2022-2023 FCNY FELLOWSHIP



ZONING for CARBON NEUTRALITY for BROOKLYN CB14

An analysis of the anticipated local impacts from the "City of Yes - Carbon Neutrality" proposed zoning text amendments

10 May 2023 Morgan Reuther, Columbia University



2.5 mi	5 mi

AGENDA

BACKGROUND PROJECT DESCRIPTION FINDINGS



city of yes

"We are going to turn New York into a 'City of **Yes'**—yes in my backyard, yes on my block, yes in my neighborhood,"

"These proposals focused on economic recovery, affordable housing, and sustainability will remove red tape for small businesses, expand housing opportunities in every neighborhood, and accelerate the transition to our energy future. New Yorkers are not going to wait around while other cities and other countries sprint towards a post-pandemic world, and now we won't have to."



-Mayor Eric Adams

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for Carbon Neutrality Expanding opportunities for decarbonization projects



for Economic Opportunity Growing jobs and small businesses with more flexible zoning



for Housing Opportunity Ensuring all neighborhoods are meeting the need for housing opportunities



2024

Public Review





for Housing Opportunity the need for housing opportunities





What has New York City already done?



2012: Designed to support elective, progressive experiments with "green building features"

city of solar city of health city of energy city of carbon neutrality city of resilience

2023: Respond to the climate crisis by removing zoning impediments to urgent retrofitting work, solar, energy storage, and EVs



nning Public ZCN Information Session. March 20, 2023.

ZCN OVERVIEW

Transportation

Today we use gas to fuel our cars. We can decarbonize the way we get around by removing barriers to infrastructure that supports electric vehicle adoption, biking, and e-mobility.

Energy

Today our electric grid is powered by fossil fuel burning plants. We can decarbonize our energy grid by making it easier to install solar and wind energy systems and critically needed energy storage.

Waste

We can decarbonize our waste streams by supporting efforts to grow food, compost, and collect rainwater. Today we rely on gas and oil to heat our homes. We can decarbonize our buildings by making it easier for property owners to make energy efficient retrofits.



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______ A/0 TRANSPORTATION

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> slide credit: NYC Department of City Planning Public ZCN Information Session. March 20, 2023

Identify which zoning changes will have the greatest local impact across BK CB14 2.

Identify where in district these changes will occur, and how 3.

Provide recommendations to inform the board's comments to DCP

METHODOLOGY

PHASE 1 **PROJECT SCOPING**

- Collect background information on Zone Green and City of Yes
- Present the 17 zoning text amendments proposed under the **Zoning for Carbon Neutrality** initiative
- Workshop with CB14 Land **Use Committee** members to identify which will likely be most applicable to CB14 and the focus of subsequent analyses

PHASE 2 **RESEARCH & MAPPING**

- Liaison with DCP to answer any questions regarding details of the proposed amendments
- Interview(s) with zoning experts on the significance of the proposed amendments
- Conduct geographic analyses of target zoning text amendments proposals' spatial applicability to **CB14**

PHASE 3 FINDINGS & RECOMMENDATIONS

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- meet district needs

Summarize the anticipated impact of specific proposals and how they do or do not align with the BK CB14 **District Needs Statement**

Provide recommendations in support of the amendments and/or how they should be revised to better

Reflect on effectiveness of DCP's open public engagement process

TIMELINE





ALIGN STREET TREE REQS W/ I

Concept Types of changes to achieve our goals

17. Align street tree req's. w/ new DOT/DEP standards





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TOP THREE PRESSING ISSUES OVERALL:

- **1. Health Care Services**
- **2. Infrastructure Resiliency**
- 3. Parks & Open Space



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- **1. Health Care Services**
- 2. Infrastructure Resiliency-
- 3. Parks & Open Space

"Infrastructure resiliency includes street conditions/roadway, street bridge, mass transit maintenance and infrastructure; street flooding; maintenance and cleanliness of institutions, natural assets, and public space."

"DOT has proposed a permanent Open Restaurants program that would compete with other contracts with for profit uses of the streets such as bike parking stations and electrical vehicle charging stations will compete with public uses such as bike lanes and bus lanes."

"Chronic flooding locations must be studied and addressed as weather events and the number of locations have only increased."

"Hurricane Ida flooded homes and businesses throughout this high-ground District, surely costing the city millions in claims that could have been better invested in infrastructure improvements."

"To the extent that capacity, accessibility, equity and thus resiliency improvements are being made by agencies and utilities alike, there is insufficient coordination so that roadway disruptions are extended and use of the public right of way and public space in general is poorly planned."

PRESENTATION AT HOUSING & LAND USE COMMITTEE MEETING (12/15/2022):

- 1. Need for a map of vulnerable flooding areas
- 2. Need for ZCN to coordinate with existing DEP initiatives
- 3. Need for the project to focus on initiatives that will impact the entire district, "not ones that will improve the convenience of some"



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In 2019, BK CB14 identified the following **areas as vulnerable to flooding within the district** the NYC Department of Environmental Protection (DEP):

- 1. Cortelyou Road (business district from Coney Island Avenue to subway cut)
- 2. East 24th Street between Avenues K & L
- 3. East 10th Street (Caton Avenue to Church Avenue)
- 4. Church Avenue (Coney Island Avenue to Marlborough Road)
- 5. Avenue H & East 16th Street
- 6.1434-1435 Glenwood Road (dead end @ subway cut)
- 7. Avenue M & Bay Avenue intersection
- 8. Irvington Place at East 17th Street



However, there has little implementation of green infrastructure within the district compared to the rest of the borough, and there are similarly few projects planned or under construction.

The stormwater measures under ZCN represent an **opportunity to promote stormwater management** within the district to **address local flooding issues**.



map data: Department of Environmental Protection (2023). *DEP Green Infrastructure*. Accessed from New York City Open Date (updated March 16, 2023.)







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Proposal 15

Allowing for highperformance tree pits

- **Currently:** Zoning requires street trees to be installed alongside new developments and enlargements.
- Issue: As drafted, the zoning text precludes the use of newer, more inventive prototypes such as "connected tree beds" and "raingardens" that have been designed and approved by DOT.
- Proposal: Add flexibility to the street tree requirements to allow connected tree beds, as well as substitution of one required street tree with a DEPcompliant raingarden.



slide credit: NYC Department of City Planning Public ZCN Information Session. March 20, 2023.



source: NYC Department of Transportation's Landscape Clearance Diagram.

DCP has stated that the design requirements for high-performance tree pits and raingardens will adhere the existing standards established by DEP.





source: NYC Department of Transportation's Landscape Clearance Diagram.

During a rainstorm each rain garden can collect up to 2,500 gallons of runoff.

How can BK CB14 harness this proposal to address local issues and promote the adoption of green infrastructure for flood mitigation at scale?



map data: Department of Environmental Protection (2022). *NYC Stormwater Flood Map - Extreme Flood with 2080 Sea Level Rise*. Accessed from New York City Open Date (updated December 19, 2023.)

Overlaying LIDAR tree canopy shows that some areas most prone to stormwater flooding lack trees and foliage.



GREENWOOD

CEMETERY

PROSPECT

PARK

PROSPECT

map data: Department of Environmental Protection (2022). *NYC Stormwater Flood Map - Extreme Flood with 2080 Sea Level Rise*. Accessed from New York City Open Date (updated December 19, 2023.); New York City Office of Technology and Innovation. (2017) Land Cover Raster Data – 6in Resolution [raster]. Accessed from New York City Open Data (updated Sep 23, 2022);



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Property lots with DOB Building permits issued after 2019 could represent opportunities for immediate implementation of DEP green infrastructure.

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Property lots with DOB Building Permits issued after 2019 could represent opportunities for immediate implementation of DEP green infrastructure.

Promoting awareness of this upcoming zoning change to residents and developers could allow for significant stormwater mitigation infrastructure to be created in CB14.

map data: Department of Environmental Protection (2022). *NYC Stormwater Flood Map - Extreme Flood with 2080 Sea Level Rise*. Accessed from New York City Open Date (updated December 19, 2023.); New York City Office of Technology and Innovation. (2017) Land Cover Raster Data – 6in Resolution [raster]. Accessed from New York City Open Data (updated Sep 23, 2022); New York City Department of Buildings. (2023) DOB Job Application Filings [data table]. Accessed from NYC Open Data (updated Jan 27, 2023):





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Permeable pavement that is installed and maintained correctly can percolate between 5.6 to 18.5 gallons of water per minute per square foot based on design.

Proposal 14

Expanding the use of permeable paving

- Currently: Zoning is supposed to allow any paving area to be paved with permeable paving.
- Issue: The text, as drafted, requires the Department of Buildings to investigate each proposed installation to deem it appropriate. Ambiguity about how to do so has complicated the process of using permeable paving in NYC.
- Proposal: Revise this language to make it clear that permeable paving is always allowed.

Standard ZR language regarding paving:

"asphaltic or Portland cement concrete, or other hard-surfaced dustless material [...] However, permeable paving materials may be used in open parking areas where the Commissioner of Buildings determines that such materials are appropriate."



slide credit: NYC Department of City Planning Public ZCN Information Session. March 20, 2023.

Per current zoning, parking lots with more than 18 spaces or more than 6,000 square feet must capture stormwater.

Clarification of the allowance for permeable pavement installation without DOB-approval provides a viable solution for these sites.

map data: New York Clty Office of Technology and Innovation. (2022) *Parking Lots* [shapefile]. Accessed from New York City Open Data (updated Sep 23, 2022); New York City Department of City Planning. (2022) *Communities District Boundaries* [shapefile]. Accessed from New York City Open Data (updated Dec 19, 2022);



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Other impervious surfaces in CB14 can also provide opportunities to integrate green infrastructure for stormwater management and to combat urban heat island effect throughout the district.

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Proposal 3

Community solar + other renewable energy

- **Currently:** The Zoning Resolution (ZR) currently classifies "non-accessory" solar generation as a commercial use.
- Issue: Large parts of the city are offlimits to crucially-needed, gridsupporting solar arrays. To locate here, solar and storage systems need to be kept small so that they can be considered "accessory" – precluding grid-supporting installations.
- Proposal: Reclassify this use as "renewable energy generation" and permit installations of <10,000 sf in Residence Districts as-of-right.



Non-accessory solar is currently only permitted in commercial of manufacturing districts. There are very few areas in CB14 where non-accessory solar is currently permitted.



map data: New York City Department of City Planning. (2022) *MapPLUTO 22v3 - Shoreline Clipped* [shapefile]. Accessed from BYTES of the BIG APPLE.

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Under the ZCN proposal, non-accessory solar would be <u>permitted in all districts</u>.



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BUT...

• LPC jurisdiction still applies to Historic Districts and Landmark buildings (CB14 includes 5 historic districts)



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BUT...

- LPC jurisdiction still applies to Historic Districts and Landmark buildings (CB14 includes 5 historic districts)
- Solar is not viable everywhere



RECOMMENDATIONS / NEXT STEPS

Promote awareness of the upcoming ZCN changes in CB14 2.

Identify ways ZCN can further sustainability goals for the district 3.

Utilize a similar local impact analysis for other upcoming COY initiatives



ZONING for CARBON NEUTRALITY for BROOKLYN CB14



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