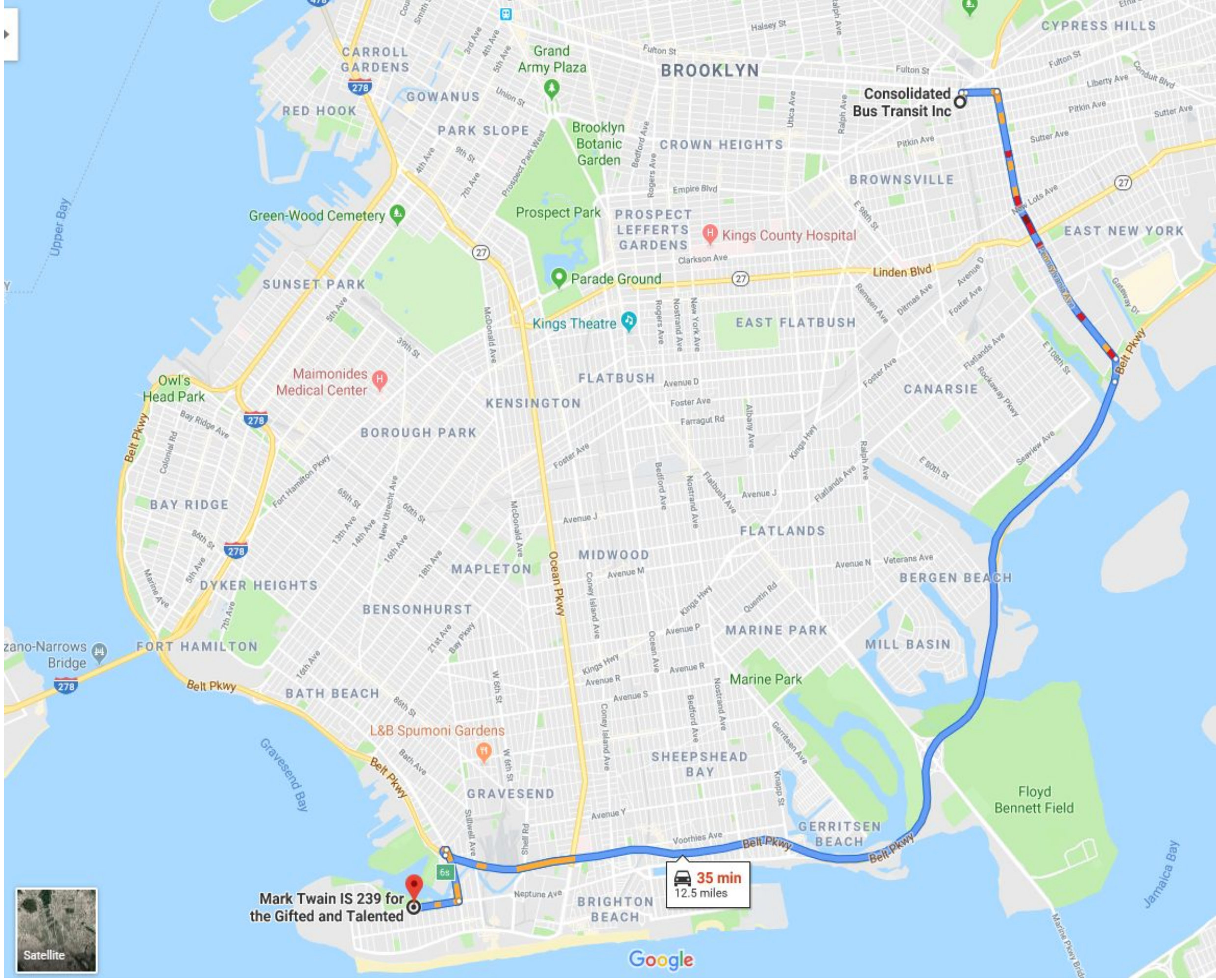
Bus depots are concentrated in Environmental Justice communities.

Green 1-100 vehicles

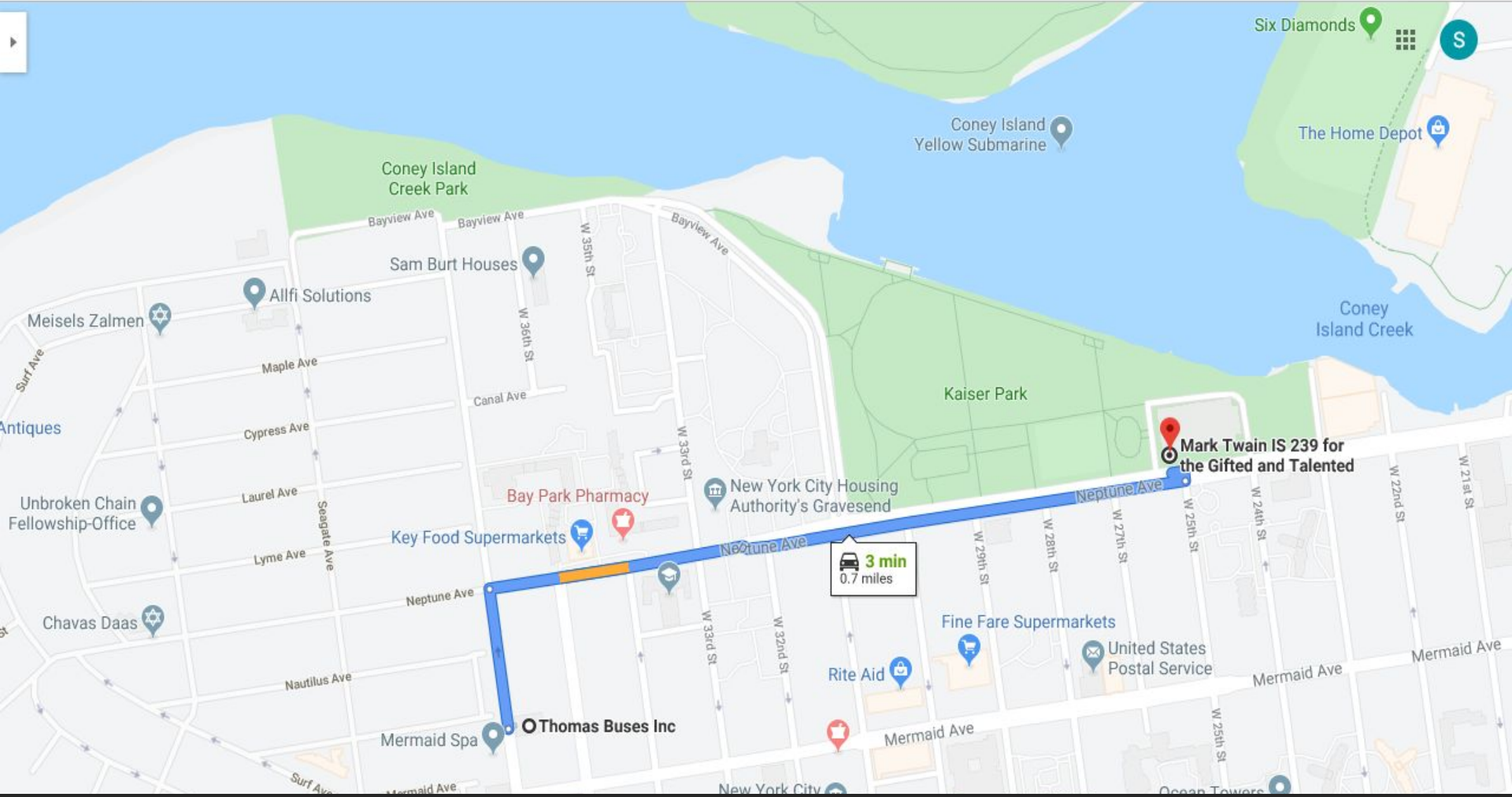
Blue 100-300 vehicles

Orange 300-500 vehicles

Red 500+ vehicles



BROOKLYN
CARROLL GARDENS
RED HOOK
GOWANUS
PARK SLOPE
Grand Army Plaza
Brooklyn Botanic Garden
CROWN HEIGHTS
BROWNSVILLE
CYPRESS HILLS
Consolidated Bus Transit Inc
EAST NEW YORK
Green-Wood Cemetery
Prospect Park
PROSPECT LEFFERTS GARDENS
Kings County Hospital
Linden Blvd
Parade Ground
SUNSET PARK
Kings Theatre
EAST FLATBUSH
FLATBUSH
CANARSIE
Owl's Head Park
Maimonides Medical Center
KENSINGTON
BOROUGH PARK
BAY RIDGE
FLATLANDS
MIDWOOD
MAPLETON
Ocean Pkwy
DYKER HEIGHTS
BENSONHURST
BERGEN BEACH
MARINE PARK
MILL BASIN
Marine Park
FORT HAMILTON
Verrazano-Narrows Bridge
BATH BEACH
Belt Pkwy
L&B Spumoni Gardens
Gravesend Bay
SHEEPSHEAD BAY
GRAVESEND
Floyd Bennett Field
GERRITSEN BEACH
Mark Twain IS 239 for the Gifted and Talented
BRIGHTON BEACH
35 min
12.5 miles
Jamaica Bay
Upper Bay
Satellite
Google


Six Diamonds
Coney Island
Yellow Submarine
The Home Depot
Coney Island
Creek Park
Bayview Ave
Bayview Ave
Bayview Ave
W 35th St
Sam Burt Houses
Allfi Solutions
Meisels Zalmen
W 36th St
Maple Ave
Canal Ave
Surf Ave
Coney
Island Creek
Kaiser Park
Antiques
Cypress Ave
W 33rd St
Mark Twain IS 239 for
the Gifted and Talented
Laurel Ave
Bay Park Pharmacy
New York City Housing
Authority's Gravesend
Unbroken Chain
Fellowship-Office
Seagate Ave
Key Food Supermarkets
Neptune Ave
Neptune Ave
3 min
0.7 miles
W 29th St
W 28th St
W 27th St
W 25th St
W 24th St
W 22nd St
W 21st St
Lyme Ave
Neptune Ave
Chavas Daas
W 33rd St
W 32nd St
Fine Fare Supermarkets
United States
Postal Service
Rite Aid
Mermaid Ave
Mermaid Ave
Nautilus Ave
Thomas Buses Inc
Mermaid Spa
Mermaid Ave
W 25th St
Surf Ave
Mermaid Ave
New York City
Ocean Towers

Access-A-Ride

- Paratransit service for people w/disabilities who are unable to take public transportation
- Inefficient routes can lead to poor air quality, as Access-A-Ride (AAR) vans run on gasoline
- Access to bus lanes can help to reduce amount of traffic time for AAR vans
- We want to work with community partners and elected officials who are committed to a more responsive, greener AAR system

SWIM Coalition

Stormwater Infrastructure Matters

Julie A. Welch | Program Manager: swimmablenyc@gmail.com,
www.swimmablenyc.org (917) 647-1780

70+ organizations citywide who advocate for clean waterways around NYC:

Through our multi-tiered platform of education, outreach, policy and monitoring, SWIM members call for and influence the development of equitable, comprehensive, sustainable stormwater management planning, practices, and solutions (both green and grey infrastructure) that restore ecological systems, create local economic opportunities, and improve water quality in our local waterways.

NYLCV 2021 NYC Environmental Candidate School: Infrastructure

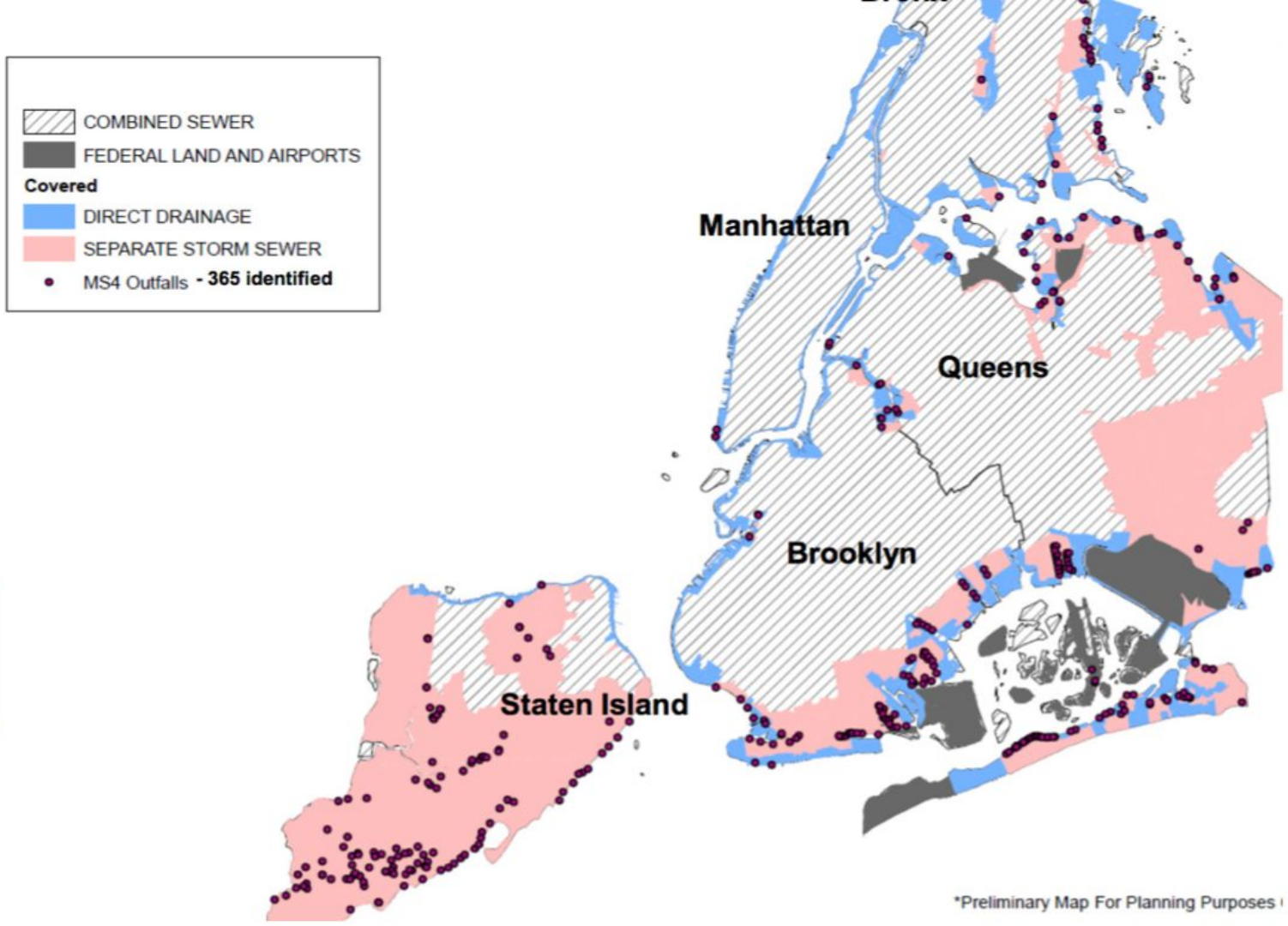
- Wastewater/Stormwater Infrastructure in NYC
- CSO and Stormwater Pollution in NYC Waterways: Root Causes
- Water Quality Improvement Programs and Solutions

The surface area of New York City is more than 72 percent impervious

Dense urban development has reduced NYC's ability to absorb the large amounts of rainfall we get each year.

NYC's antiquated sewer infrastructure gets inundated by stormwater runoff from our streets, sidewalks, and buildings during wet weather.

Like many older coastal cities, we have an antiquated combined sewer system (in 60% of the city) and a separate storm sewer system (in ~40% of the city): Both systems contribute to ongoing pollution in our waterways


COMBINED SEWER
FEDERAL LAND AND AIRPORTS
Covered
DIRECT DRAINAGE
SEPARATE STORM SEWER
MS4 Outfalls - 365 identified
Manhattan
Queens
Brooklyn
Staten Island
*Preliminary Map For Planning Purposes

The Two Systems:

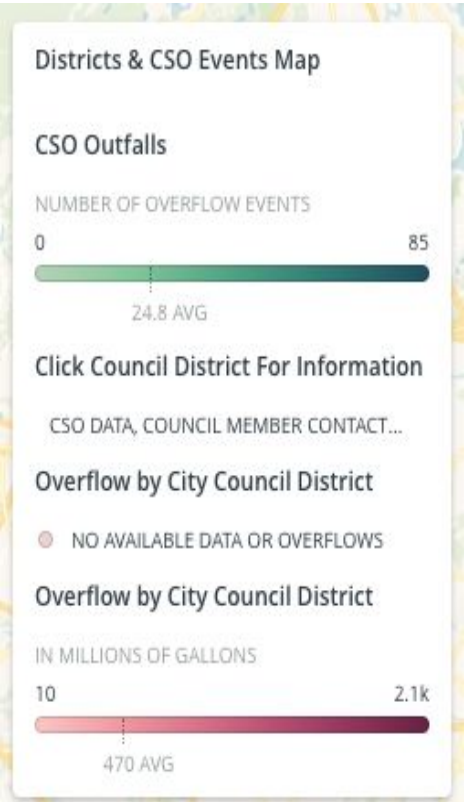
- In the combined sewer system: wastewater from inside our buildings (i.e toilets, sinks, showers etc.) and polluted stormwater runoff from our streets travel through the same set of pipes to wastewater treatment plants throughout the city. When it rains (sometimes as little as 1/10 of an inch), this system gets overwhelmed and has to divert and discharge its contents (untreated sewage and polluted stormwater) directly into our waterways via ~500 outfall points along our shoreline
- In the separate sewer system areas of the city there are two sets of pipes, one for stormwater and one for wastewater. The wastewater goes to the treatment plants and the polluted stormwater is discharged directly into our waterways without being treated.

Water Quality in NYC's Waterways

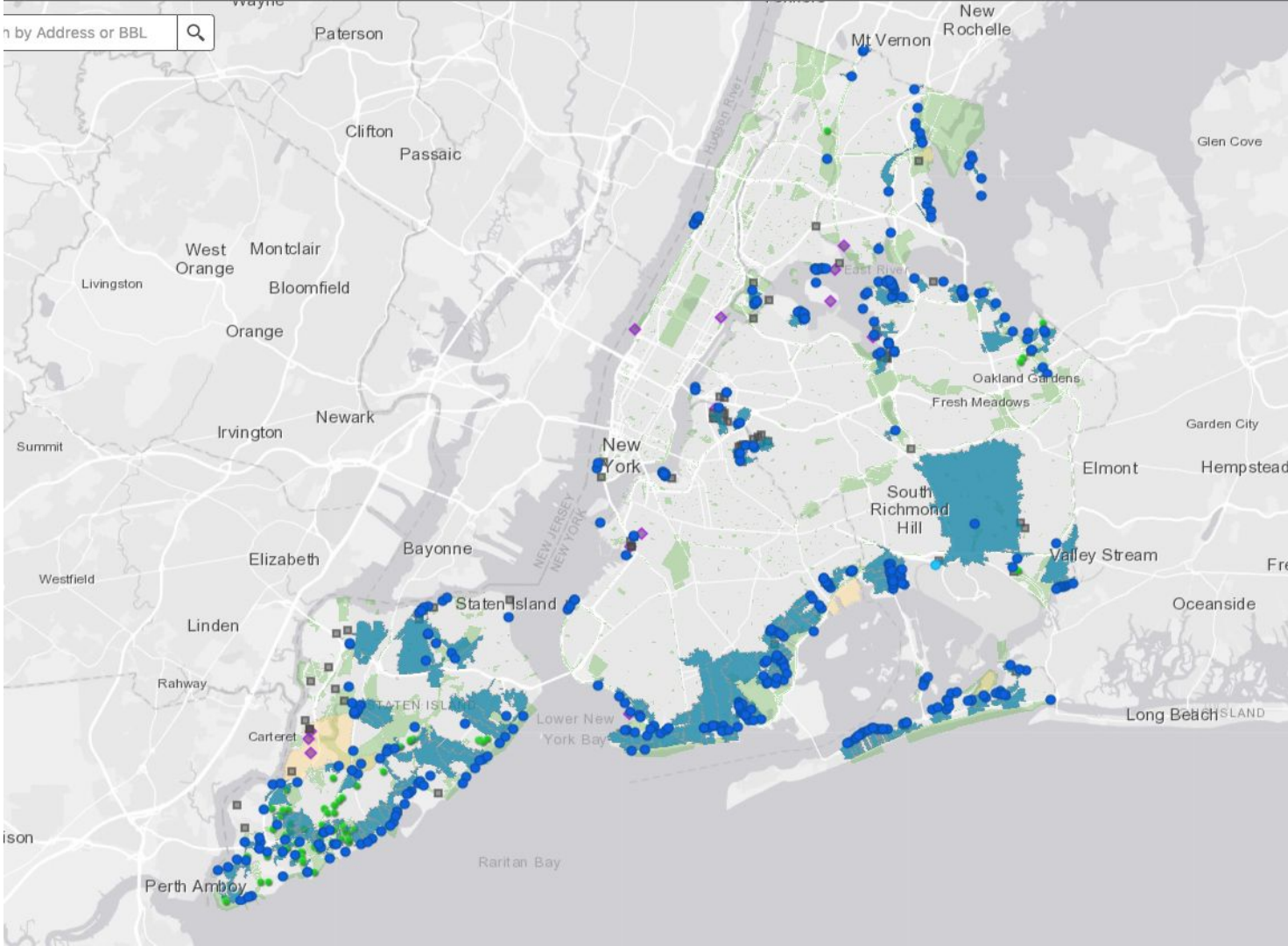
***Every year**, around 20 billion gallons of untreated wastewater and polluted stormwater runoff (**Combined Sewer Overflow: CSO**) bypass the city's sewage treatment plants during wet weather and get discharged into the waters via outfall points along the shoreline of all five boroughs."*

Combined sewer overflows are currently the largest ongoing source of pollution in NYC's waters

CSO Outfall Points/Events by District: Riverkeeper



Known MS4 Outfall Points mapped by DEP



NYC Water Quality Improvement Plans

- 11 Combined Sewer Overflow (CSO) Long Term Control Plans (LTCP): evaluate solutions and develop and implement plans to reduce CSO pollution in local waterways so that they meet state and federal clean water quality standards by 2030.

- Green Infrastructure Plan: manage 1 inch rainfall on 10% city's impervious surfaces with GI by 2030 to reduce 1.67 billion gallons of stormwater per year.

- Stormwater Management Plan for our Municipal Separate Storm Sewer System (MS4): decrease pollutants in stormwater through improved on site management by 2030

Eleven CSO LTCP's: $5.2 billion 2012-2030+ : Key Concerns

- Plans don't consider rainfall & sea level rise projections for our region:
  Mean annual precipitation is projected to increase between 4 to 13% by the 2050s, Sea level is expected to keep rising by 11 to 21 inches by the 2050s (NYC Panel on Climate Change)
- Plans not based on up - to - date water quality standards mandated by EPA
- Some waterways are getting chlorination: stakeholder concerns
- When completed in 2030 + will still leave 18 billion gallons/year CSO
- Current program delays due to pandemic related budget constraints: public needs to understand implications of delays

CSO Long Term Control Plans:

- **Alley Creek & Little Neck Bay**: $12 million 2024
- **Hutchinson River**: $167 million 2030
- Westchester Creek: $0 No Action
- **Flushing Creek**: $92 million 2027
- Coney Island Creek: $0 No Action
- Flushing Bay: $1.6 billion 2035
- Bronx River: $185 million 2026
- Gowanus Canal: $1.2 billion 2030
- Newtown Creek: $1.3 billion 2042
- Jamaica Bay: $579 million 2030
- Citywide/Open Waters: $42 million 2030

* Waters in red are getting disinfection facilities

Intro 1618:

- Integrated Plans for every waterbody with a CSO LTCP using EPA integrated planning framework (holistic plan for CSO & MS4)
- Quarterly Updates to Stakeholder Advisory Groups
- Series of annual reports on current conditions in each waterway available for public comment
- Inventory of GI potential on public and private property in each LTCP watershed

Green Infrastructure in CSO Area 2012 – 2030 $1.6 billion investment

- **Total Acres To Green:** 8,000 (out of our 150,000 impervious acres) in order to manage the first inch of stormwater runoff on 10 % of the city's impervious area (within the CSO section of the city) by 2030

- **Acres greened to date:** ~1230

- **More than 50 percent of the impervious land in DEP's targeted areas is privately owned:** DEP recognizes that it cannot attain its 8,000-greened-acre goal without developing a strategy to systematically site GI on private property

Green Infrastructure Incentive Programs

- Green Roof Tax Abatement (renewed every 4 years) abatement not high enough, program cap needs to be raised
- Green Roof Grant for private properties (administered by DEP, constrained by 20 year covenant makes it difficult reimbursement not up front)
- New Grant Program for GI initiatives (i.e. rain gardens, permeable pavement, green roof) on properties 50,000 square feet and higher: going into effect in 2021
- **NEED:**
- Inventory of rooftops in NYC with real potential for vegetated systems
- Inventory of GI potential on public and private property in each LTCP watershed (Intro 1618 calls for this)
- Metrics collection and database to document impacts and benefits of green roof and GI

Stormwater Management Plan for the MS4 Area of the City

- Underway since 2018/2019
- Mapping Stormwater Outfall points for this system
- Calculating Stormwater outfall volumes for each waterbody
- Piloting floatables catchment methods to reduce trash
- Monitoring,tracking and reducing illegal connections from building's wastewater pipes to MS4 pipes
- Upcoming: Renewal of the MS4 Permit from DEC, we'll monitor, inform our members and comment at public hearing

2021 Unified Stormwater Rule

New and re-development on parcels 20,000 sq ft or larger citywide will be required to manage 1.5 inches of rainfall. There will be a hierarchy of stormwater practices the developer will have to consider. The first options are bioretention and green roof. The last option is slow release detention.

- Advocates think the parcel size should smaller (10,000 sq ft) to ensure that more sites are eligible for the new practices

- City Council Committee for Resiliency and Waterfronts held a public hearing on Feb. 8 for

Intro 962 which proposed limiting the amount of impervious surfaces on new development and

horizontal retrofits: aligning this with the new stormwater rule to support the new stormwater

management practices citywide is vital

Additional Remedies:

City Level:

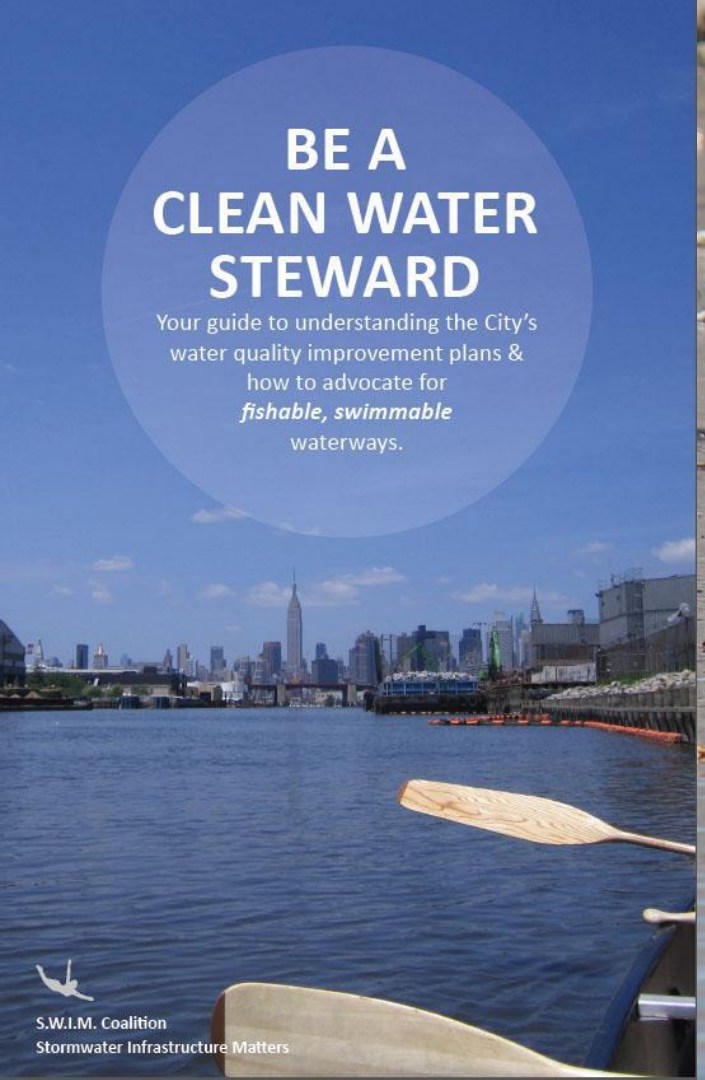
- Water Rate Restructure: Important 2021 DEP Study and Advisory Group
- NYC Sustainable Roof Laws: LL 92 and 94: new and retrofit roofs: awareness and technical support
- Pervious Pavement: Only one or two pilots, need to scale this up, perhaps through Intro 2092 for climate resiliency guidelines and implementation of pilot capital projects
- Renewable Rikers: NYC DEP study for a New Wastewater Treatment Plant and other programs

State Level:

- Restore Mother Nature Bond Act: currently on hold, needs to be passed and put on the ballot; includes funding for resilient infrastructure, Army Corps Storm Barriers Study for NY/NJ waters: reinstated but needs to be funded

BE A CLEAN WATER STEWARD

Your guide to understanding the City's water quality improvement plans & how to advocate for ***fishable, swimmable*** waterways.



S.W.I.M. Coalition
Stormwater Infrastructure Matters

BE A CLEAN WATER STEWARD

Your guide to understanding the City's water quality improvement plans & how to advocate for ***fishable, swimmable*** waterways.

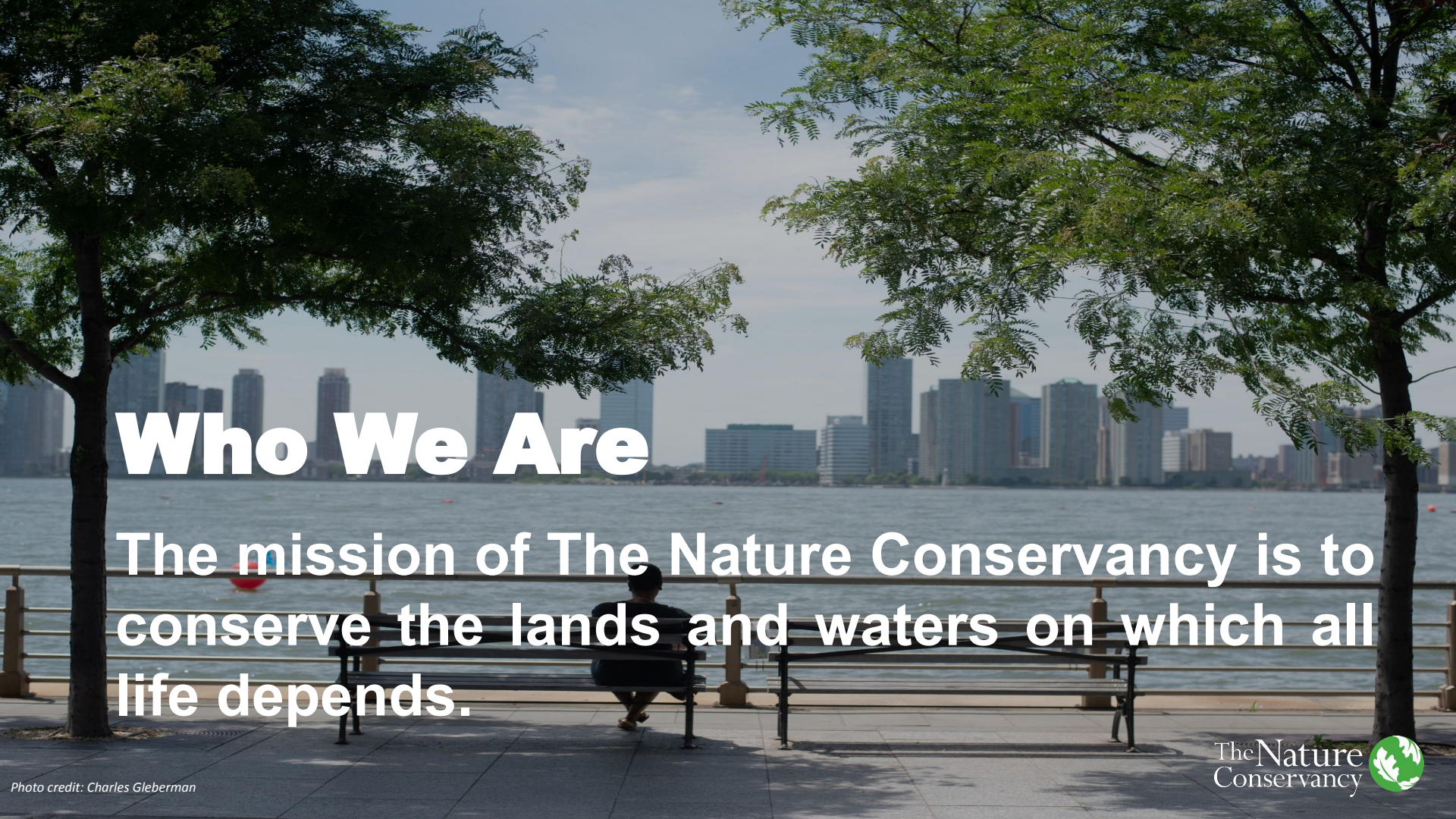
SWIM Coalition

Stormwater Infrastructure Matters

NYC: Landscape, Extreme Heat, Equity & Green Infrastructure

Emily Nobel Maxwell
Director
Cities Program, New York, The Nature Conservancy

Mike Treglia/The Nature Conservancy



Who We Are

The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends.

Photo credit: Charles Gleberman

The Nature Conservancy

Types of Green Infrastructure

In New York City

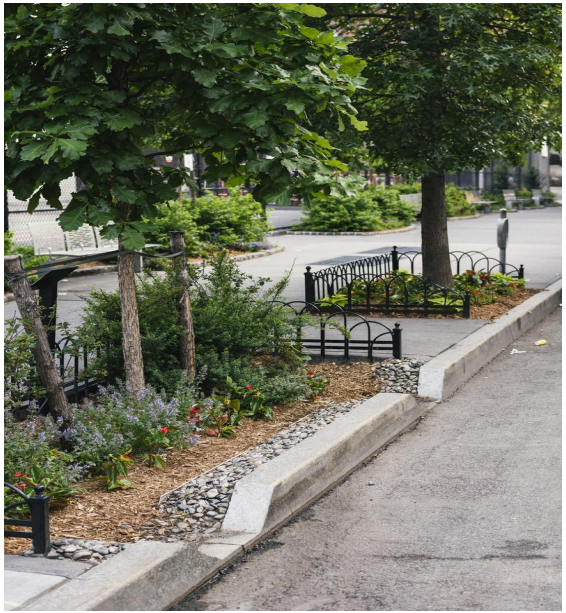


Photo Credit: Kevin Arnold

Rain Gardens

Photo Credit: Michael Treglia

Green Roofs

Photo Credit: NYC DEP

Blue Roofs

Photo Credit: NYC DEP

Stormwater Greenstreets

The Nature Conservancy

Types of Green Infrastructure

In New York City

Photo Credit: NYC DEP

Permeable Pavers

Photo Credit: NYC DEP

Subsurface Detention

Photo Credit: NYC DEP

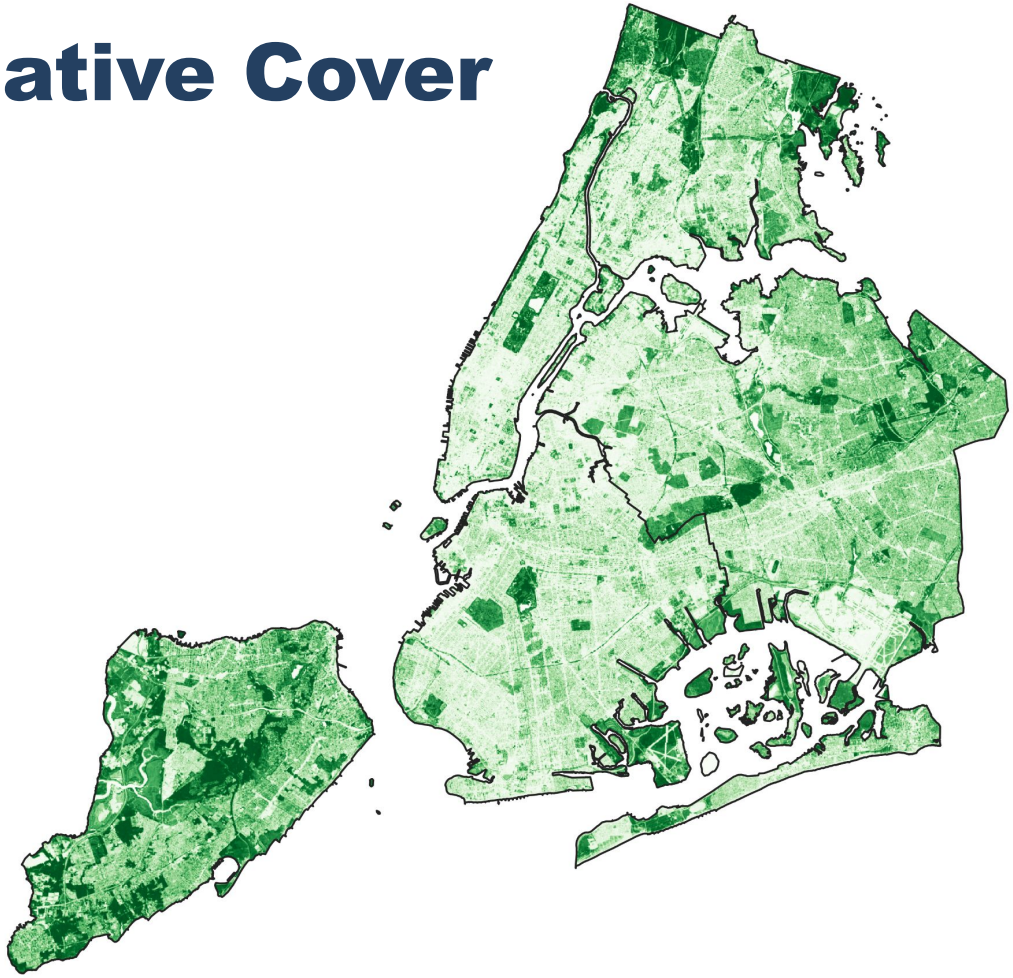
Cisterns and Rain Barrels

Photo Credit: NYC DEP

Infiltration Basins

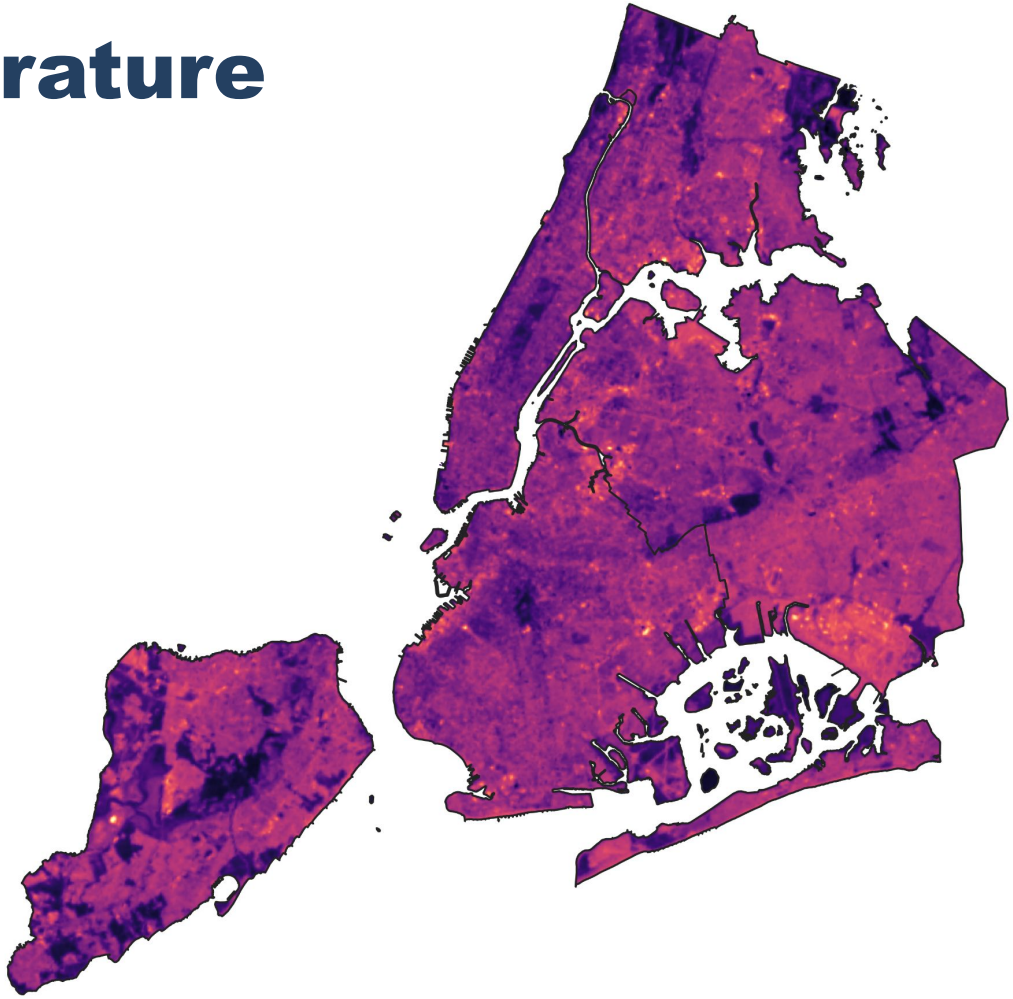
The Nature Conservancy

Vegetative Cover



The Nature Conservancy

Temperature



The Nature Conservancy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CB
The Nature Conservancy

Roofs: An untapped asset

Photo credit: Mike Treglia/TNC


>1 Million Buildings
40,000 acres
The Nature Conservancy
Photo credit: Mike Treglia/TNC

Green Roof Benefits

- 21-26% Reduction in Building Energy Use
- Significant Stormwater Absorption
- Reduced Air Temperatures and Air Pollution
- Multi-functional Space
- Extends Roof Lifespan

First Assessment of Green Roofs in NYC

How Many?

736

Where?

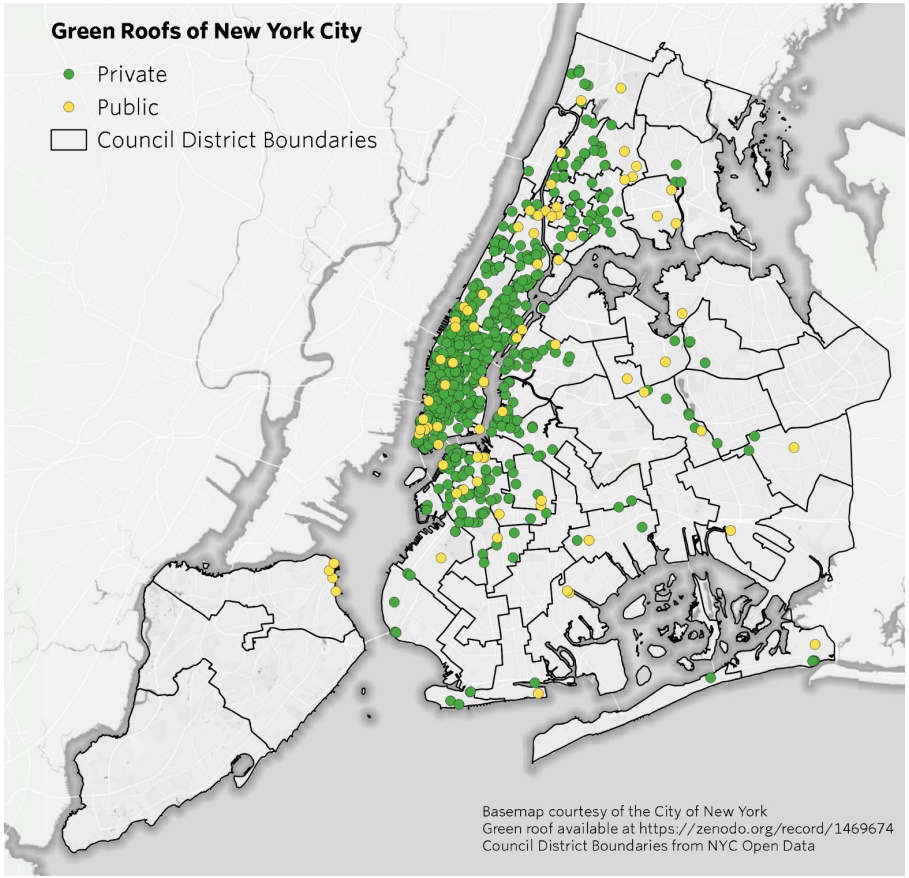
Mostly Midtown and Downtown Manhattan

What Types of Buildings?

Primarily Privately Owned Residential & Institutional

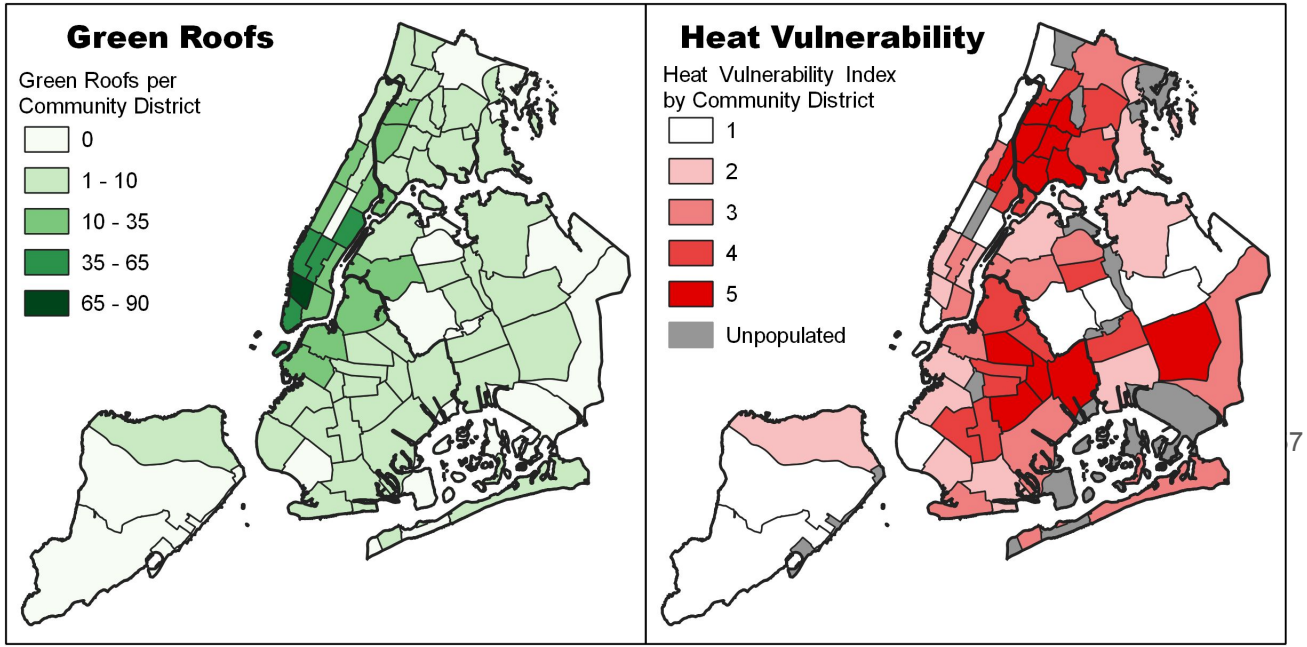
The Nature Conservancy

Only 0.07% of all rooftops have a green roof



The Nature Conservancy

Inequitable Distribution: Heat Vulnerability



The Nature Conservancy

New Policy

- Retrofit mandate
- New construction standards
- Green roof information requirements
- Tax abatement renewal and increase

Photo credit: GreenRoofGardener/Wikimedia

TNC Recommendations

- Ensure sufficient incentives
  - Unlock Green Roof Tax Abatement and expand program over time
  - Improve Green Infrastructure Grant Program
- Institutionalize green roof tracking
- Ensure municipal buildings, especially schools, benefit from green roofs directly

Photo credit: US Navy/flickr.com


Urban Forest
The Nature Conservancy
Photo credit: Diane Cook and Len Jenshel

Photo credit: Diane Cook and Len Jenshel

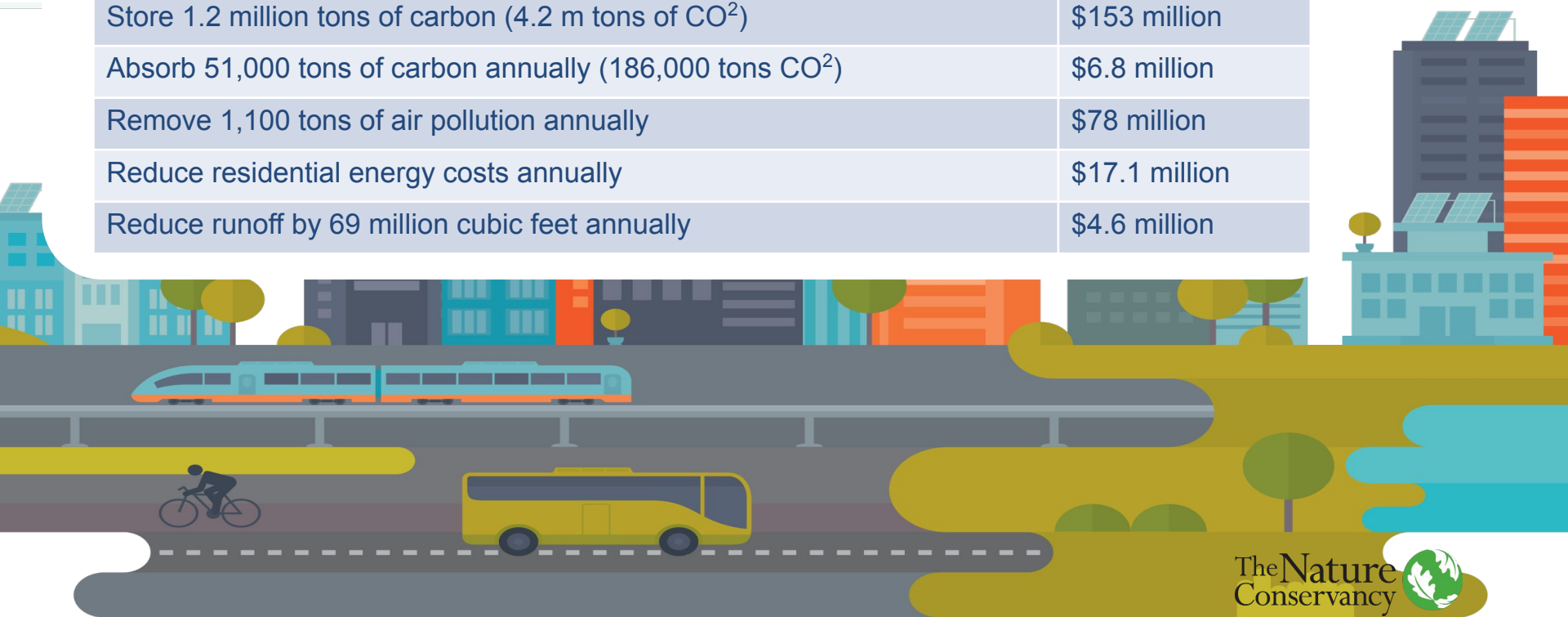
NYC Trees: the Basics

- Approximately 7 million trees
- 666,134 street trees
- 22% percent of land covered by tree canopy
- At least 138 Species of Trees in NYC
- Spread across a variety of land uses and ownership types
- While not defined as GI by the City, trees are critical natural infrastructure!

The Nature Conservancy

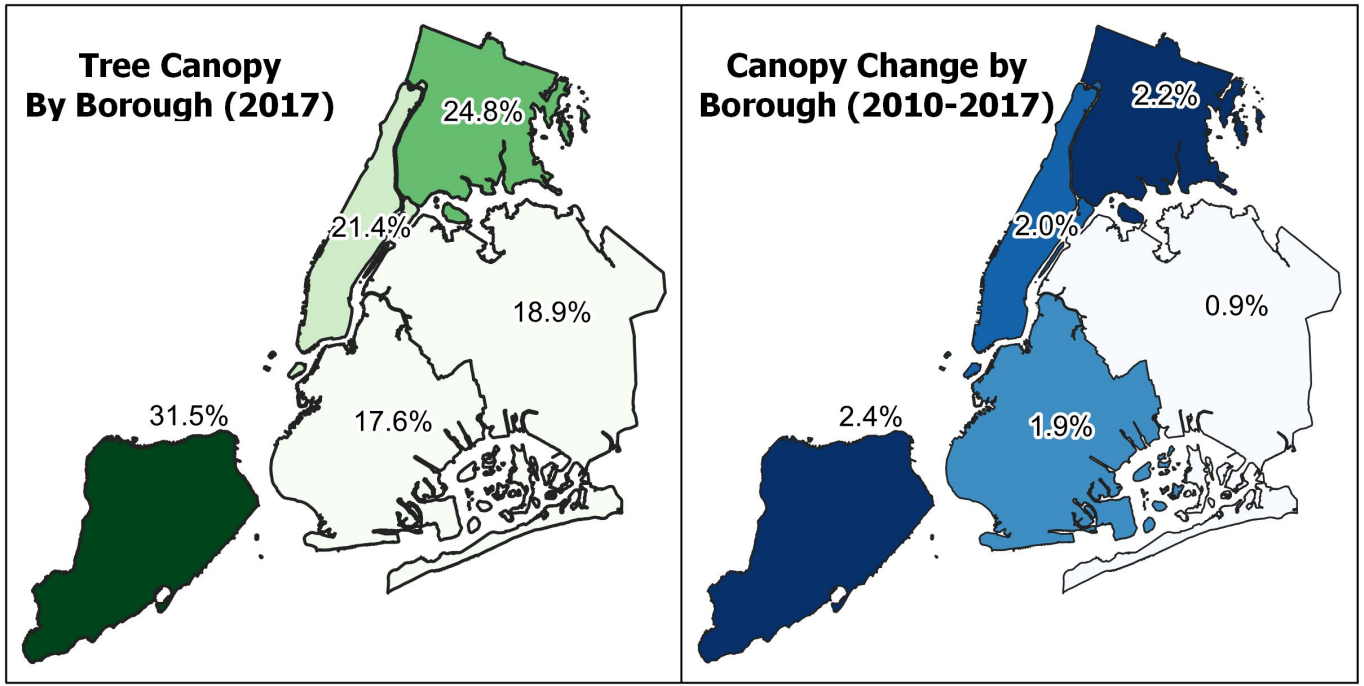
NYC Trees: Annual Services

Replacement value (one-time)	$5.7 billion
Store 1.2 million tons of carbon (4.2 m tons of CO^2)	$153 million
Absorb 51,000 tons of carbon annually (186,000 tons CO^2)	$6.8 million
Remove 1,100 tons of air pollution annually	$78 million
Reduce residential energy costs annually	$17.1 million
Reduce runoff by 69 million cubic feet annually	$4.6 million



The Nature Conservancy

Canopy and Canopy Change



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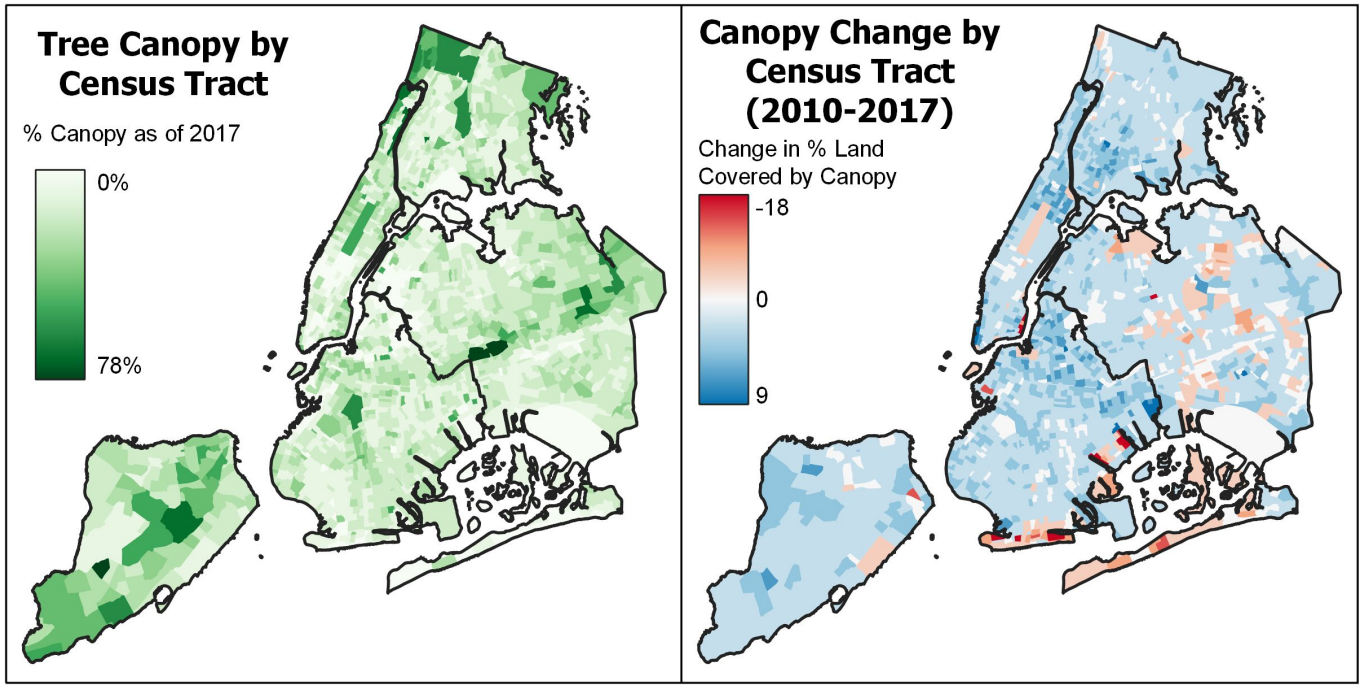
Canopy and Canopy Change



The Nature Conservancy

Tree Canopy and Heat Vulnerability

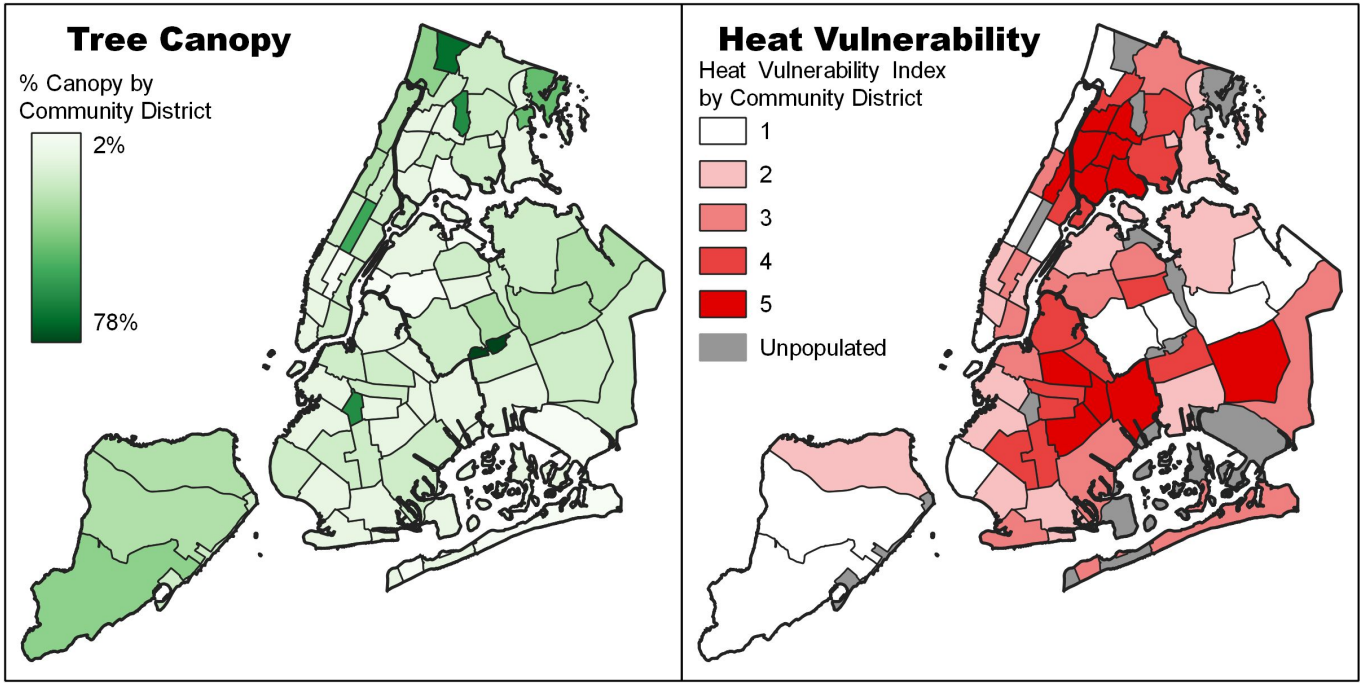


Figure Credit: New York City Environmental Justice Alliance and The Nature Conservancy

The Nature Conservancy

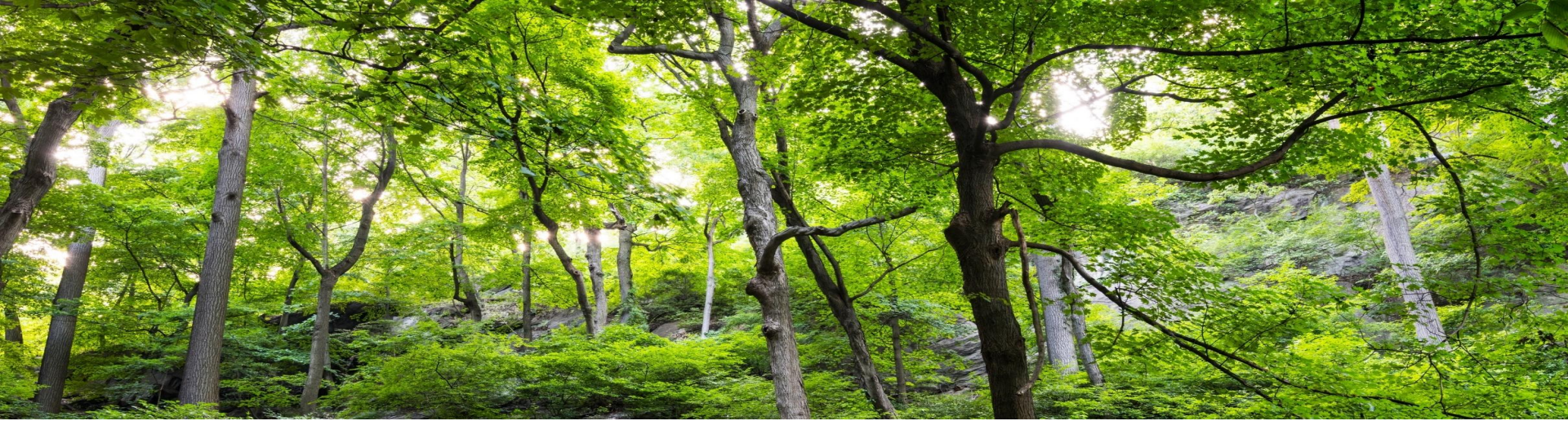


Photo credit: Diane Cook and Len Jenshel

NYC Trees: Challenges Faced

- No powerful advocates/leadership
- Insufficient funding
- Disparate management & inequitable distribution
- Lack protection
- Climate change
- Pests and pathogens

The Nature Conservancy

NYC Urban Forest Task Force

Bjarke Ingels Group
Brooklyn Botanic Garden
Citizens Committee for New York City
City University of New York
Con Edison
Coney Island Beautification Project
Davey Resource Group
Design Trust for Public Space
Drexel University
El Puente
Gowanus Canal Conservancy
Green City Force
Hudson Square Business Improvement District
Jackson Heights Beautification Group
Long Island City Partnership
National Wildlife Federation
Natural Areas Conservancy
New York Cares
New York League of Conservation Voters
New York Restoration Project
New Yorkers for Parks
NYC Department of Health and Mental Hygiene
NYC Department of Parks and Recreation
NYC Environmental Justice Alliance
NYC Housing Authority
NYC Soil & Water Conservation District
NYS Department of Environmental Conservation
NYU Langone Health
Partnerships for Parks
Queens Botanical Garden
Real Estate Board of New York
Rutgers University
Snug Harbor Cultural Center & Botanical Garden
Starr Whitehouse
The Earth Institute at Columbia University
The Evergreens Cemetery
The Nature Conservancy
The New School
The New York Botanical Garden
The Trust for Governors Island
Trees New York
Tri-Lox
Trust for Public Land
Urban Arborists
Urban Systems Lab
USDA Forest Service
Wave Hill
West 80s Neighborhood Association
Whitman Nurseries

The Nature Conservancy

Just Nature NYC

Our Just Nature NYC Partnership with NYC Environmental Justice Alliance advocates more nature-based solutions, especially trees, across New York City to support climate justice and equity.

The Nature Conservancy

Photo credit: Charles Gleberman

Photo credit: US Navy/flickr.com

Recommendations

- Ensure rules and incentives to promote justice, equity, expansion and better distribution of green roofs, our urban forest, and green infrastructure more broadly
- Preserve and increase funds for urban forestry, both capital and operational
- Advance and expand Cool Neighborhoods program
- Play Fair for Parks: ensure robust funding for parks and green jobs for New Yorkers

The Nature Conservancy

Photo credit: US Navy/flickr.com

Thank you!

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NCA

NEWTOWN CREEK ALLIANCE

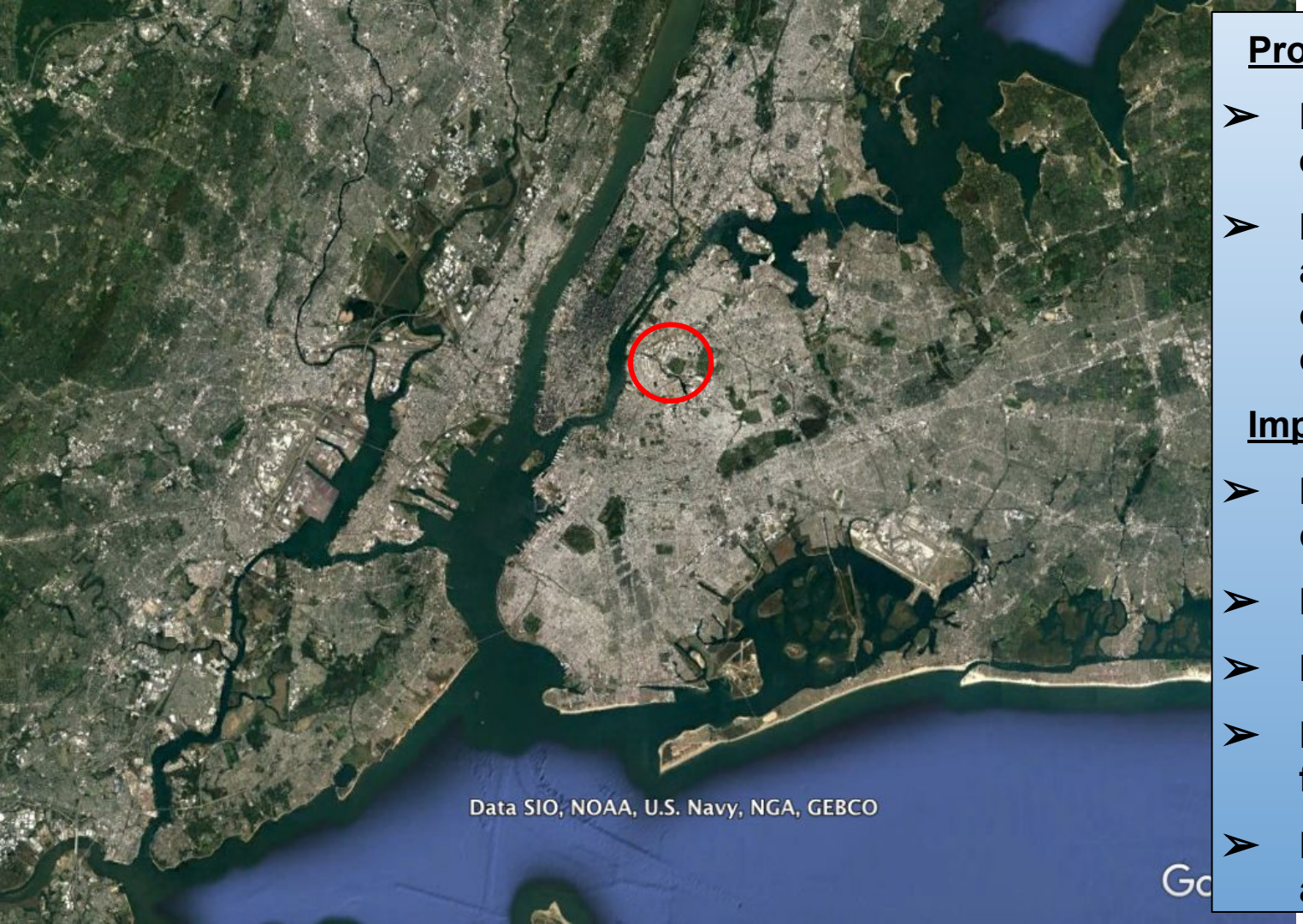
RESTORE // REVEAL // REVITALIZE

Since 2002, the Alliance has served as a catalyst for effective community action, working to restore community health, water quality, habitat, access, and vibrant commerce along Newtown Creek.

NYLCV 2021 Candidates School:

Green Infrastructure

- Local implications & impacts - Environmental Justice areas
  - Benefits (spoiler! it's not just about water)
- Public Access to shared waters
- Other ways to prioritize GI?
- Waste Water Treatment **OR** Resource Recovery Facility
  - Promise, Burden & Compromise



Problem:

- NYC is a built environment
- Most surfaces are paved or otherwise covered

Impacts:

- Poor water quality
- Poor air quality
- Extreme heat
- Little to no room for ecosystems
- Little to no access to nature

Combined Sewer Overflow:

- Pathogens, chemicals, plastics, petroleum products, & more discharged during most rainstorms
- NYC: 450 outfalls
  - 20 Billion Gallons/Year
- **Newtown Creek: 22 outfalls**
  - **1.2 Billion Gallons/Year**

Curbside Rain Gardens

In NYC, Green Infrastructure describes an array of practices that use or mimic natural systems to manage <u>stormwater runoff</u>

Focusing on 2 types with the biggest local impact:

- **Right of Way*/ Curbside Rain Gardens**

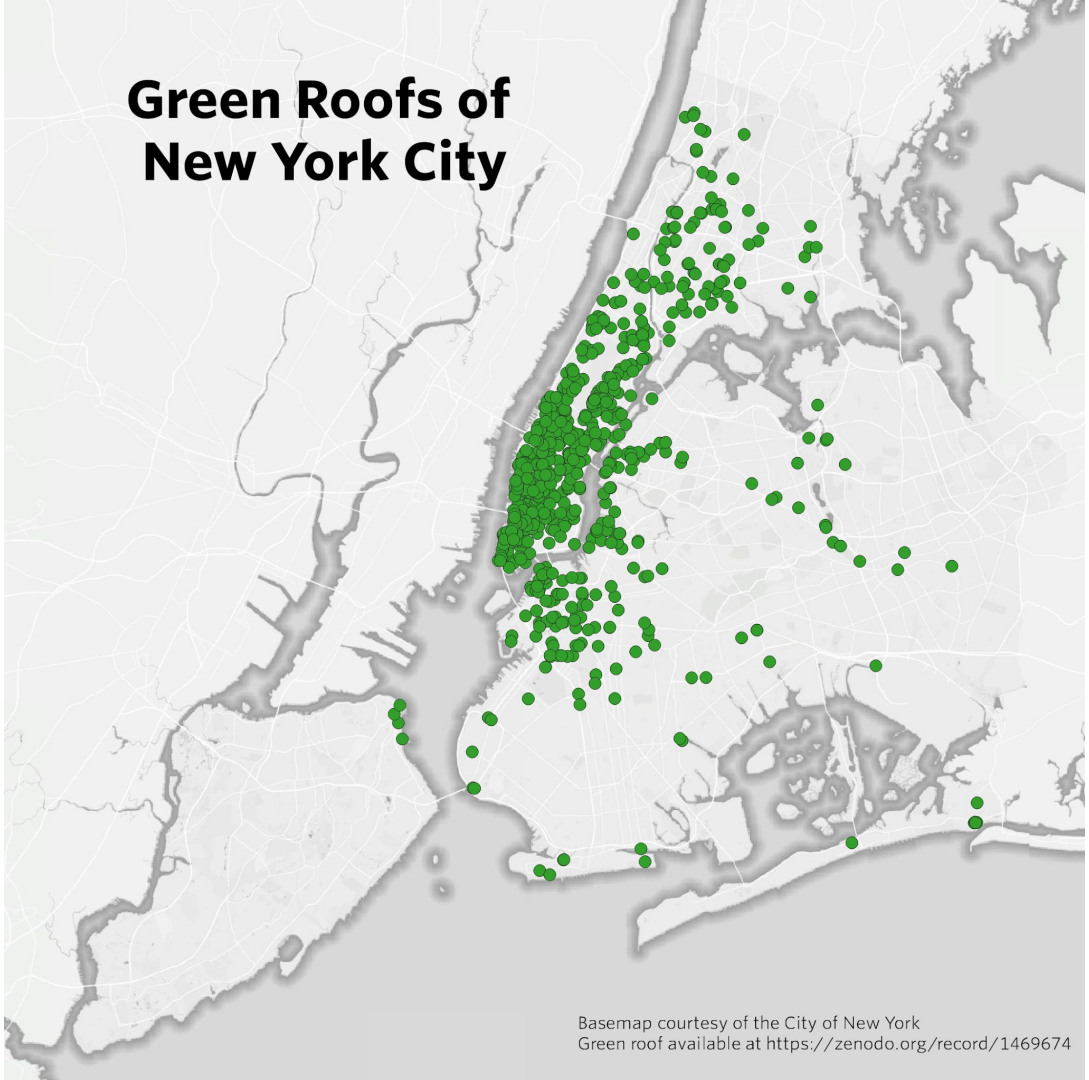
*Right-of-way (ROW) includes sidewalks, medians and the roadway.

~30% of the impervious cover in the city

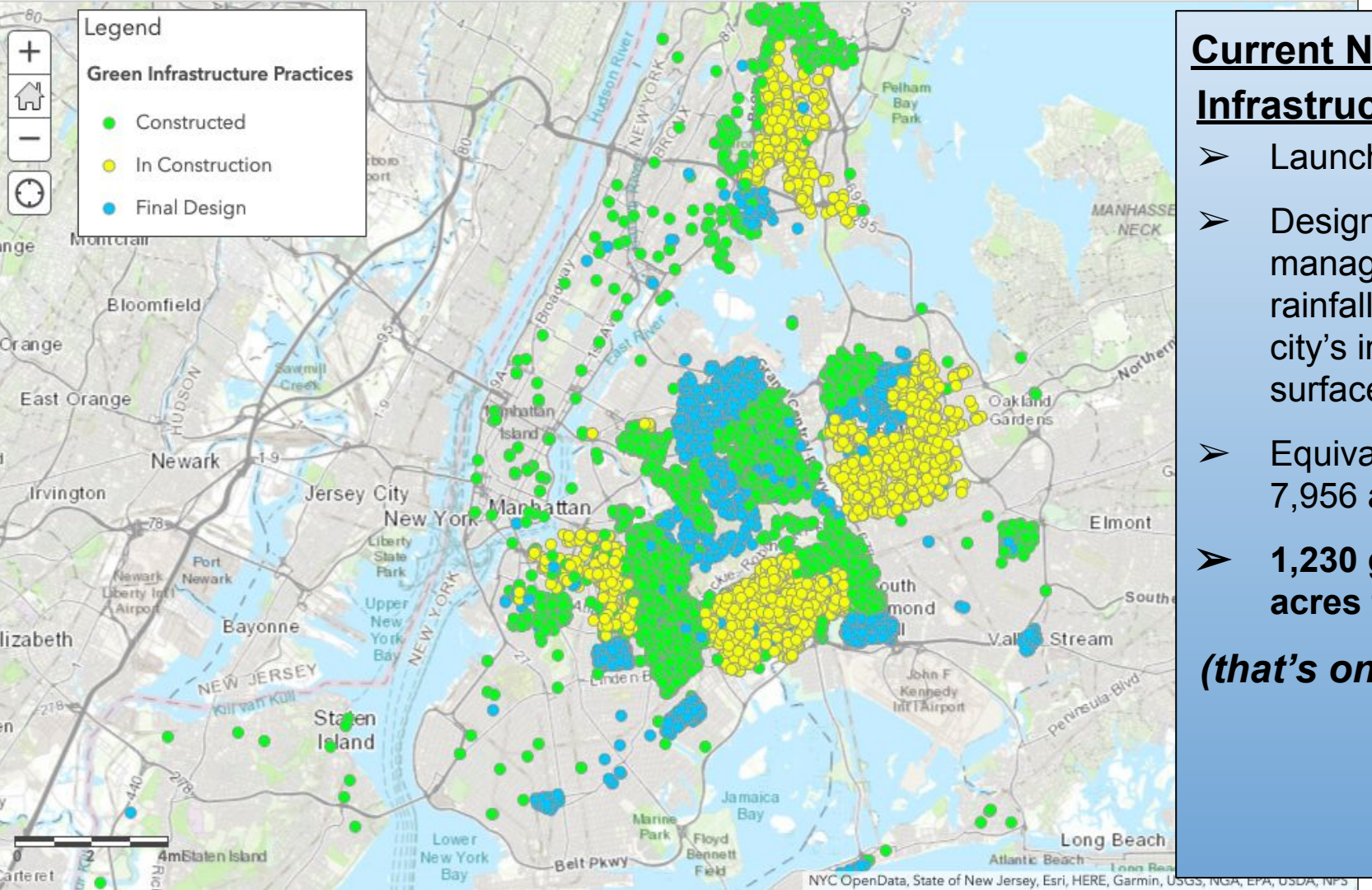
- **Green Roofs**

➢ Green Roofs

As of 2016 the 736 green roofs on public and private buildings cover only about 60 acres (or 0.15% of all rooftop surface area)



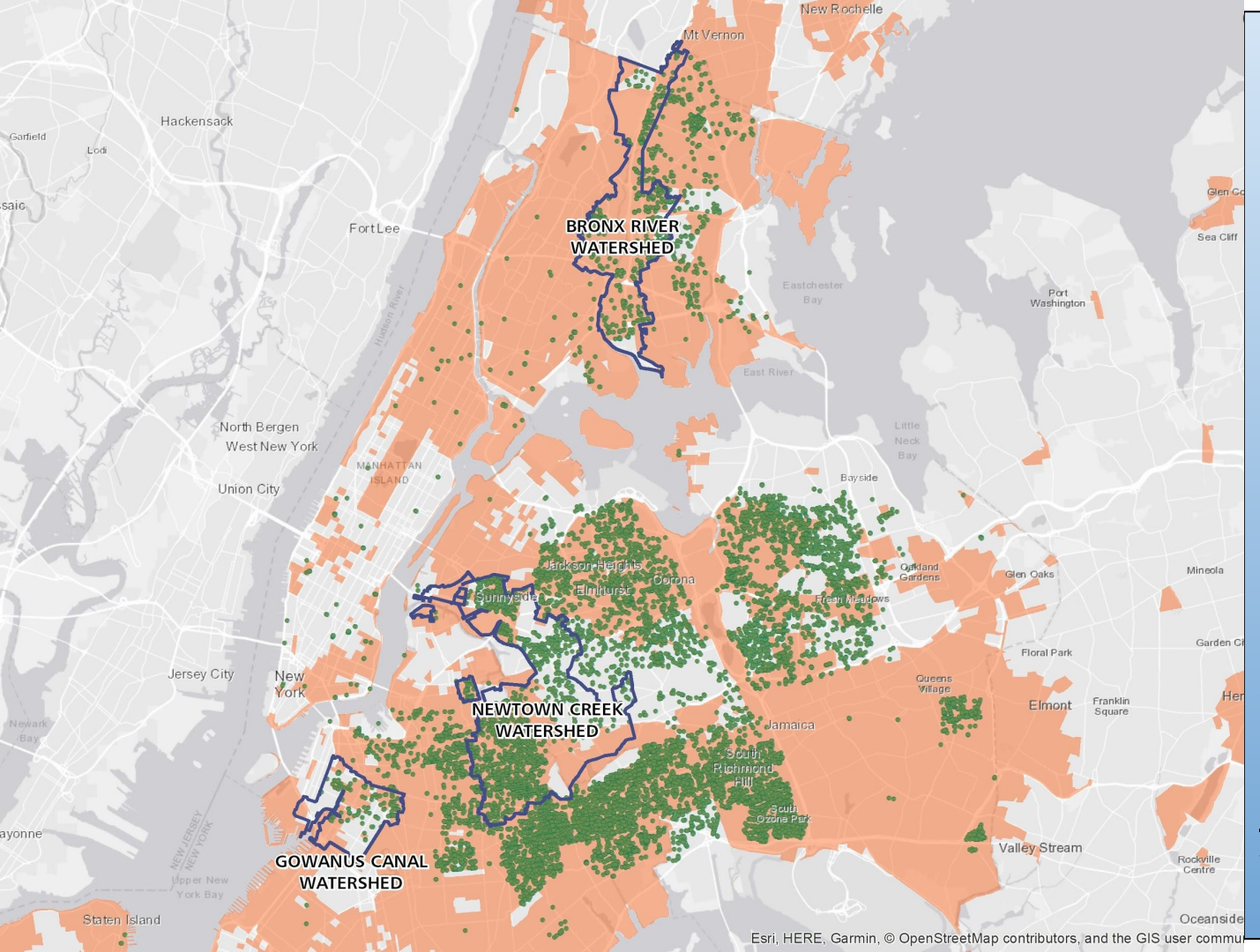
- There is an unequal distribution of green roofs across the city, with most concentrated in midtown & downtown Manhattan.
- Local Law 94 will change this dynamic some.
- DEP GI Grant Program
- Green Roof Tax Abatement



Current NYC Green Infrastructure Plan

- Launched in 2010
- Designed to manage 1 inch rainfall on 10% of city's impervious surfaces by 2030
- Equivalent of 7,956 acres
- **1,230 greened acres to date**

(that's only 15.5%)

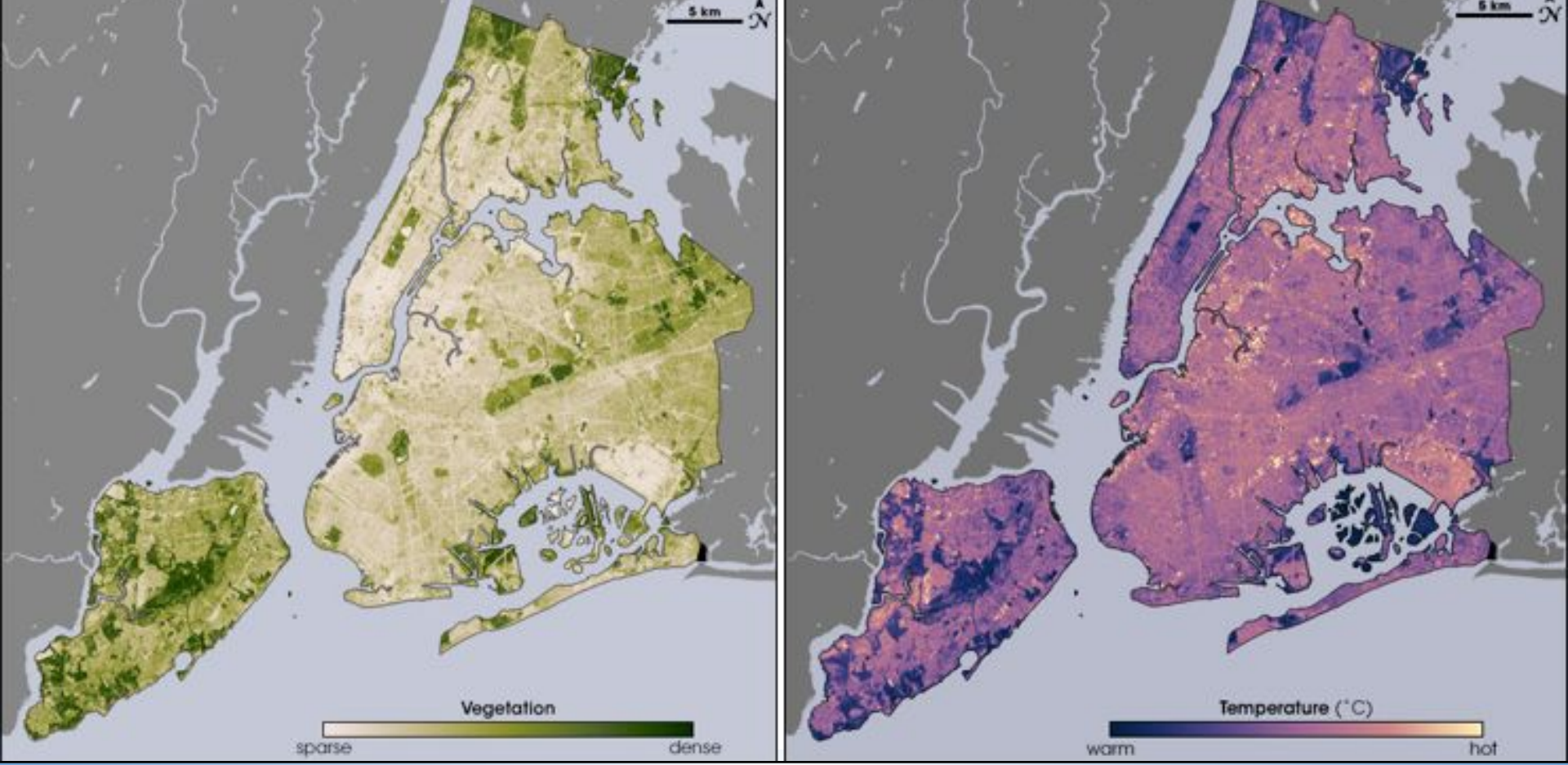


Areas in **Red** are classified by the State DEC as potential Environmental Justice areas.
EJ areas are defined as:

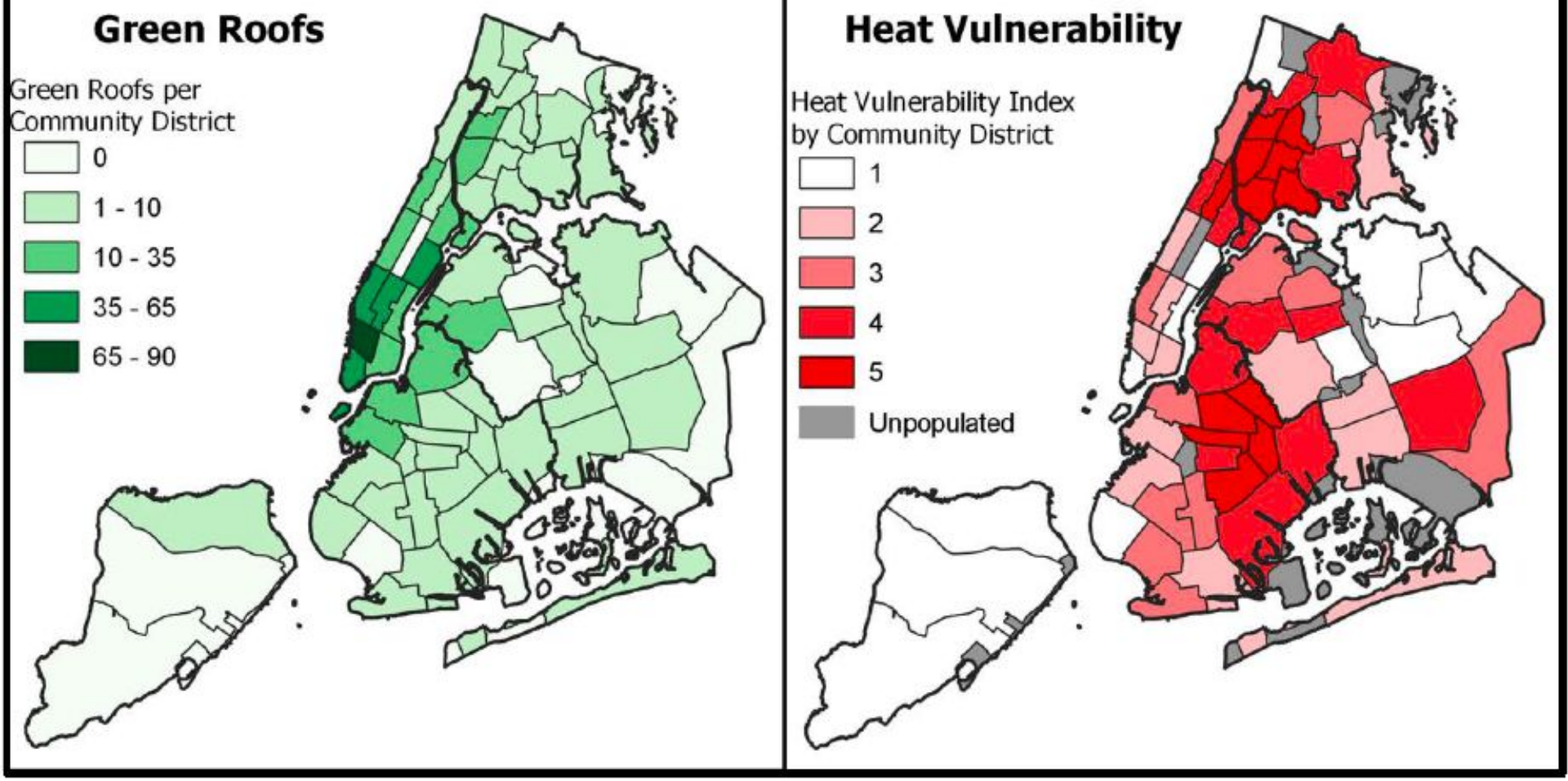
- At least 51.1% of the population reported themselves to be members of minority groups; or
- At least 23.59% of the population had household incomes below the federal poverty level.

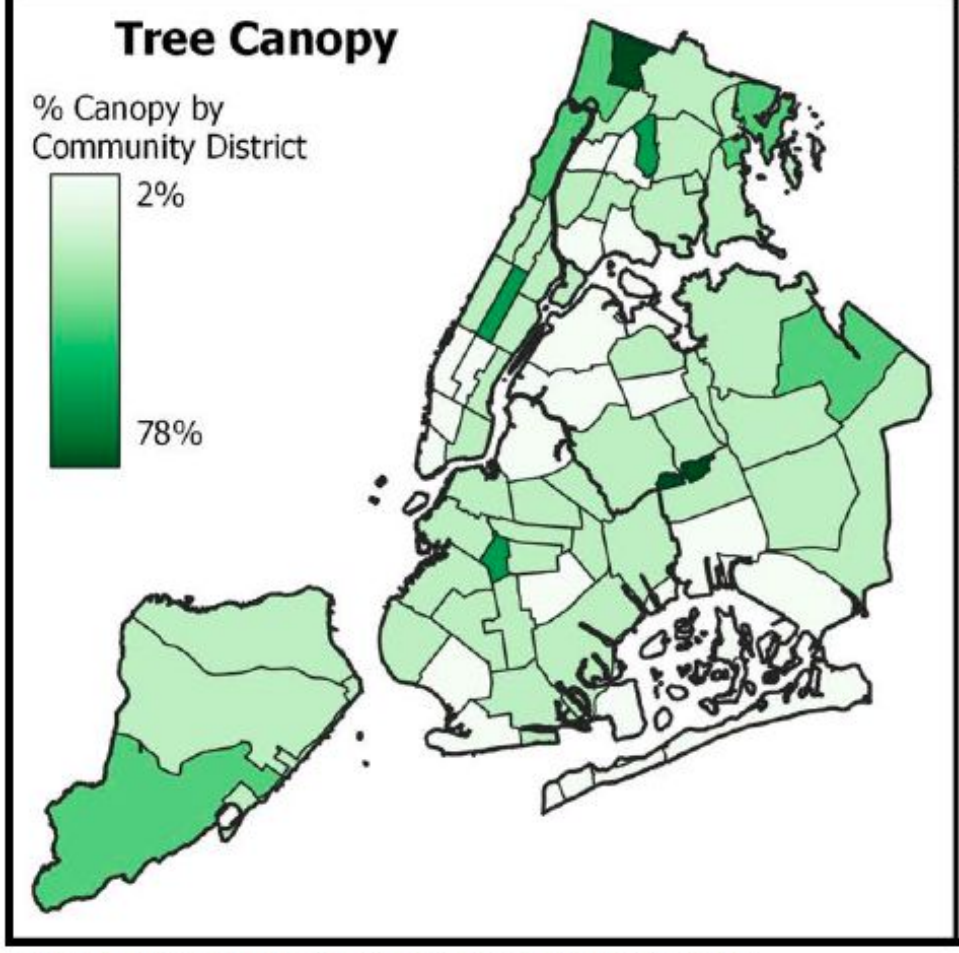
The **Green** dots are Right of Way Rain Gardens

Outlined are 3 tributary watersheds



Left, areas of the map that are dark green have dense vegetation. These regions match up with the dark purple regions, those with the coolest temperatures, on the right. These images show the cooling effects of plants on NYC's heat. ***Credit:Robert Simmon, using data from the Landsat Program.***


Green Roofs
Green Roofs per Community District
0
1 - 10
10 - 35
35 - 65
65 - 90
Heat Vulnerability
Heat Vulnerability Index by Community District
1
2
3
4
5
Unpopulated



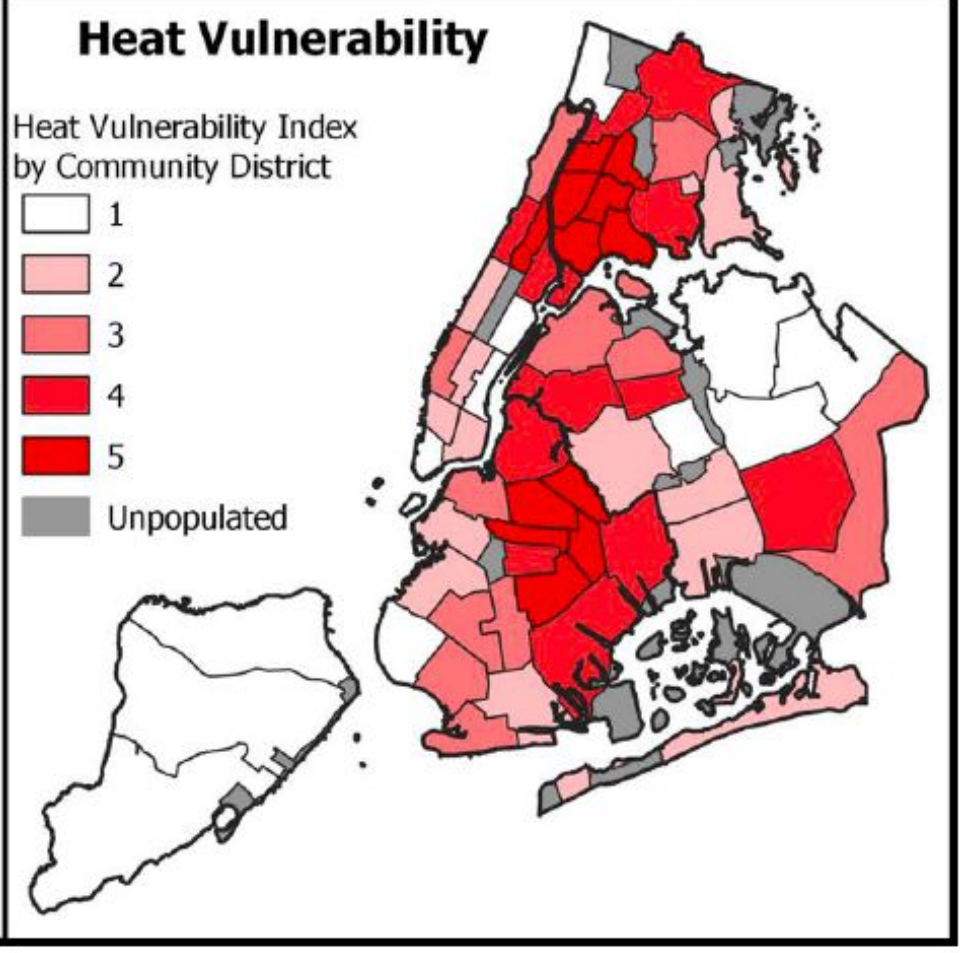


Figure Credit: New York City Environmental Justice Alliance and The Nature Conservancy

The average reduction of particulate matter near a tree is 7-24%, the cooling effect is up to 3.6° F

New York City
TREE CANOPY

Ecological Benefits

Stormwater intercepted each year
1,077,053,910 gallons Value: $10,662,828.33

Energy conserved each year
662,975,528 kWh Value: $83,697,267.9

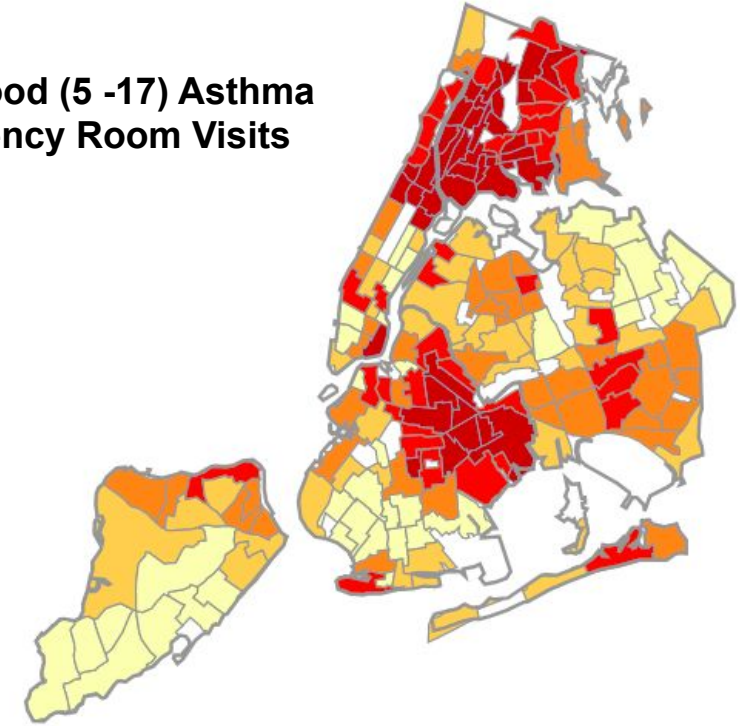
Air pollutants removed each year
1,259,991 pounds Value: $6,588,091.37

Carbon dioxide reduced each year
1,210,482,019 tons Value: $4,042,980.89

Total Value of Annual Benefits
Value: $104,991,168.49

Benefits are calculated using formulas from the U.S. Forest Service.

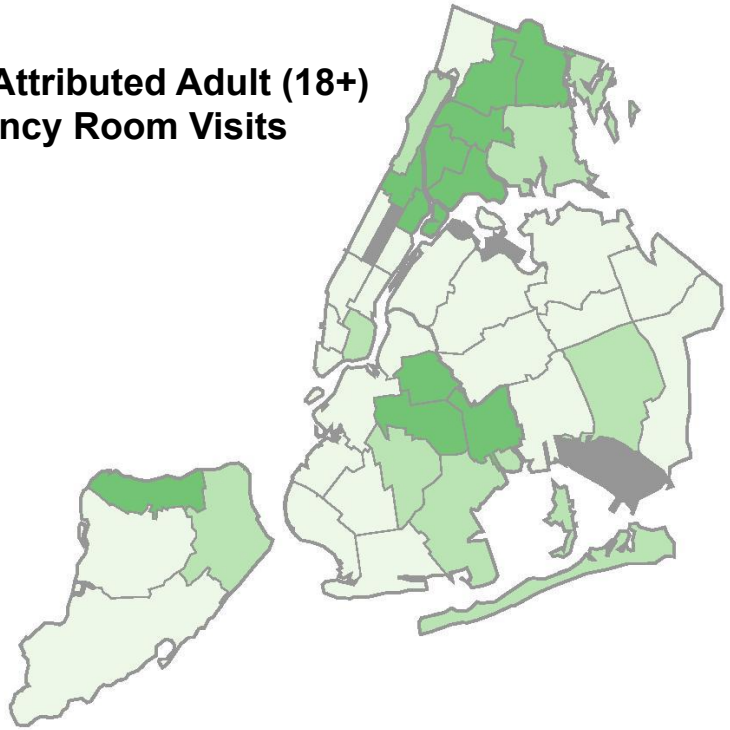
Childhood (5 -17) Asthma Emergency Room Visits



Average Annual Rate (per 10,000 residents), 2014-2016

16.9 53.7 110 182.9 356.7 683.4

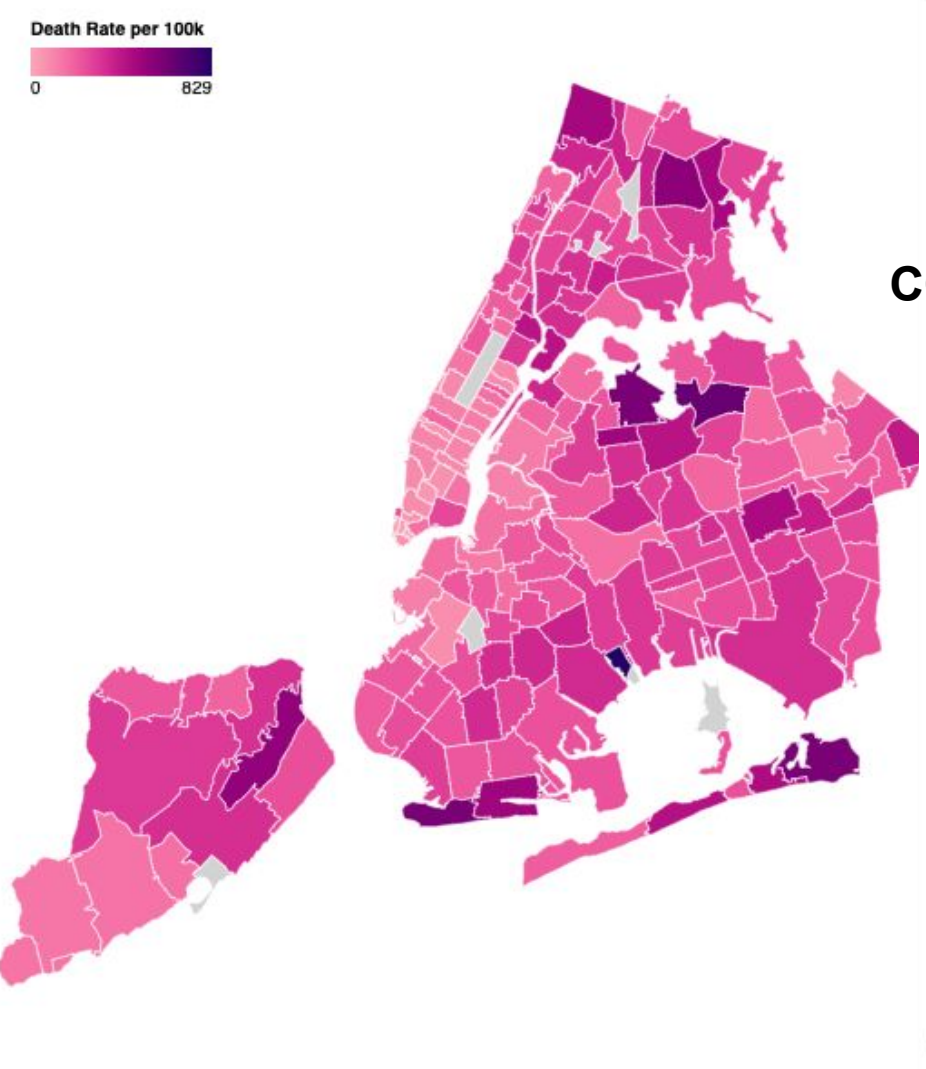
PM 2.5 Attributed Adult (18+) Emergency Room Visits



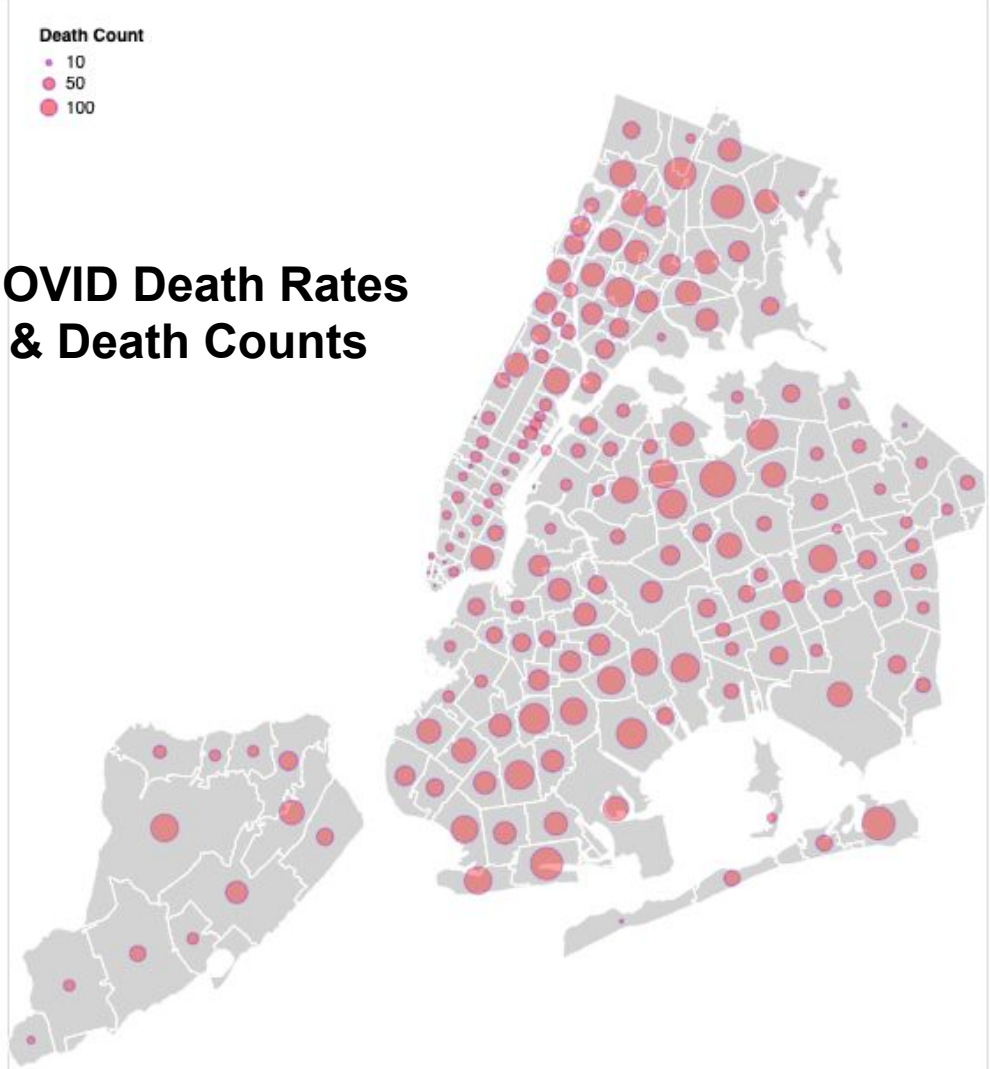
Estimated Annual Rate- 18 Yrs and Older (per 100,000 adults), 2015-2017

4.9 27 45 114 209.9

- **Cardiovascular disease**
- **Stroke**
- **Dementia**
- **Asthma**



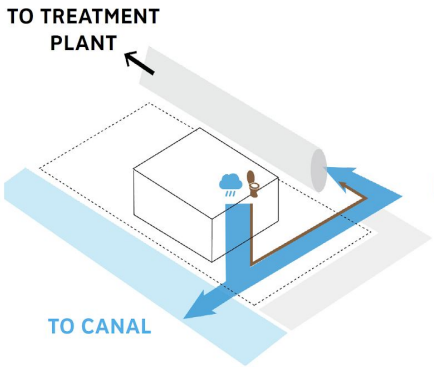
COVID Death Rates & Death Counts



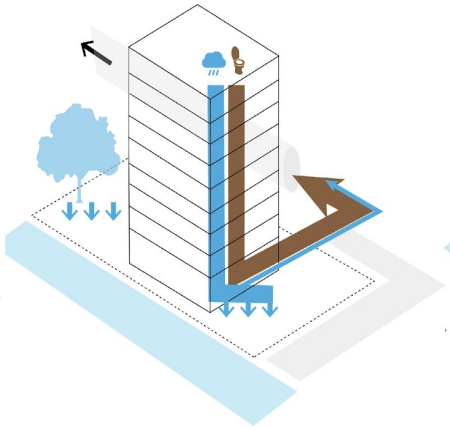
The worst and most immediate impacts of CSOs are seen in our shared waters.

- **NYC has 520 miles of shoreline**
- **161 miles are waterfront parks**
- **14 miles of beaches**
- **345 miles of inaccessible waterfront**

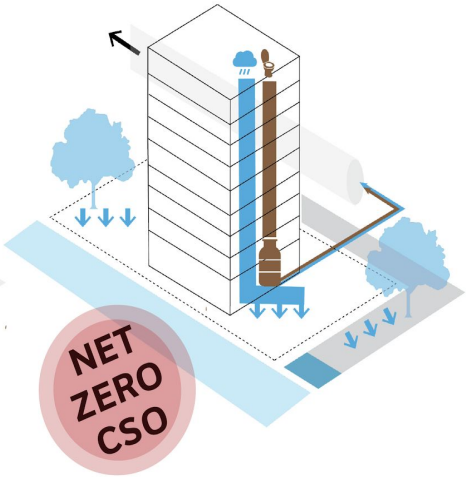
EXISTING CONDITIONS



FUTURE: BUSINESS AS USUAL



PROPOSED: NET ZERO CSO



CEQR Reform
Net Zero CSO for new development

- **2012 DEP Stormwater Rule** mandates 90% on-site stormwater management, but does not achieve net zero CSO impact
- **Additional residential density will result in higher rates of water consumption (more toilets, bathroom and kitchen appliances, laundry) that will increase wastewater flows to the sewer system**

POLICY RECOMMENDATION

'New development sites shall mitigate new CSO volumes and rates.'

- **Pre-Development CSO Assessment**:
  Provide accurate assessment of baseline stormwater and sewage conditions on site and within CSO-shed

- **Post-Development Impact Assessment:**
  Provide accurate assessment of future stormwater and sewage loads in build-out condition

- **Determination of CSO Mitigation Requirement:**
  Provide accurate assessment of unmanaged flows that will contribute to CSO

- **Determine 100% CSO Mitigation Strategy:**
  Provide summary of CSO management strategy (refer to Mitigation Toolkit) and demonstrate no-impact development

Methodology for determining baseline conditions and trigger volumes should be flexible enough to adapt over time, but stringent enough to ensure best and most recent data are incorporated into the analysis

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THANK YOU FOR JOINING US!

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NYLCVEF
EDUCATING FOR THE ENVIRONMENT

Next NYC Candidate School
Public Health & Parks
Thursday, February 18th at 5:30pm – 7:30pm