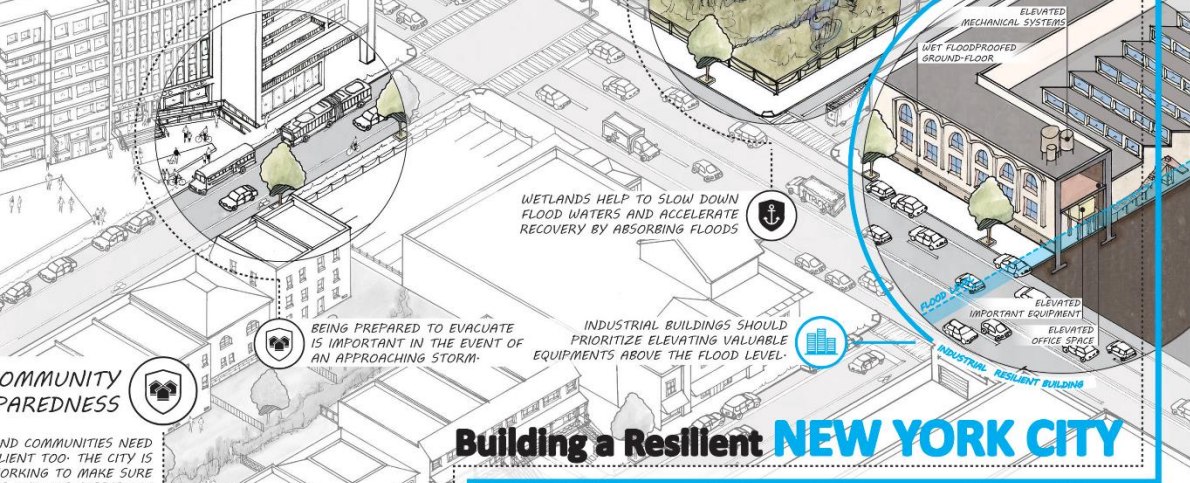
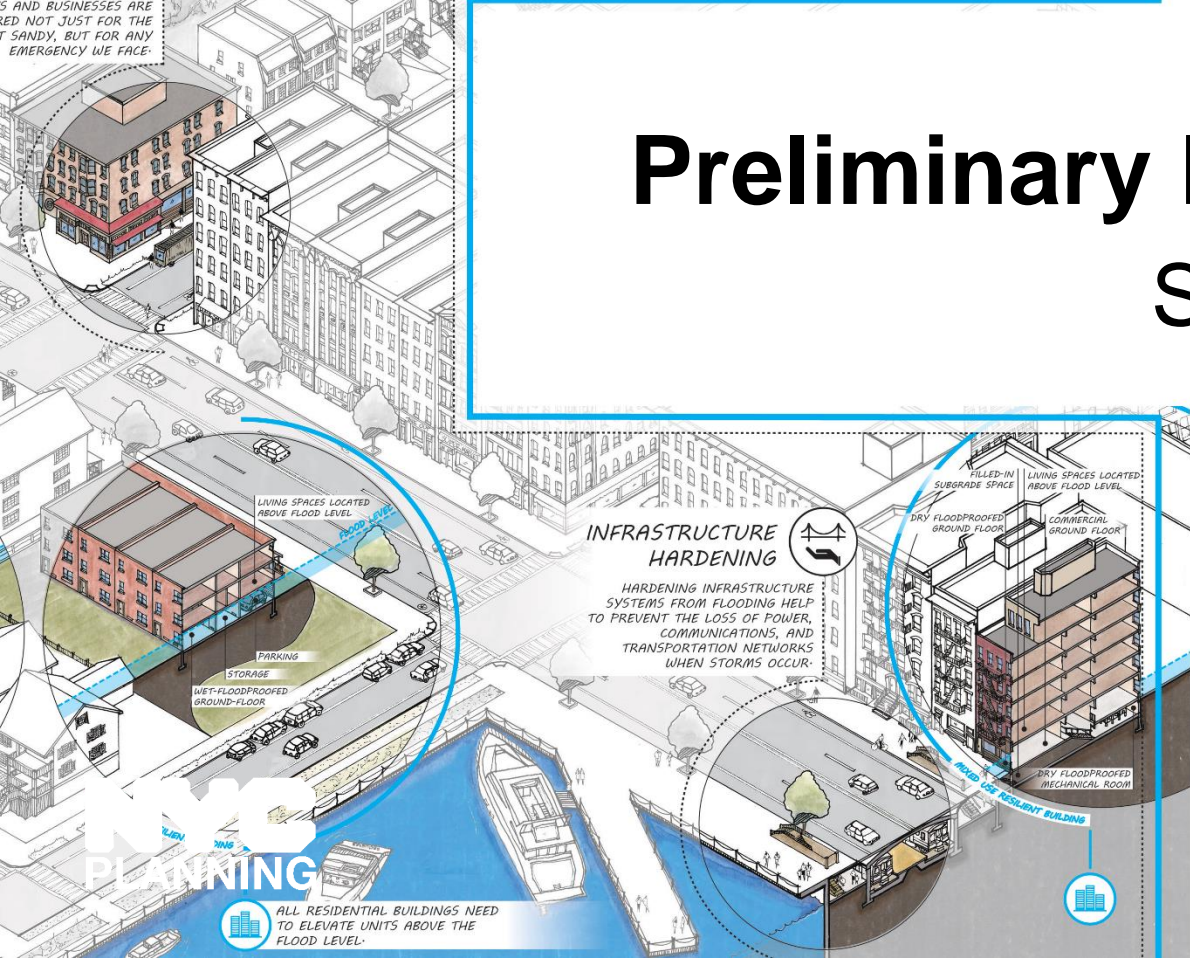


Zoning for Coastal Flood Resiliency



Preliminary Recommendations Summary



Queens CB 10
September 5, 2019



Alley Pond Creek, Queens



Upper Bay

The waterfront is large—with 520 miles—and diverse. These areas face different flood risks and issues with the current regulatory framework, and require particular strategies to make them resilient.



Rockaways, Queens



Williamsburg, Brooklyn

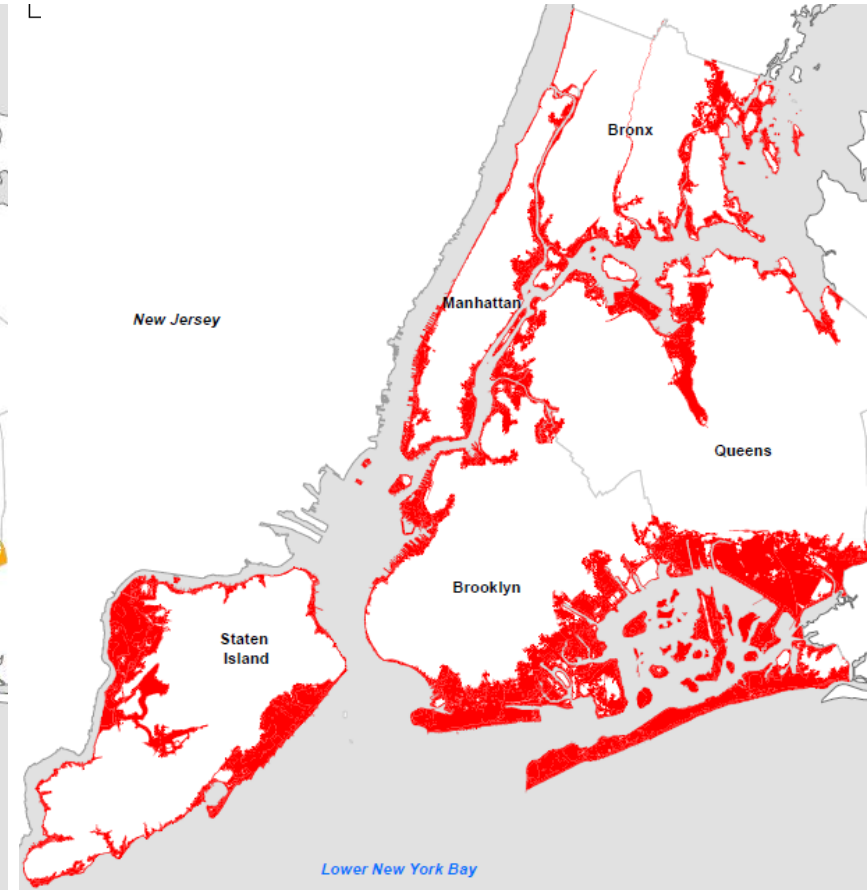
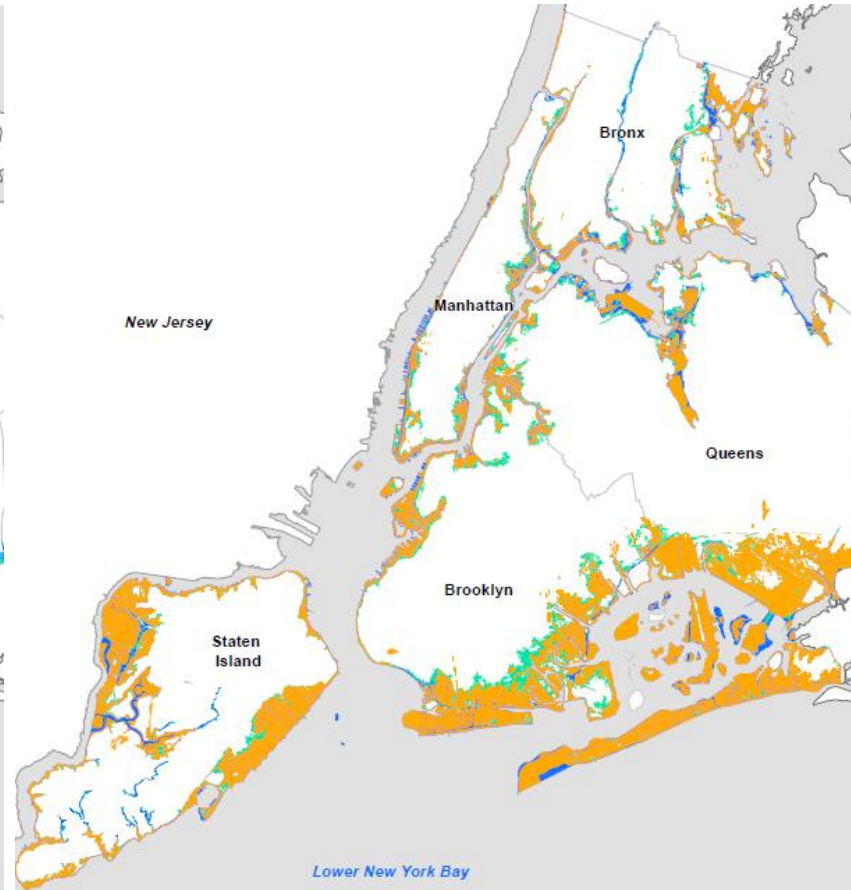
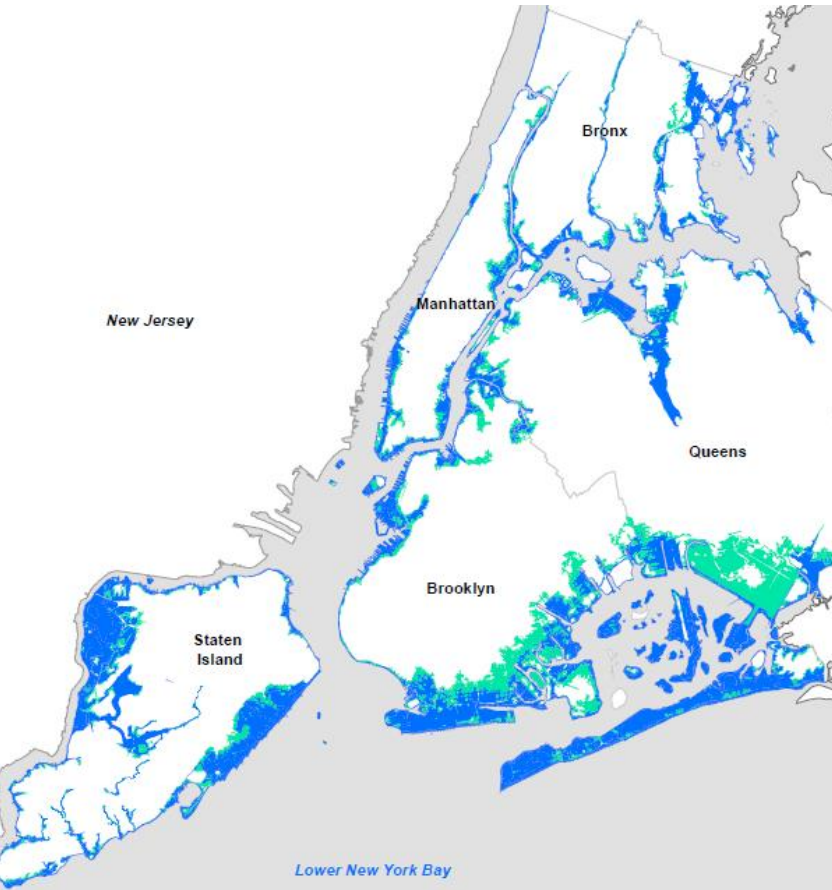
Citywide Flood Risk

NYC's flood risk is high and will increase.

The city's current flood risk is high with ~782,800 residents in the floodplain

Sandy inundated all lots in the high-risk zone, but also 50% of lots in the moderate-risk area

The current moderate-risk zone will likely become the future high-risk flood zone.



High-risk: 1% annual chance floodplain (FEMA) ■
Moderate-risk: 0.2% annual chance floodplain (FEMA) ■

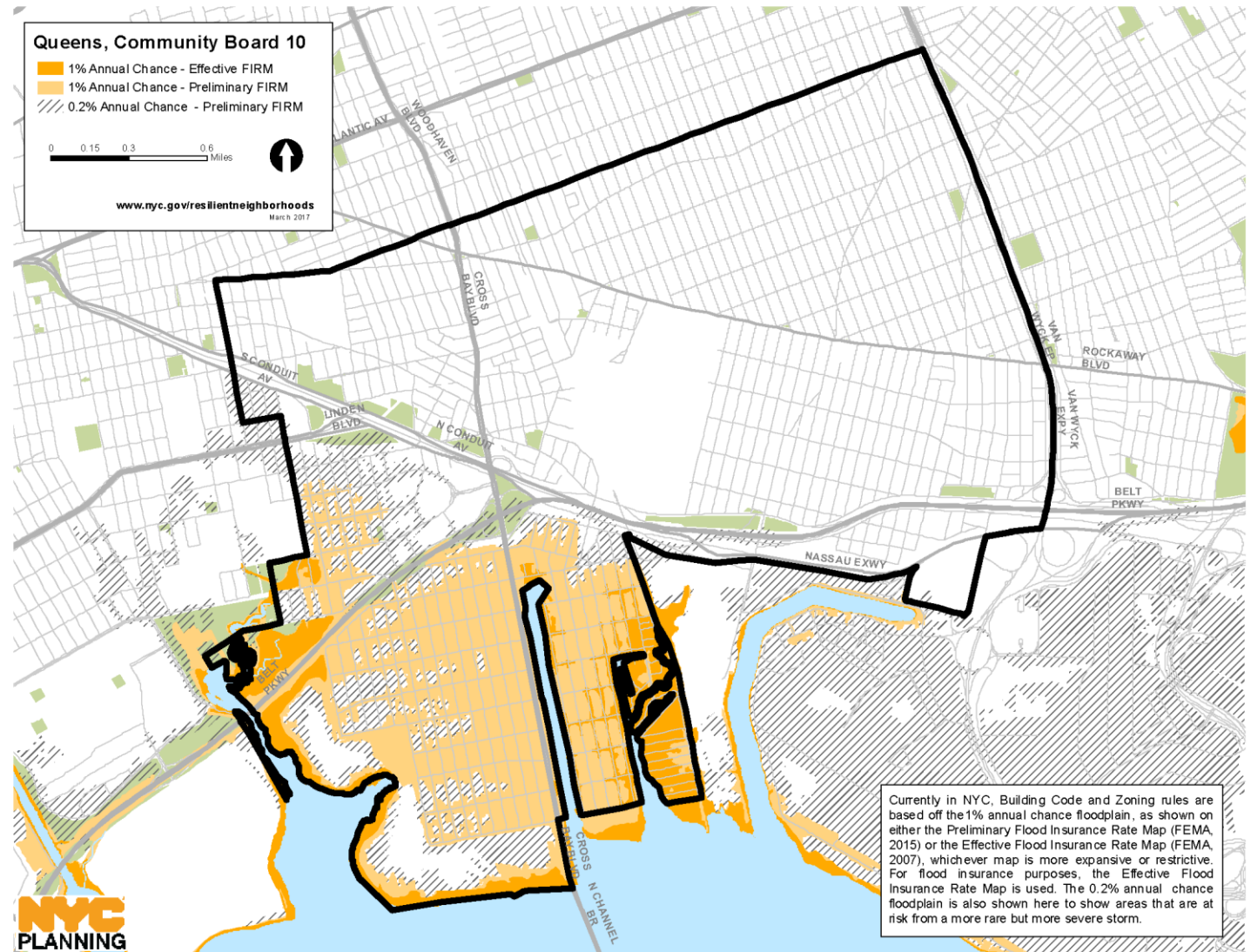
Hurricane Sandy Storm Surge ■

2050s 1% Annual Chance Floodplain (NPCC) ■

Flood Risk

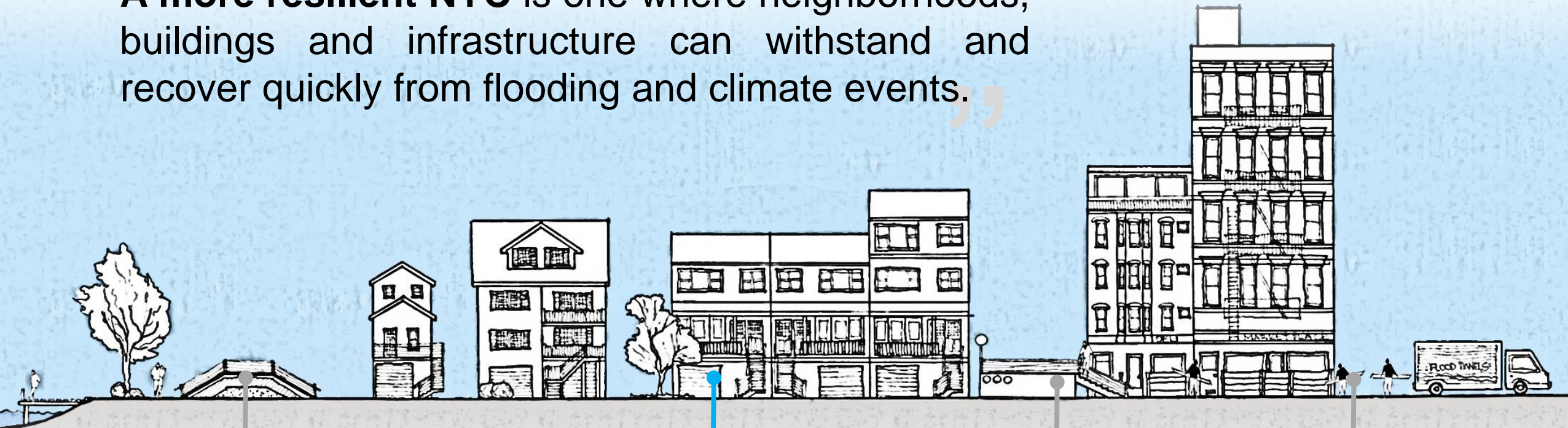
Queens Community District 10

- 5,700 (16%) of CD10 buildings are in the floodplain
- 79.8% of buildings in the floodplain are detached residences
- 64% of buildings in the floodplain have a full basement below grade



#ONENYC

“A more resilient NYC is one where neighborhoods, buildings and infrastructure can withstand and recover quickly from flooding and climate events.”



Coastal defenses

are strengthened as first line of defense against flooding and sea level rise



Buildings

are designed to withstand and recover from flooding



Infrastructure

is protected from climate hazards



Residents and businesses are prepared

How are buildings in the floodplain regulated?

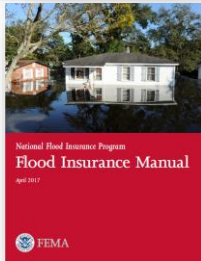


FEMA



Flood Insurance Rate Maps (FIRMs)

Determine where floodplain regulations apply



National Flood Insurance Program

Set up Insurance Rates depending on building elevation and other requirements



Construction Standards (ASCE 24)

Design minimum construction requirements for flood hazard areas

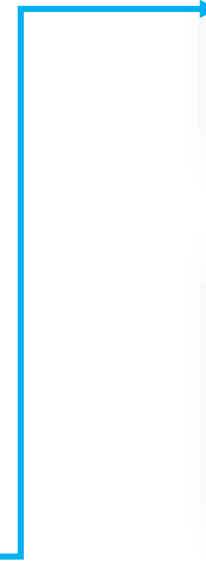
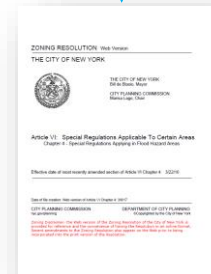
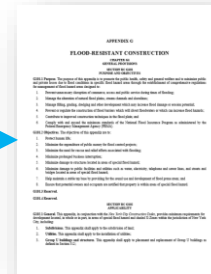
NYC

Building Code (DOB)

Requires new buildings and substantial improvements to meet FEMA standards (Appendix G)

Zoning Resolution (DCP)

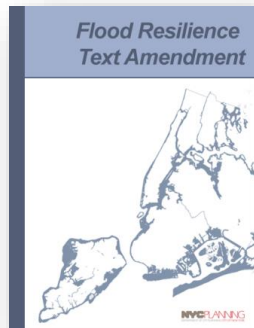
Zoning accommodates these regulations and improves neighborhood character



DCP's work since Sandy

From recovery to long-term resiliency

Zoning Text Amendments (emergency-basis)



2013- FT1
Temporary Provisions



2015- SNRN
Removed additional zoning barriers

Outreach Process



Citywide / Neighborhood Studies
(2014-2017)

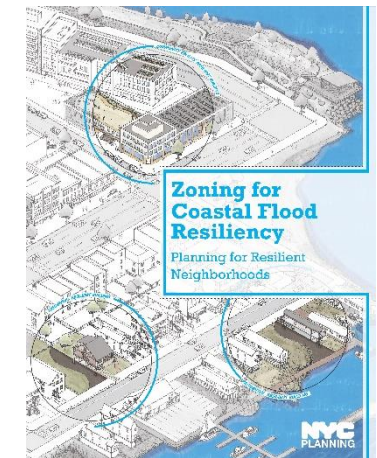
Learn about specific neighborhood challenges faced after Sandy



Community Outreach Workshops
(2016-2018)

Learn about other challenges communities faced to recover from Sandy but also to build future resiliency

Proposal (permanent-basis)



Zoning for Coastal Flood Resiliency
(2018-2019)

A plain-language description of the proposal to encourage resiliency in the long-term

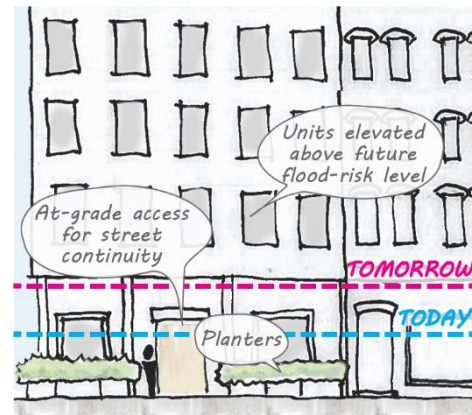
Zoning for Coastal Flood Resiliency

Overview of project's goals

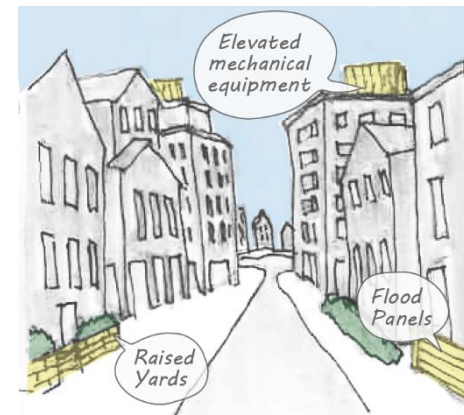
Zoning for Flood Resiliency would provide building owners flexibility to design or otherwise retrofit their buildings to reduce damage from flooding, be resilient in the long-term, save on flood insurance costs, and expedite future-storm recovery.



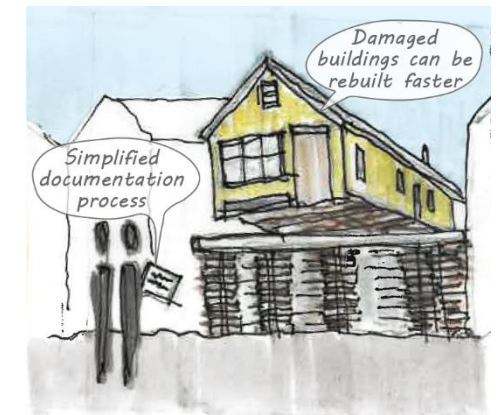
1. Encourage resiliency throughout the city's current and future floodplains



2. Support long-term resilient design of all building types by offering flexibility in the zoning framework



3. Allow for adaptation over time through partial resiliency strategies



4. Facilitate future-storm recovery by removing regulatory obstacles

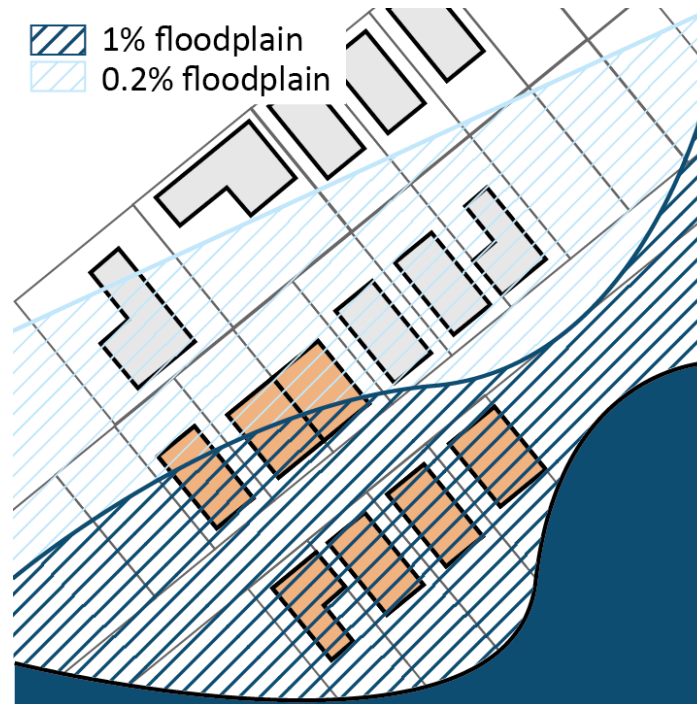
Zoning for Coastal Flood Resiliency

An expanded geography

Building owners in both the city's 1% and 0.2% annual chance floodplains would be able to invest in resiliency improvements to fully meet or exceed flood-resistant construction standards, even when these standards are not required by the Federal Emergency Management Agency (FEMA) and NYC's Building Code.

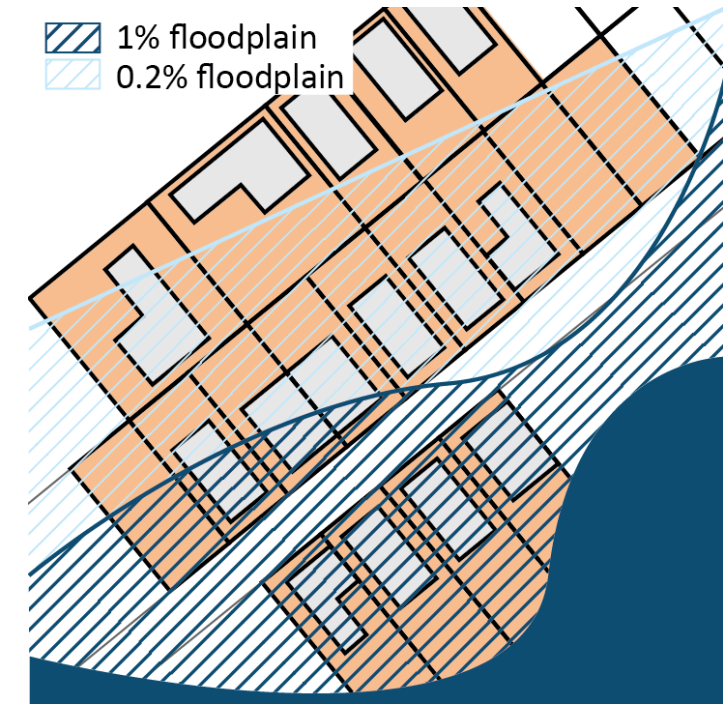


1. Encourage resiliency throughout the current and future floodplains



Existing Rules

are only available to buildings within the 1% floodplain



Proposed Rules

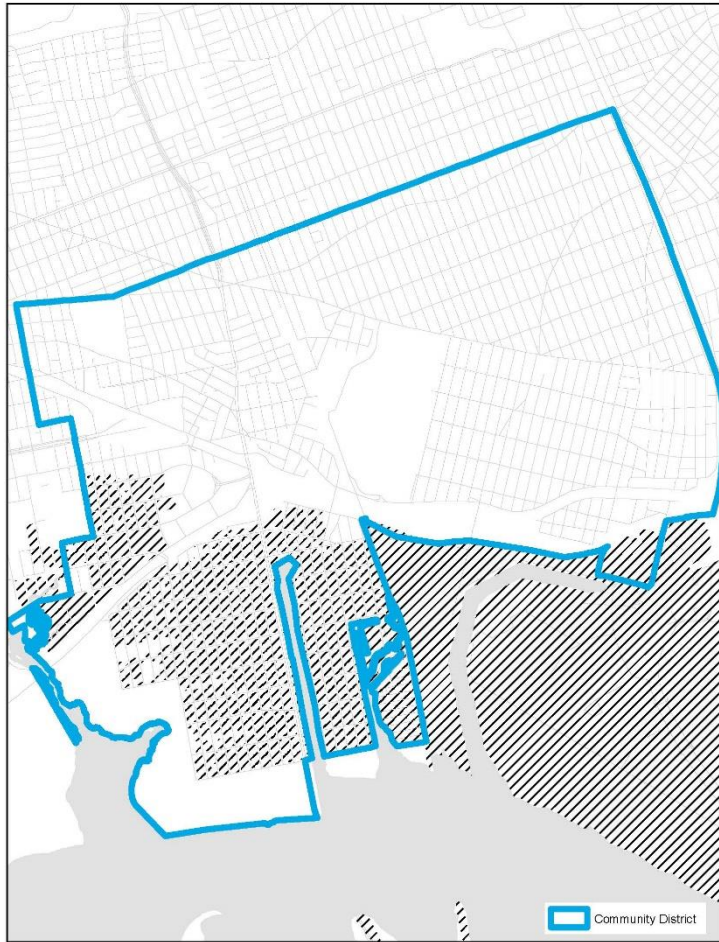
will be available to lots within the 0.2% floodplain

Applicability

General Applicability

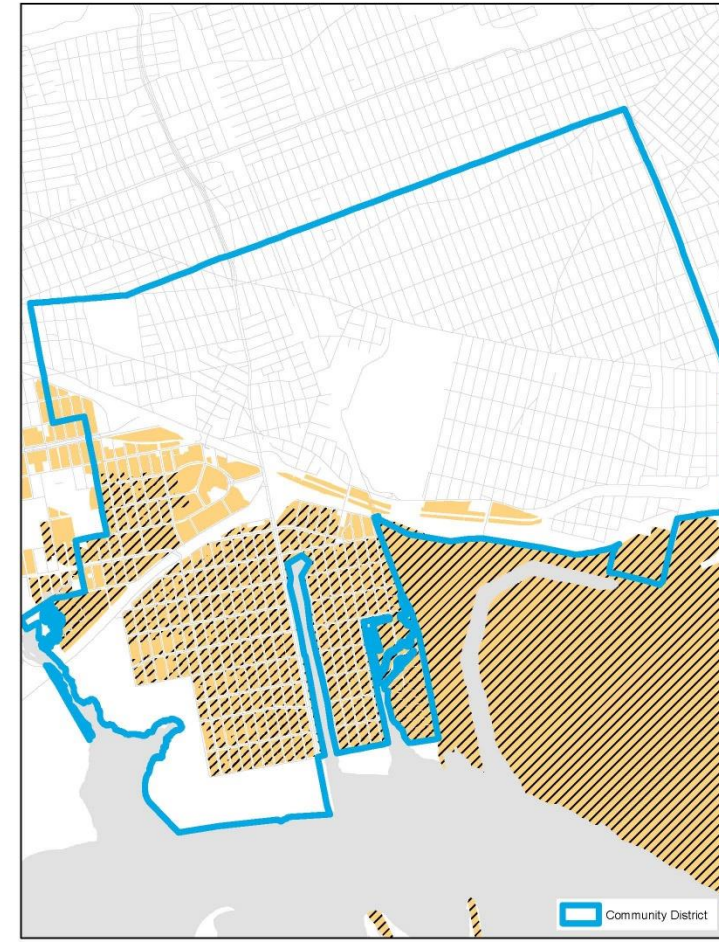
Applicability in Queens CB 10

Existing FT1 Optional Rules



▨ Rules available for buildings within the 1% floodplain

Proposed Optional Rules



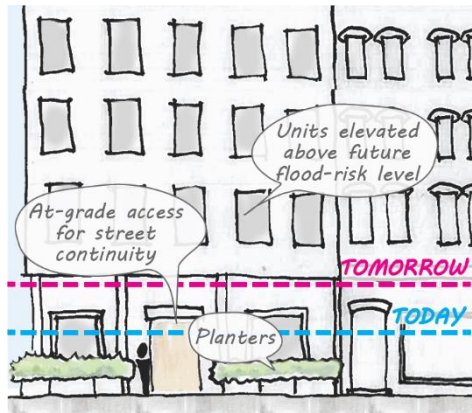
▨ Existing rule

■ Rules available for lots within the 1% and 0.2% floodplains

Zoning for Coastal Flood Resiliency

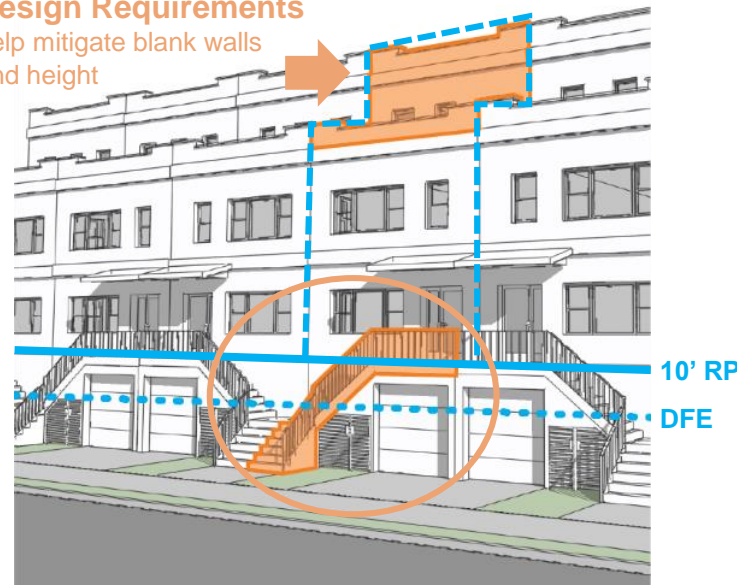
An enhanced Building Envelope

Allowances coupled with design requirements would allow building owners to accommodate sea level rise projections when designing new or retrofitting buildings, without creating negative impacts on the streetscape. This would increase the building and its content's safety and allow flood insurance costs to be reduced.



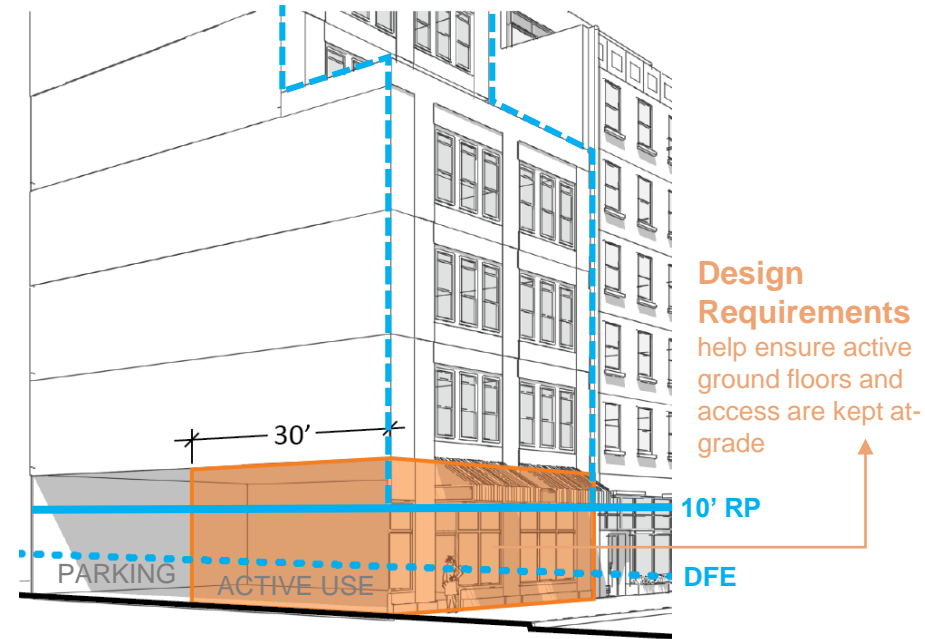
2. Support long-term resilient design of all building types through flexibility in zoning

Design Requirements
help mitigate blank walls and height



Height Allowances

for all building-types by allowing the envelope to be measured from the DFE or a higher Reference Plane (10' or 5', depending if within 1% or 0.2% floodplain)



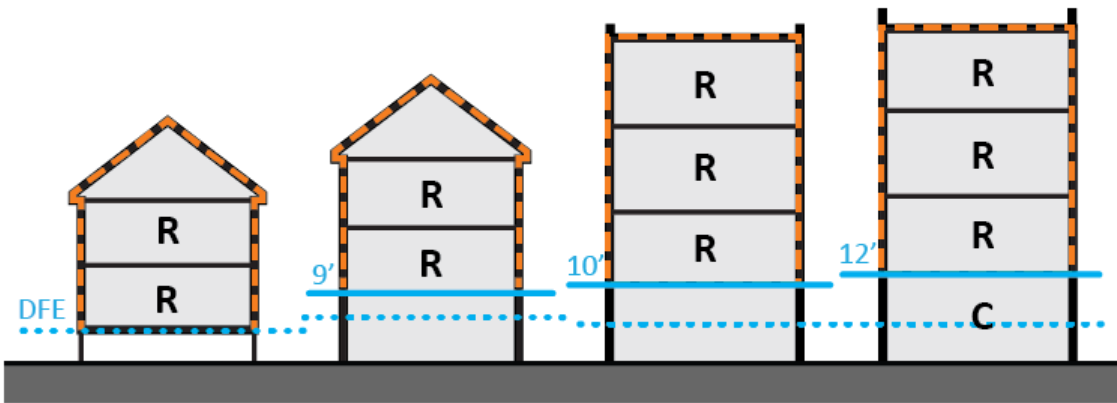
Floor Area Exemptions

for active uses (commercial and community facilities) that are dry-floodproofed and kept at grade, and any wet-floodproofed spaces

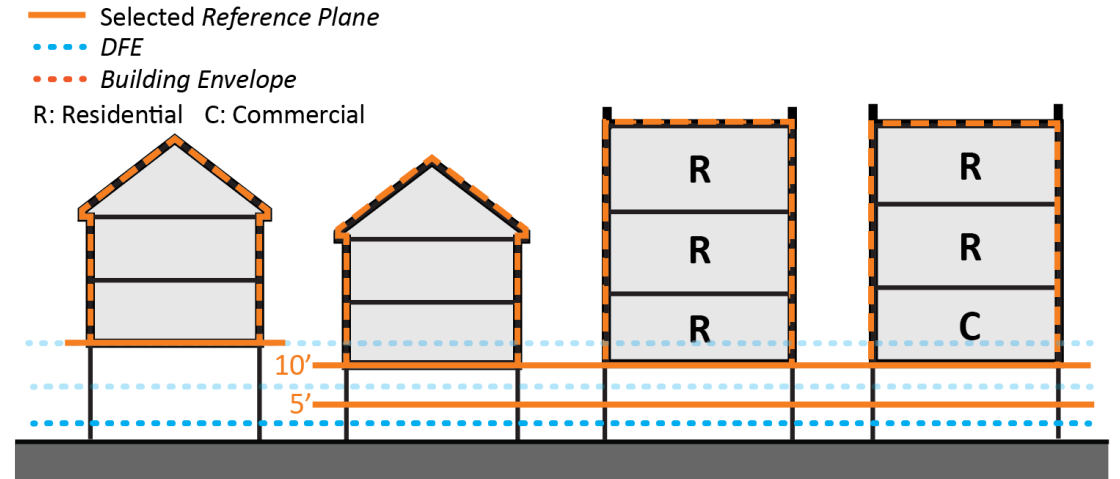
Building Envelope

Height Allowance

Optional height regulations would facilitate buildings to **incorporate sea level rise projections** when meeting *flood-resistant construction standards*, while improving the utility of spaces below the *DFE*.



Existing Rules: DFE or a Reference Plane measured from 9', 10' or 12' depending on the building's use and zoning district



Proposed Rules: DFE or a Reference Plane (up to 10' or 5') available to all lots in the 1% and 0.2% floodplains, respectively

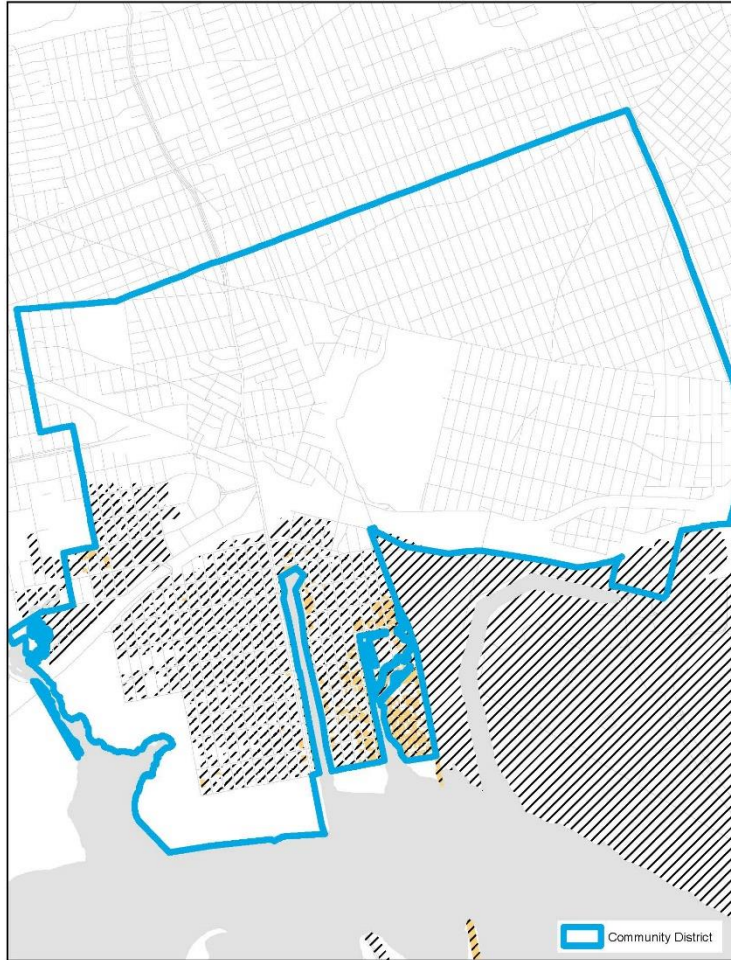
Updated Item

Building Envelope

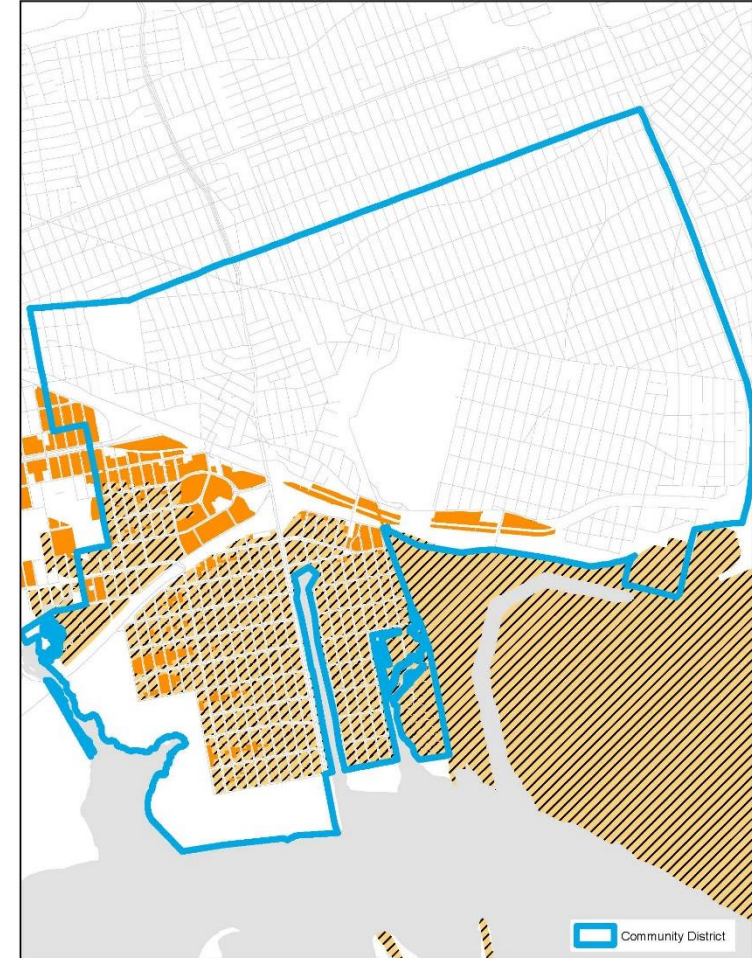
Height Allowance

Applicability in Queens CB 10

Existing FT1 Optional Rules



Proposed Optional Rules



▨ Height can be measured from DFE

▩ Height can be measured from DFE or 12', 10', 9' RP whichever is higher

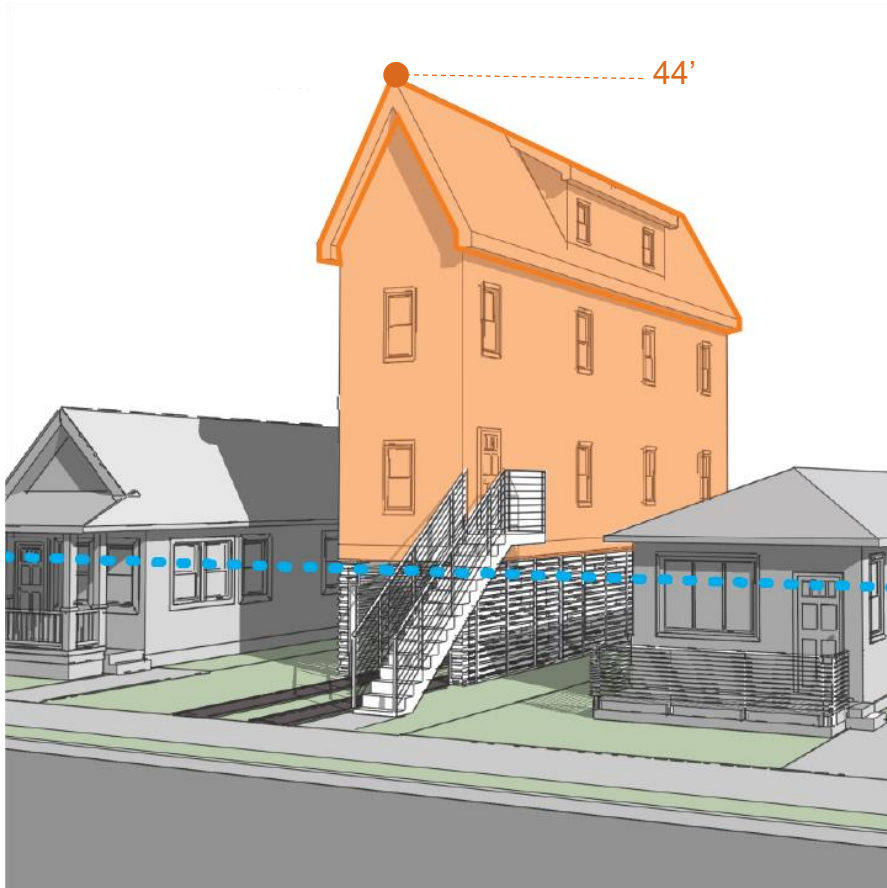
▩ Height can be measured from DFE or up to 10' RP whichever is higher

■ Height can be measured from up to 5' RP

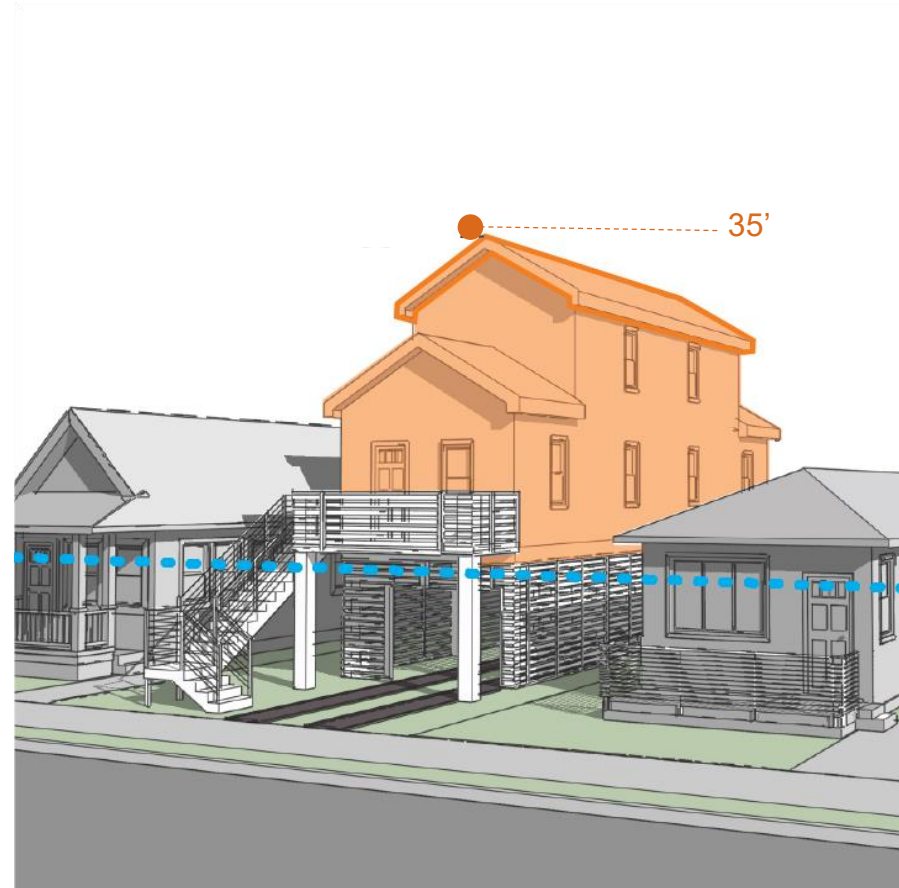
Building Envelope

Cottage Envelope

Optional *Building Envelope* would facilitate the **construction, reconstruction, and retrofit** of homes located on pre-existing substandard lots **in all areas**, and better reflect the scale of traditional cottage buildings.



Existing Rules: maximum height of 35' as measured from the DFE or 9' Reference Plane



Proposed Rules: maximum height of 25' as measured from the DFE up to 10' Reference Plane

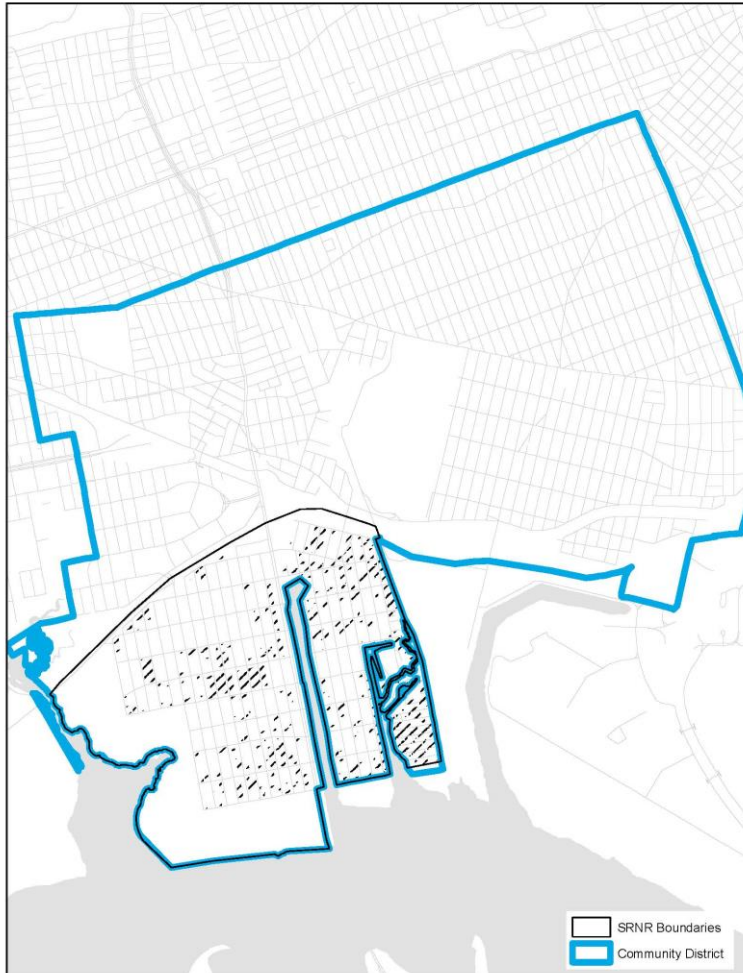
Updated Item

Building Envelope

Cottage Envelope

Applicability in Queens CB 10

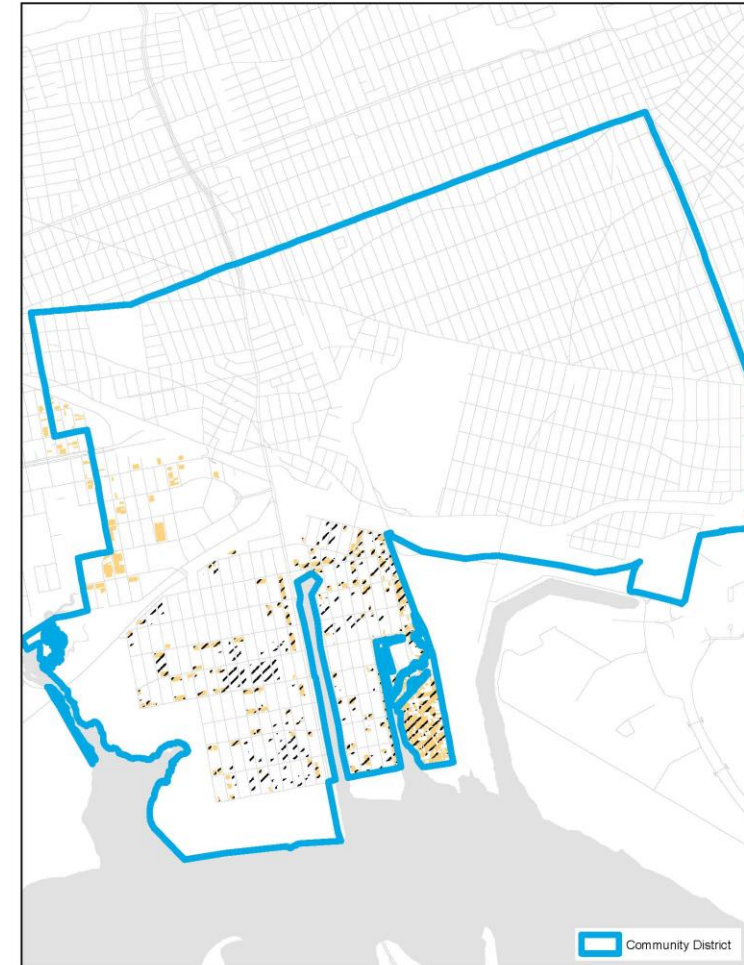
Existing FT1 Optional Rules



▨ Rule available within SRNR Boundaries in 1% floodplain



Proposed Optional Rules

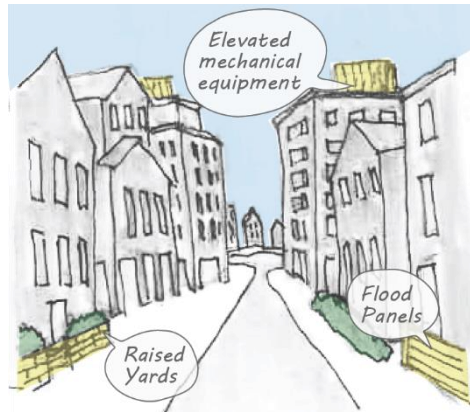


▨ Existing rule ■ Rule available within 1% and 0.2% floodplains

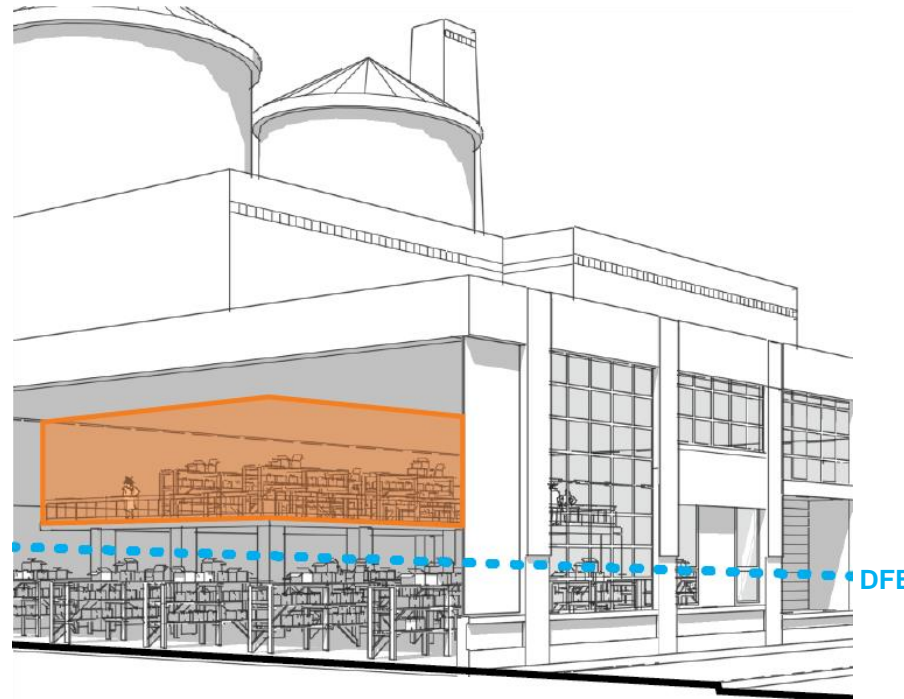
Zoning for Coastal Flood Resiliency

Alternatives for the relocation of important equipment

Building owners would have additional zoning flexibility to relocate mechanical, electrical and plumbing equipment or install back-up systems such as generators above areas at risk of being flooded, including on roofs or in new separate structures.

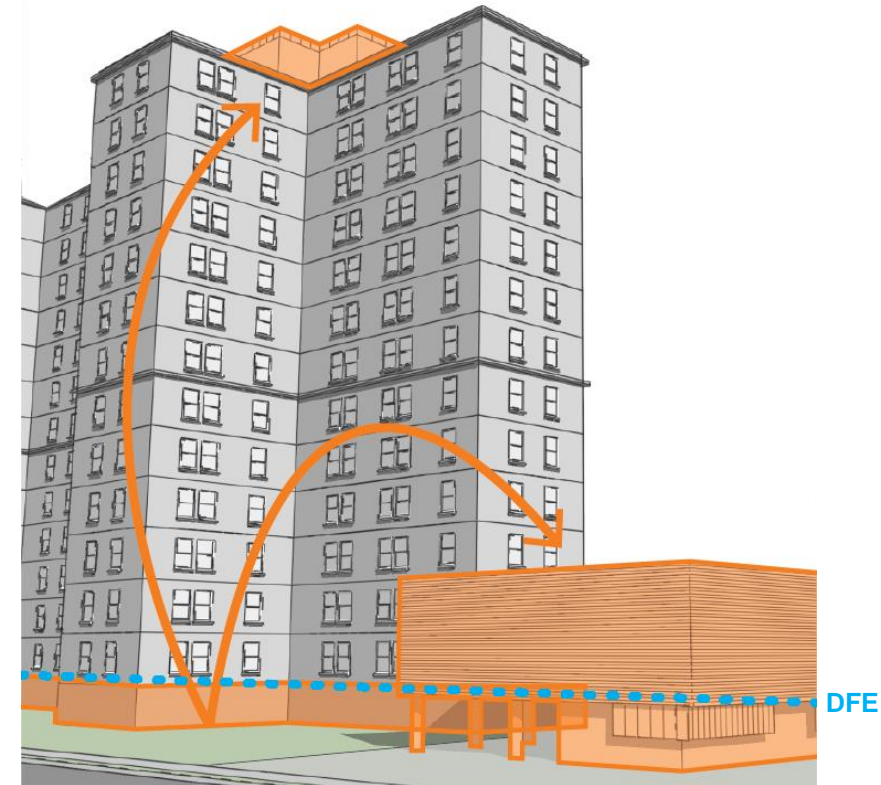


3. Allow for adaptation over time through incremental retrofits



Floor Area Exemptions

for existing industrial buildings allow the creation of small mezzanine space or a 2nd floor to store important spaces/equipment



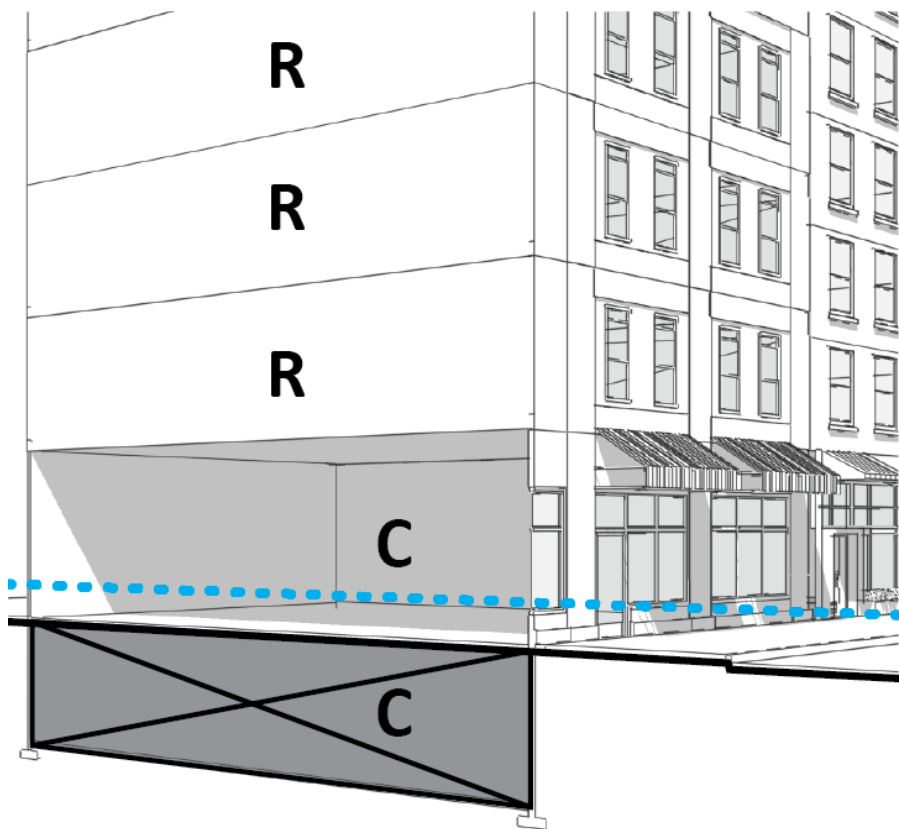
More flexible permitted obstructions

provide more options for MEP to be relocated to either above the roof or within separate structures

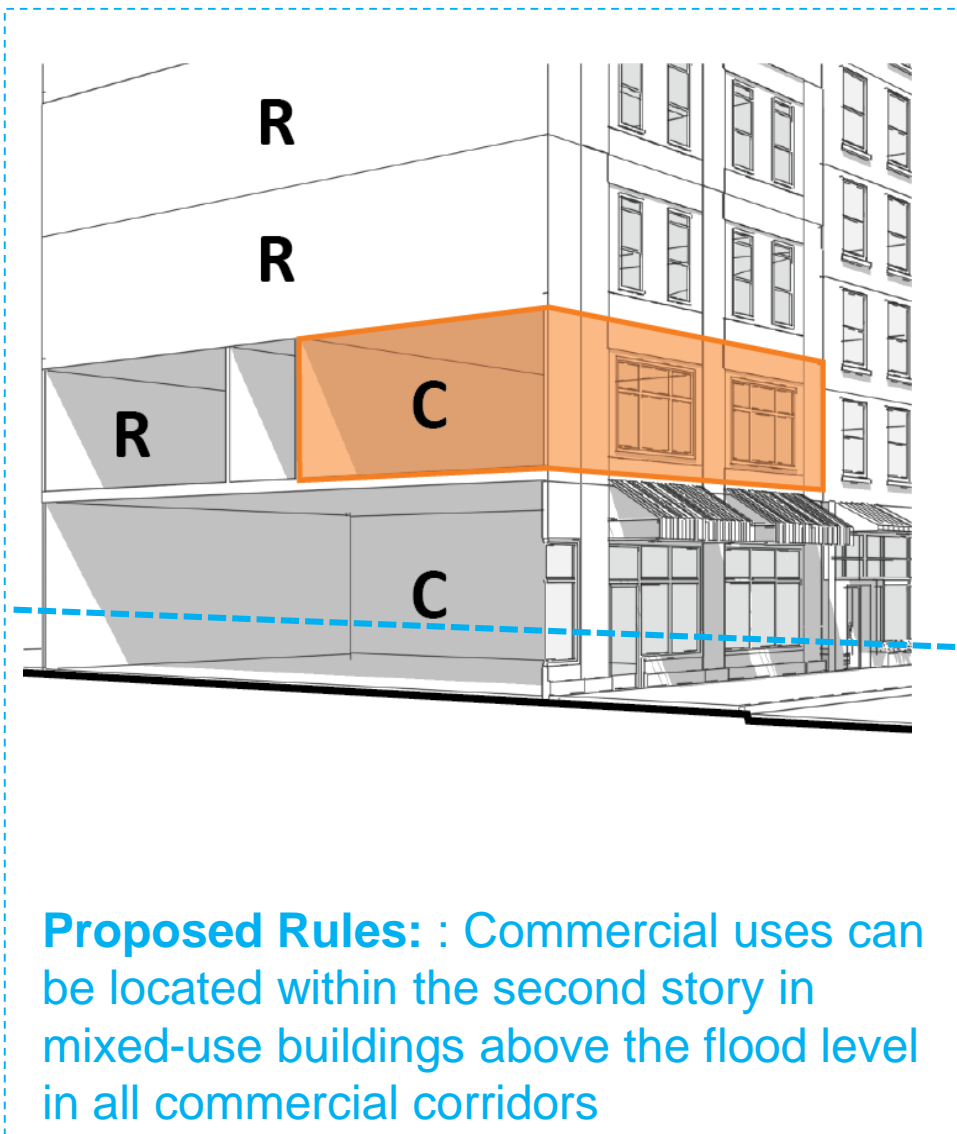
Building Design

Use Regulation

Supplemental use regulations would offer alternatives beyond dry-floodproofed cellars for businesses to locate commercial uses, especially accessory spaces



Existing Rules: Commercial uses are limited to the ground-floor in mixed-use buildings in certain commercial corridors



Proposed Rules: Commercial uses can be located within the second story in mixed-use buildings above the flood level in all commercial corridors

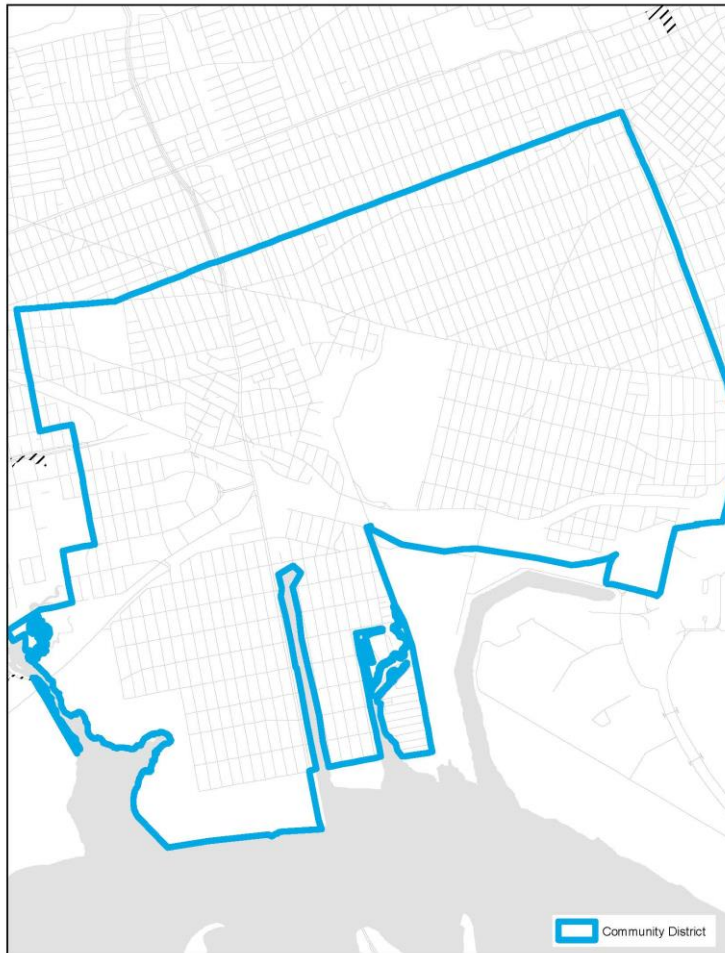
New Item

Building Design

Use Regulation

Applicability in Queens CB 10

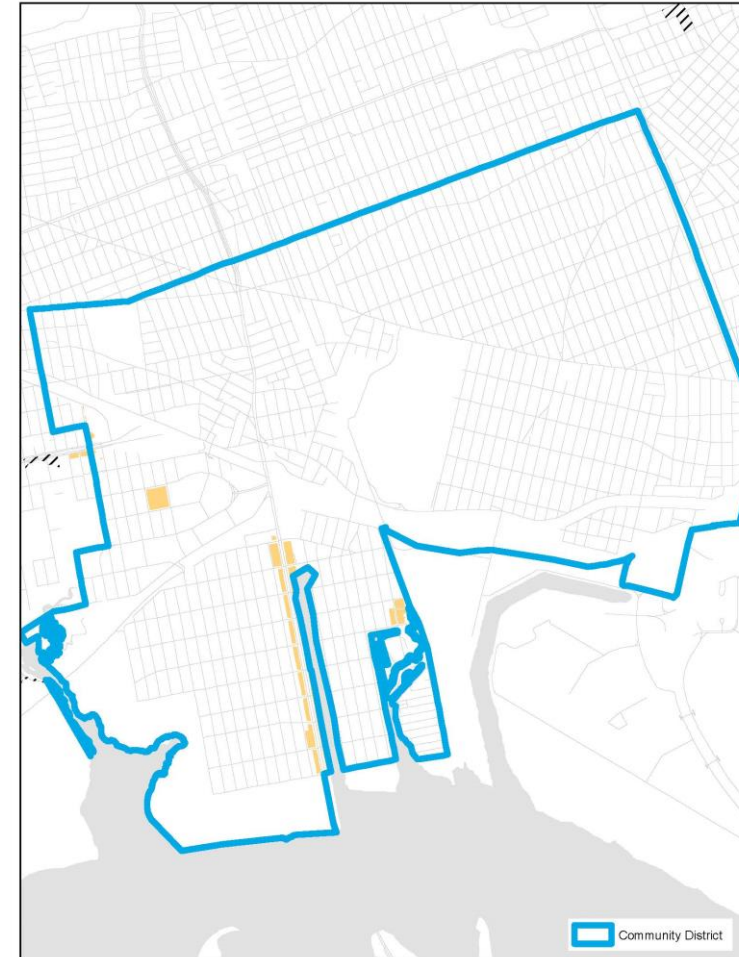
Existing Underlying Rules



▨ 2nd story commercial allowed in C4-C6 and C1&C2 within R9-R10



Proposed Optional Rules

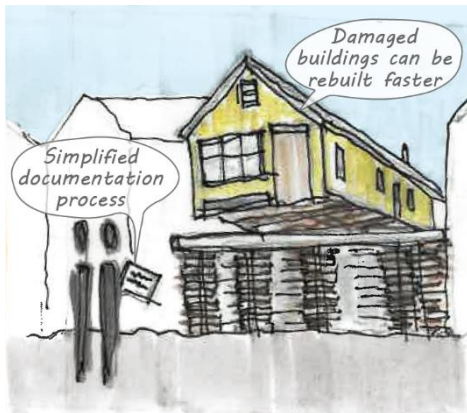


▨ Existing rule ■ 2nd story commercial allowed in C1 & C2 within R1-R10 in the 1% and 0.2% floodplains

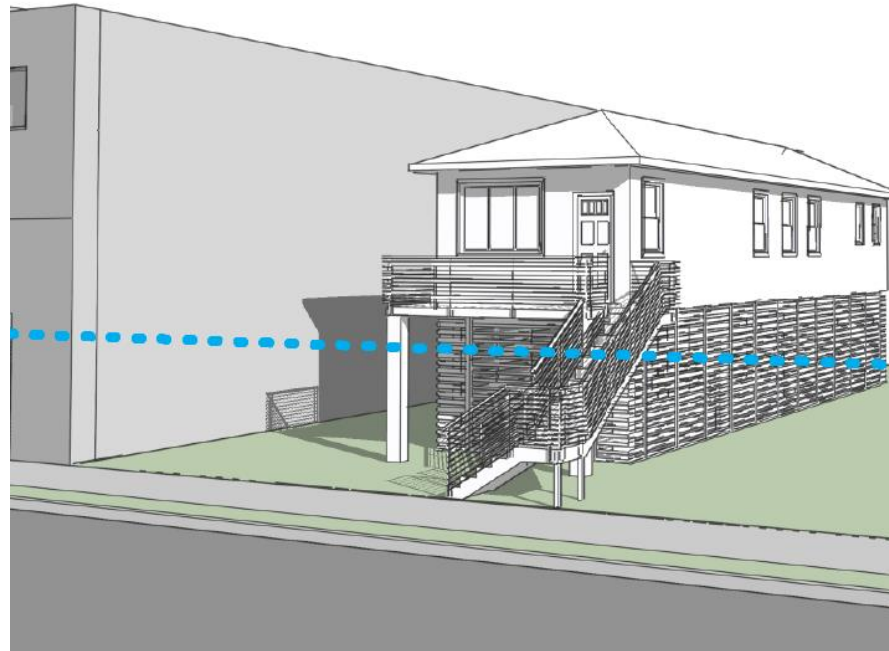
Zoning for Coastal Flood Resiliency

Future storm recovery

Rules that make it easier for damaged buildings to be reconstructed would be enabled in the event of a future disaster. This would allow residents and neighborhoods to recover faster and allow the City to more quickly offer disaster assistance to those who are impacted.

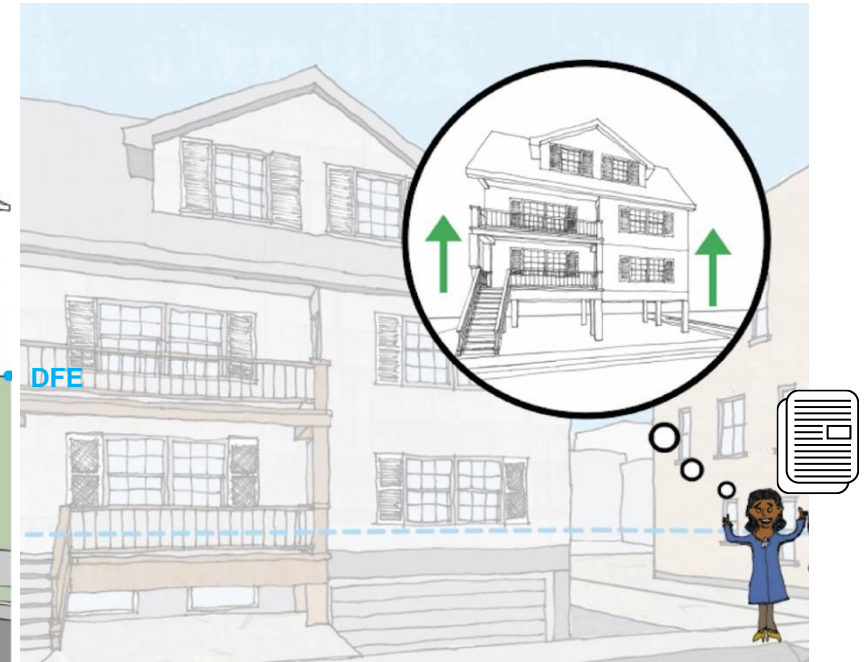


4. Facilitate future storm recovery



Reconstruction allowances

Substantially-damaged non-conforming or non-complying buildings can rebuild to at least minimum resiliency standards



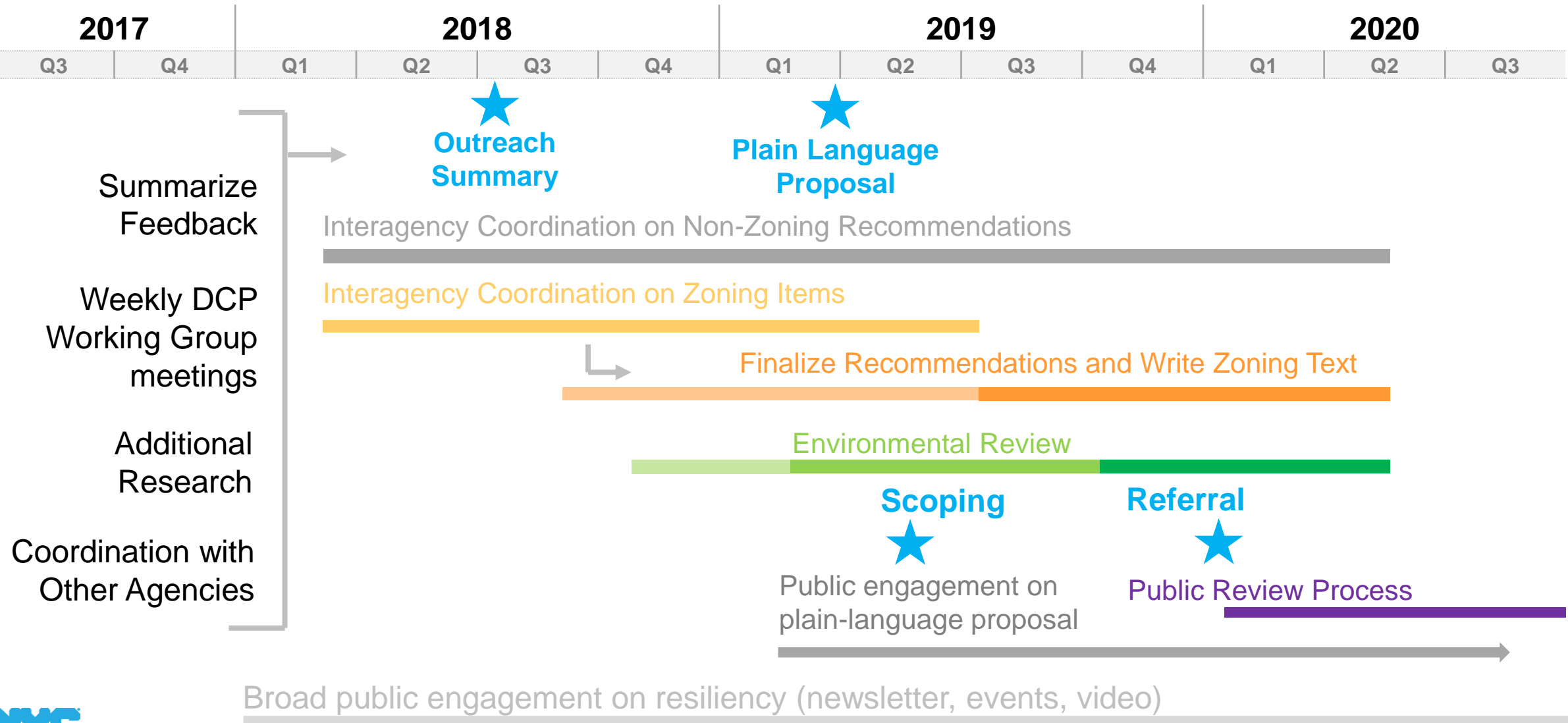
Documentation process

Aerial photographs/tax bills can be used to establish the existence of a building. A survey may be used to document non-compliances

Zoning for Coastal Flood Resiliency

Project Timeline

* Timeline subject to change



Outreach Resources



NYC Flood Hazard Mapper

www.nyc.gov/floodhazardmapper

Info briefs on Flood Resilience Zoning, Flood Risk, Flood Resilient Construction, and Flood Insurance

www.nyc.gov/resilientneighborhoods

NYC PLANNING Info Brief Flood Insurance

Flood insurance covers damages to property or personal contents from flooding caused by excessive rainfall, tidal flooding, or wind-driven storm surges. Changes to flood maps and reforms to the National Flood Insurance Program will lead to increases in flood insurance rates over time. In addition to flood resilient construction, insurance is another strategy for reducing flood risk.

Why is Flood Insurance Important?

- Floods can cause significant damage to your most valuable asset: your business.
- Even properties far from the coast are at risk of flooding.
- Homeowner and property insurance do not cover damage by flooding. You need a separate policy.
- Federal assistance is not guaranteed in the event of a flood.
- Many property owners are required by federal law to purchase and maintain flood insurance if the property is located in a high-risk flood zone of the 2007 FIRMs. The Flood Insurance Rate Map (FIRM) has received federal disaster assistance.

How Much Flood Insurance Must a Homeowner Purchase?

Properties with a federally backed mortgage in a high-risk flood zone and those that received federal disaster assistance must maintain flood insurance up to the National Flood Insurance Program (NFIP) limits, or the outstanding mortgage balance, whichever is lower. Failure to do so may require mortgage servicers to purchase a policy for the property—possibly at a higher price—on the cost through monthly mortgage payments.

Homeowners without a federally backed mortgage or outside a high-risk flood zone may carry up to the maximum policy limit with additional contents coverage up to \$100,000 for owners or renters. Co-tenanted multifamily buildings and business properties may be covered up to \$500,000. Businesses and tenants can also purchase up to \$500,000 in contents coverage.

NYC Planning | November 2016

NYC PLANNING Info Brief Flood Risk in NYC

New York City is highly vulnerable to flooding from coastal storms due to its intensively used waterfront and its extensive coastal geography. Floods have the potential to destroy homes and businesses, impair infrastructure, and threaten human safety. With climate change and sea level rise, these risks are expected to increase in the future, but will most adversely affect low-lying neighborhoods.

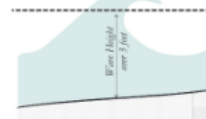
Flood Risks

Hurricanes, tropical storms, nor'easters, intense rain storms, and even extreme tides are the primary causes of flooding in NYC.

For building code, zoning, and planning purposes, flood risk in NYC is represented on FEMA's 2015 Preliminary Flood Rate Maps (PFIRMs).

- PFIRMs show the extent to which floodwaters are expected to rise during a storm event that has a 1% annual chance of occurring. This height is denoted as Flood Elevation (BFE) on the map.
- The 1% annual chance floodplain, sometimes referred to as the 100-year floodplain, is the area that is expected to be flooded within 100 years. In the 1% annual chance floodplain, there is a 26% chance over the life of a 30-year mortgage that a property will be flooded.

For flood insurance purposes, the 1% annual chance floodplain is divided into V-Zone (Coastal Flooding) and AE-Zone (1% Annual Chance Flooding) areas. The AE-Zone is the area that is expected to be flooded within 100 years.



The 1% annual chance floodplain is divided into V-Zone (Coastal Flooding) and AE-Zone (1% Annual Chance Flooding) areas. The AE-Zone is the area that is expected to be flooded within 100 years.

NYC Planning | November 2016

NYC PLANNING Flood Resilience Zoning

City Planning is working with communities throughout the floodplain to identify zoning and land use strategies to reduce flood risks and support the city's vitality and resiliency through long-term adaptive planning. The Flood Resilience Zoning Text is one part of a wide range of efforts by the City to recover from Hurricane Sandy, promote rebuilding, and increase the city's resilience to climate-related events.

Overview

The Flood Text enables and encourages resilient building construction through designated floodplains.

The Flood Text modified zoning to regulate building construction through the reconstruction of storm-damaged buildings with new, higher flood elevations issued by the Federal Emergency Management Agency (FEMA), and to comply with new requirements of the New York City Building Code.

It also introduced regulations to mitigate negative effects of flood resilient construction on the public realm. The text was adopted on a temporary, emergency basis. The future update of this text, guided by community input, will aim to make the text permanent and incorporate lessons learned during the reconstruction process.

Where is the Flood Text Applicable?

The Flood Text is available to buildings located entirely or partially within an annual chance floodplain.

These rules can be found in Article V of the Zoning Resolution and, if utilized, require the building to fully comply with resilient construction standards found in the New York City Building Code. Some provisions, such as elevation certificates, are available to all buildings in the floodplain, even if not fully compliant with Appendix G.

For more information about the Flood Resilience Zoning Text, visit www.nyc.gov/resilientneighborhoods.

NYC Planning | March 2017 | Flood Resilient Construction

NYC PLANNING Info Brief Flood Resilient Construction

Flood resilient construction reduces potential damages from flooding and can lower flood insurance premiums. New buildings in the floodplain are required to meet flood resilient standards. Existing buildings can reduce their risk by retrofitting or rebuilding to meet these standards, or can take partial, short-term measures to address safety concerns.

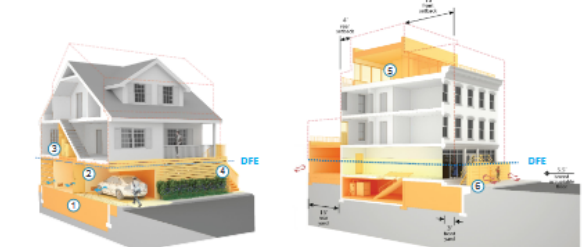
Overview

There is a wide range of accepted flood resilient construction practices for buildings to better withstand floods and recoupy more quickly following a storm. These include:

- Elevating the lowest floor.
- Elevating mechanical equipment such as electrical, heating, and plumbing equipment.
- Wet floodproofing by utilizing water resistant building materials and limiting uses below the Design Flood Elevation (DFE) to parking, building access, and minor storage. This allows water to move in and out of uninhabited, lower portions of the building with minimal damage.
- Dry floodproofing sealing the building's exterior to flood waters and using removable barriers at all entrances below the expected level of flooding in mixed-use and non-residential buildings.

Examples of Flood Resilient Construction

Visit www.nyc.gov/resilientneighborhoods to see more examples in the Retrofitting for Flood Risk report.



- Site is filled to the lowest adjacent grade.
- Space below the DFE is for parking, building access or minor storage.
- Mechanical systems are above the DFE.
- Plants and stair turns improve the look of the building from the street.
- Rooftop addition replaces lost below grade space.
- Commercial space is dry floodproofed with removable barriers.

NYC Planning | November 2016 | Flood Resilient Construction

Zoning for Coastal Flood Resiliency

Questions?