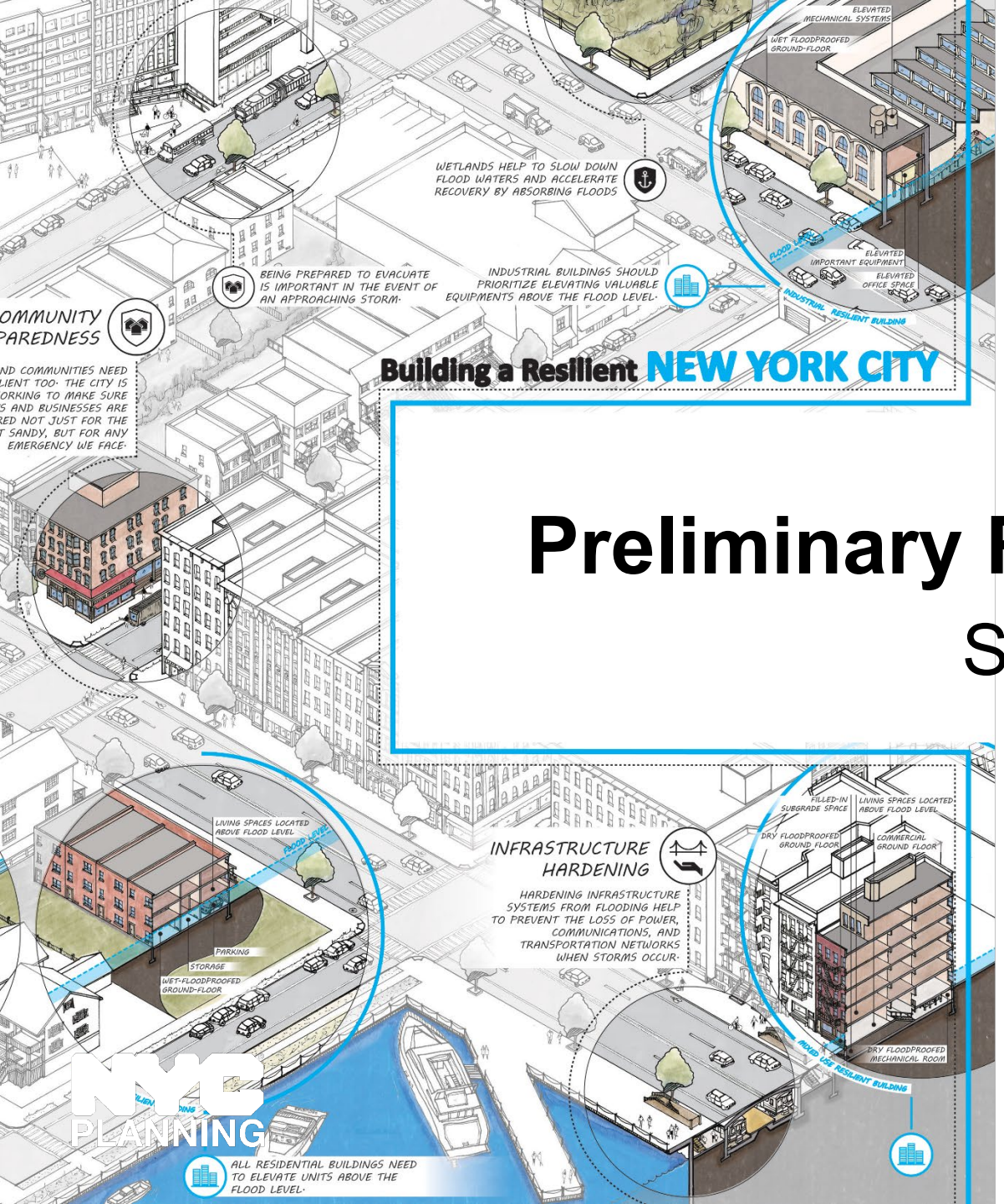


Zoning for Coastal Flood Resiliency

Preliminary Recommendations

Summary

Staten Island Community Board 2
September 4, 2019

Today's Agenda

1. **Introduction |** Context

2. **Preliminary Recommendations |** Summary

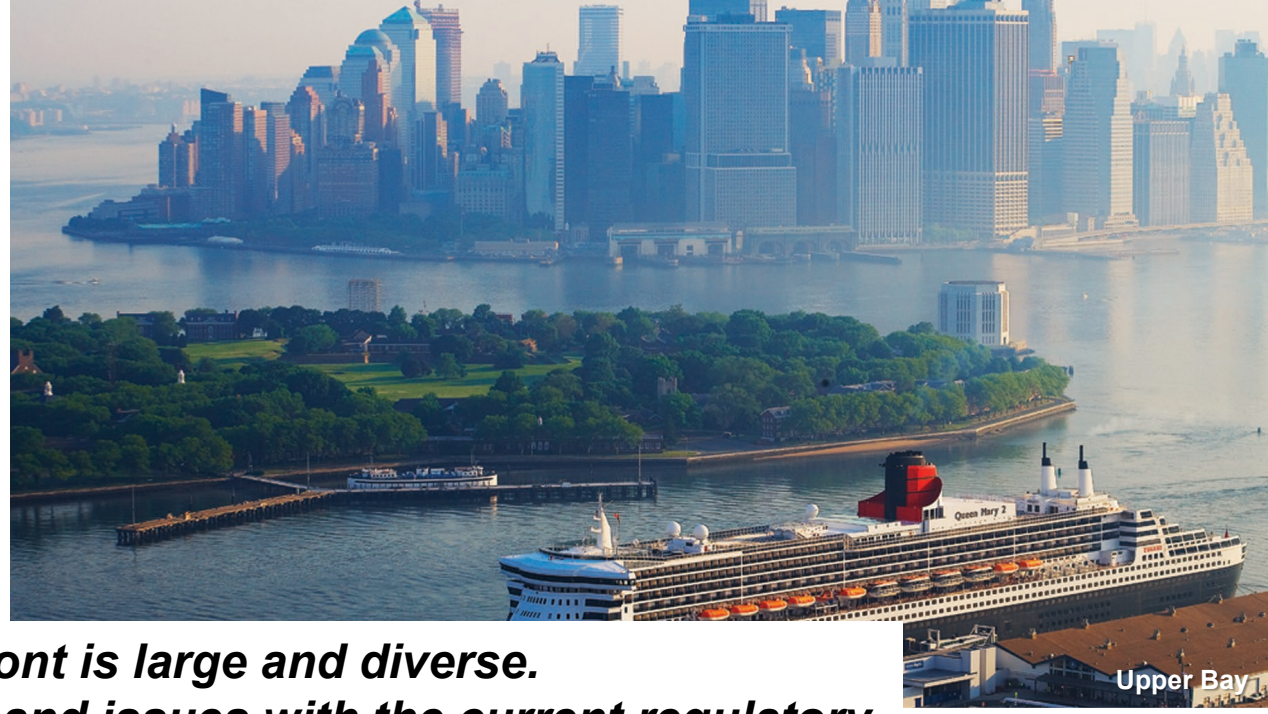
3. **Project Timeline |** Public Review

Zoning for Coastal Flood Resiliency

1. Introduction

Context

Williamsburg, Brooklyn



Upper Bay

NYC's 520-mile waterfront is large and diverse. These areas face different flood risks and issues with the current regulatory framework, and require particular strategies to make them resilient.

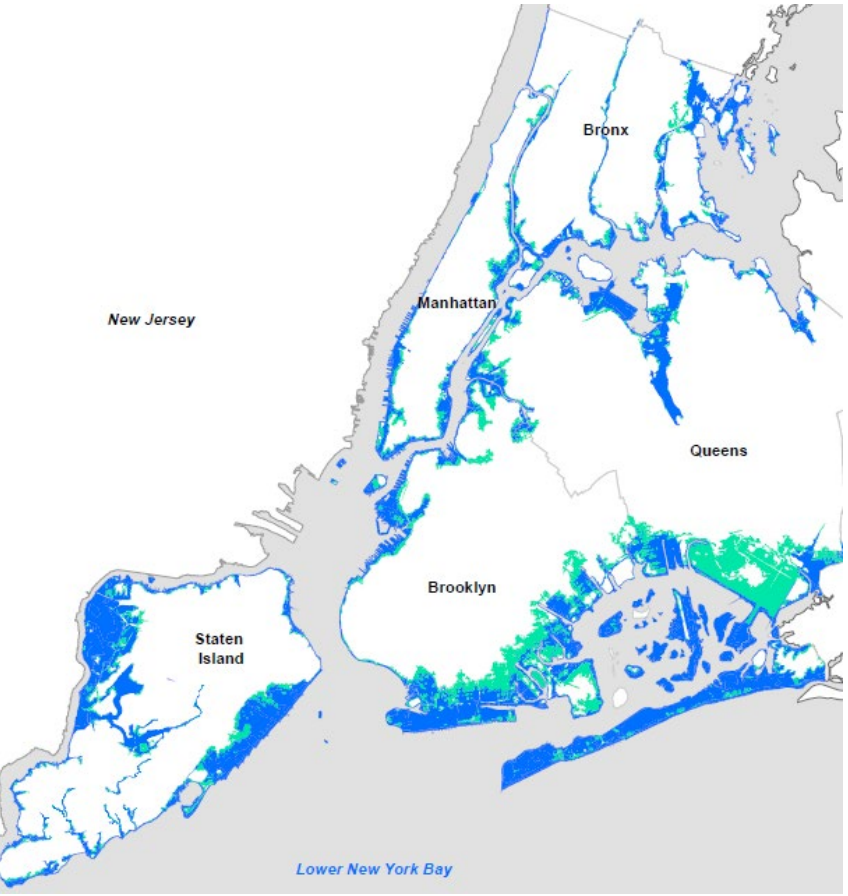
William T Wildlife Refuge, Staten Island

Rockaways, Queens

Citywide Flood Risk

NYC's flood risk is high and will increase.

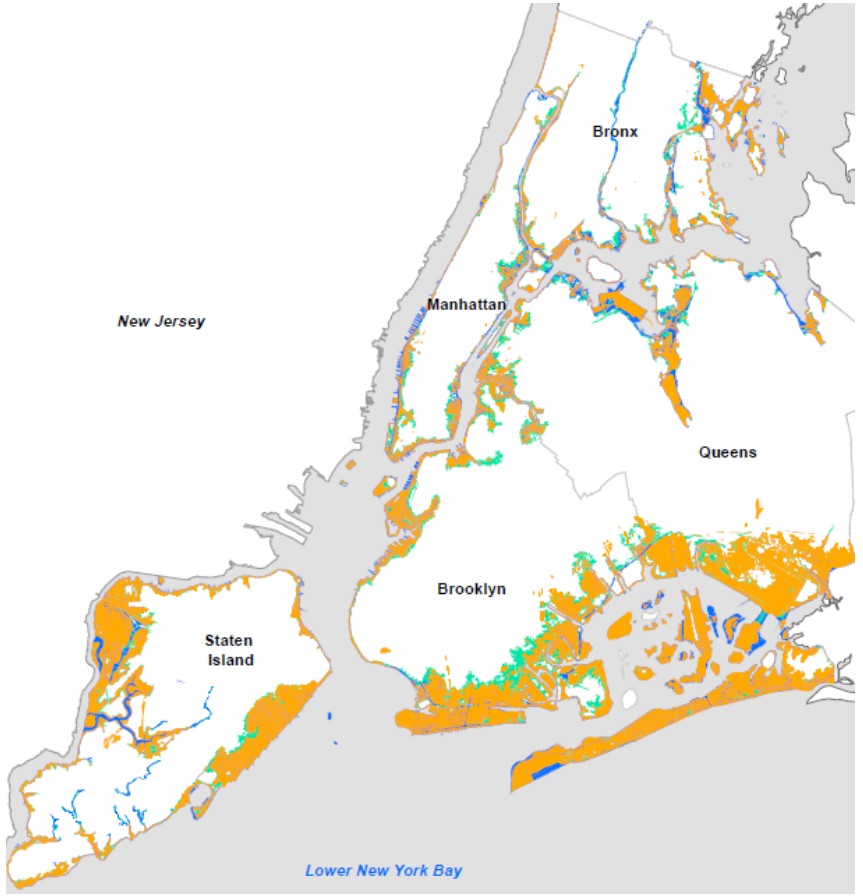
The city's current flood risk is high with ~782,800 residents in the floodplain



High-risk: 100 Year floodplain (FEMA)

Moderate-risk: 500 Year floodplain (FEMA)

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



Hurricane Sandy Storm Surge

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

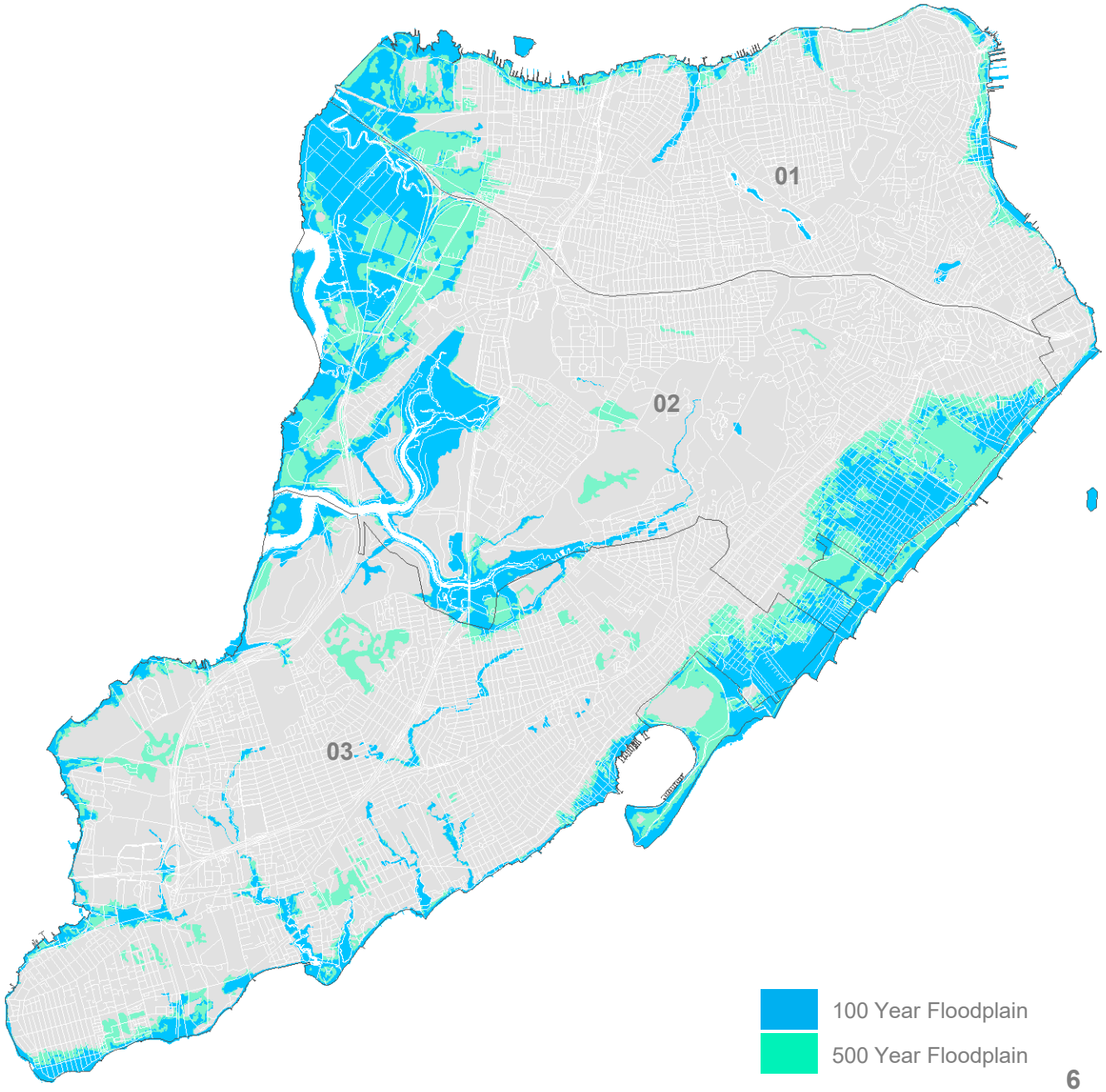
2050's **500 Year Floodplain** (NPCC)

FEMA Flood Map

Flood Risk in Staten Island

	100 YR (FIRM+ PFIRM)	500 YR (FIRM+ PFIRM)	TOTAL
Total # of Lots	**13,342**	**5,128**	**18.470**
# Built	10.734	4,839	15,573
# Vacant	2,608	289	2,897
% Built	80%	94%	84%
% Vacant	20%	6%	16%

	100 YR (FIRM+PFIRM)	500 YR (FIRM+PFIRM)	TOTAL
Total # of Buildings	**13,276**	**6,245**	**19,521**

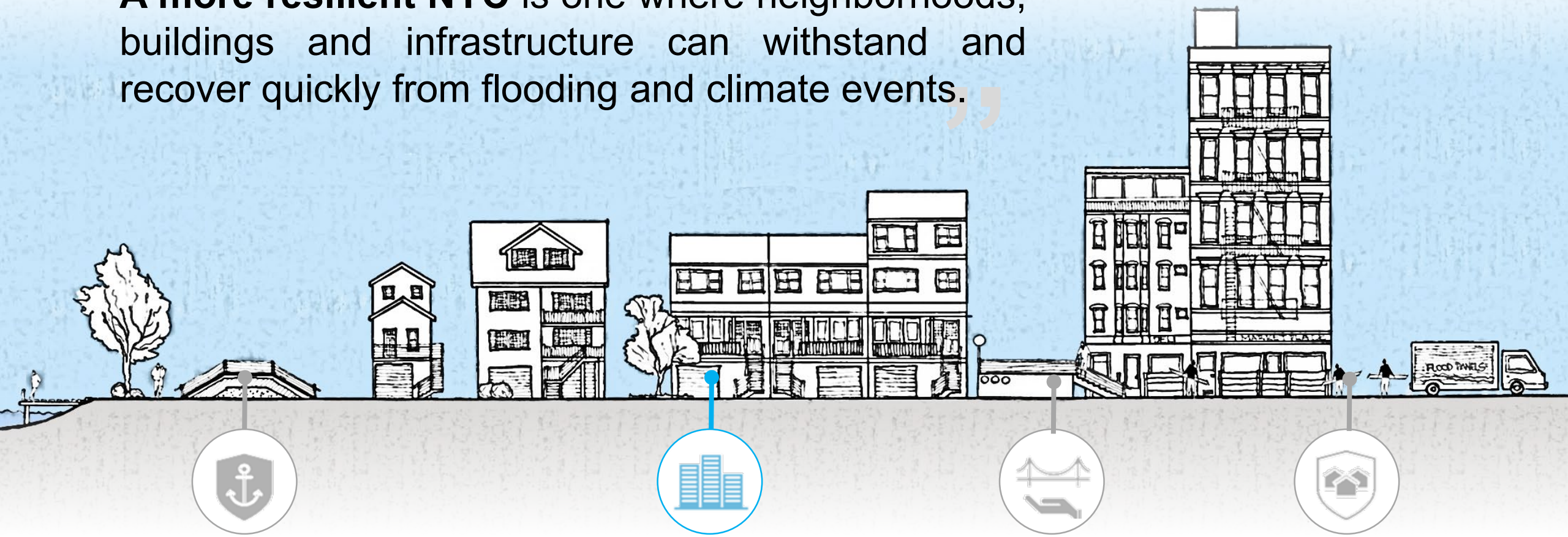


Common Building Typologies

Flood Risk in Staten Island

#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

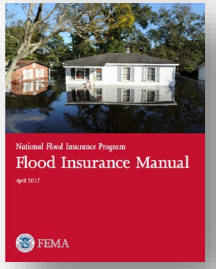
Residents and businesses
are prepared

How are buildings in the floodplain regulated?

FEMA

Flood Insurance Rate Maps (FIRMs)

Determine **where floodplain regulations apply**



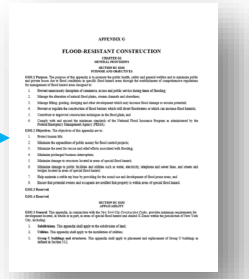
National Flood Insurance Program

Set up Insurance Rates depending on building elevation and other requirements

Construction Standards (ASCE 24)

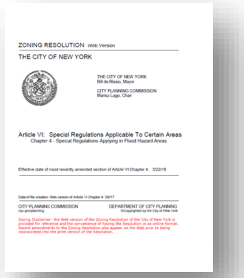
Design minimum construction requirements for flood hazard areas

NYC



Building Code (DOB)

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



Zoning Resolution (DCP)

Zoning **accommodates** these regulations

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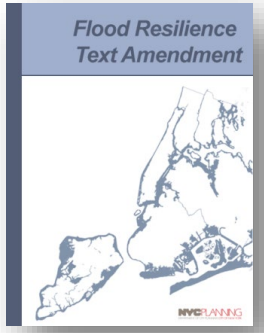
DCP's work since Sandy

From recovery to long-term resiliency

Zoning Text Amendments (emergency-basis)



2013- FT1
Temporary Provisions to remove zoning barriers

2015- SRNR
Removed additional zoning barriers and simplify documentation requirements

Outreach Process

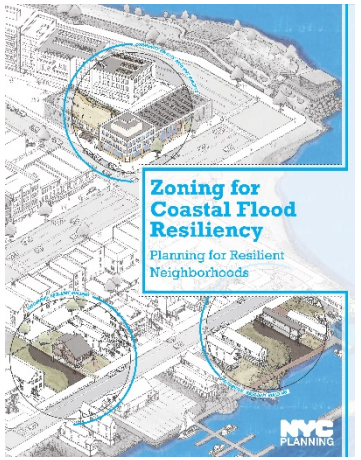
Citywide / Neighborhood Studies
(2014-2017)

Learn about specific neighborhood challenges faced after Sandy

Community Outreach Workshops
(2016-2018)

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

Proposal (permanent-basis)

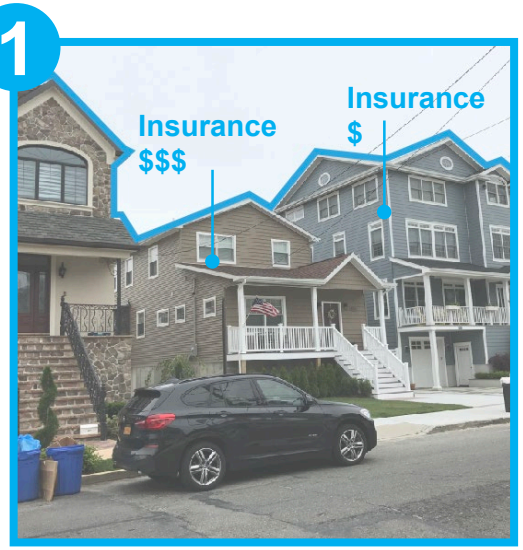


Zoning for Coastal Flood Resiliency
(2018-2019)

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

Overview of zoning issues identified by communities

From Community Outreach Summary document



1. **More flexibility with height to reduce insurance rates and "future-proof"**
2. **Allow for resilient buildings that better fit context**
3. Allow homes in industrial areas to recover
4. Need better design controls for all building types
5. Keep active uses at the sidewalk level
6. More options are needed for businesses to retrofit

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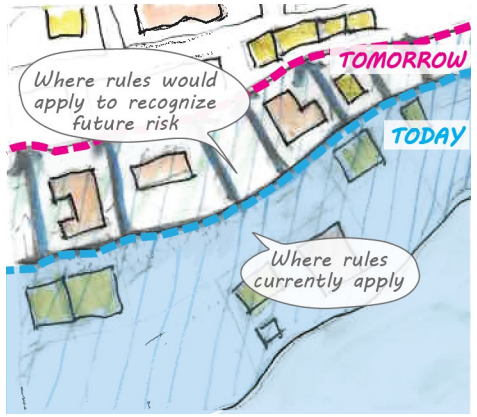
2. Preliminary Recommendations

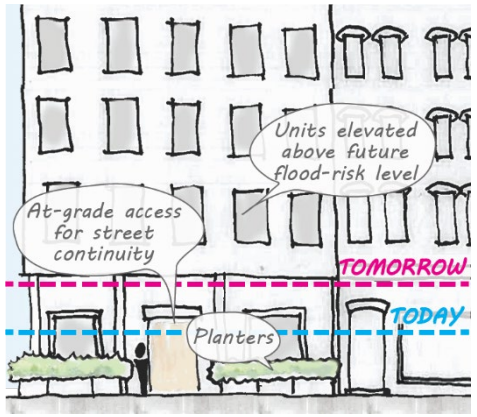
Summary

Zoning for Coastal Flood Resiliency

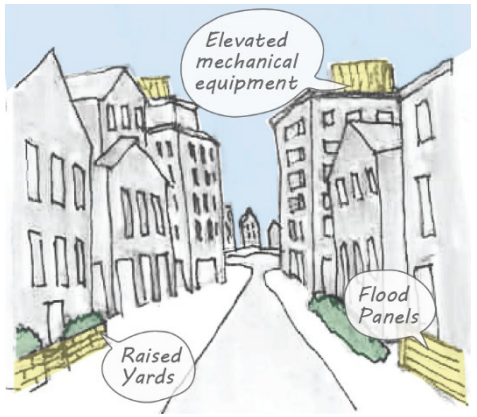
From recovery to long-term resiliency



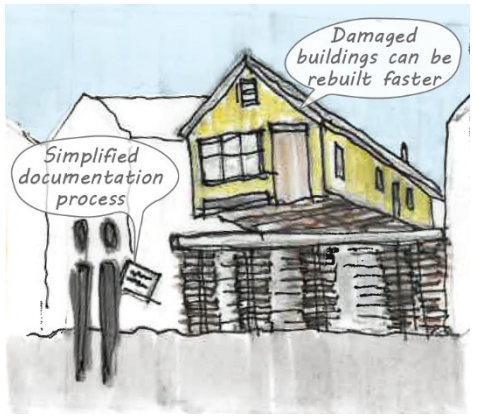
1. Encourage resiliency throughout the city's **current and future floodplains**



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



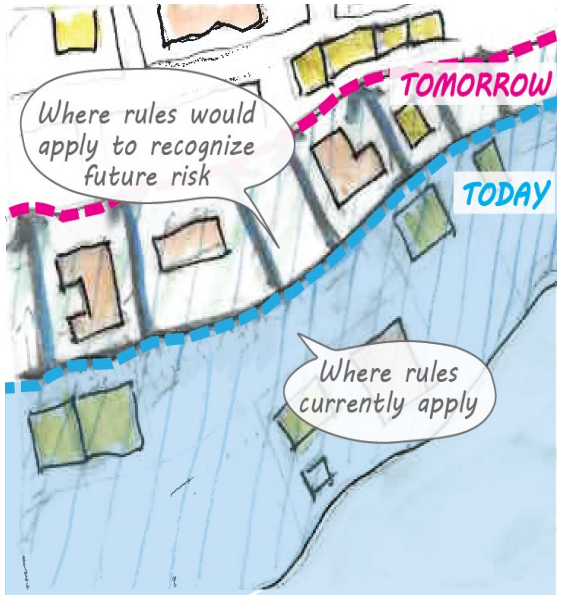
3. **Save on cost** by allowing for adaptation over time through partial resiliency strategies



4. **Facilitate future-storm recovery** by removing regulatory obstacles

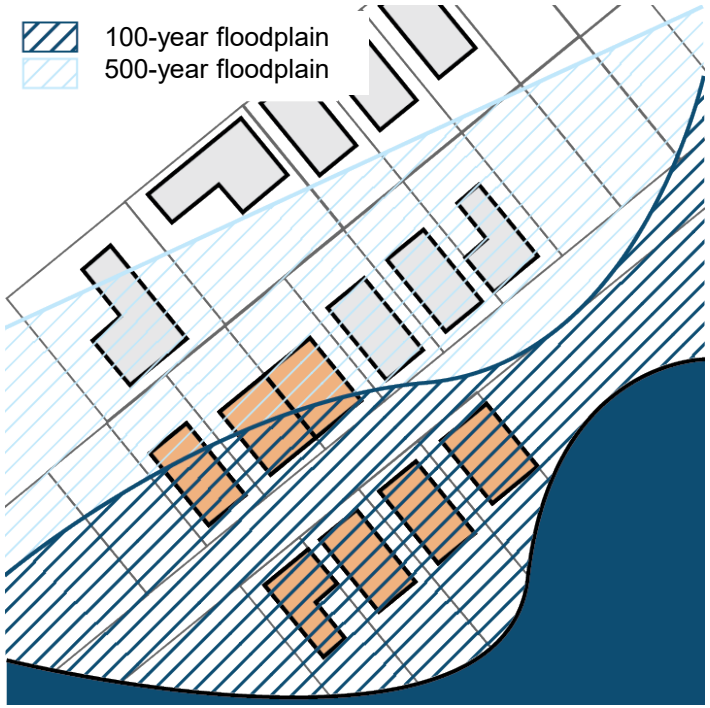
Zoning for Coastal Flood Resiliency

An expanded geography



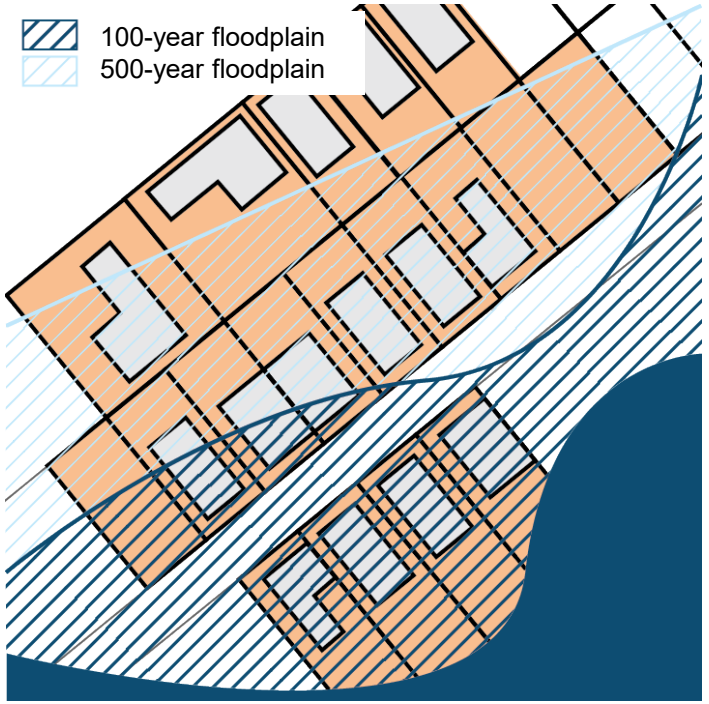
1. Encourage resiliency throughout the current and future floodplains

EXISTING RULES



Are only available to buildings within the **100-year floodplain**

PROPOSED RULES



Will be available to lots within the **500-Year floodplain**

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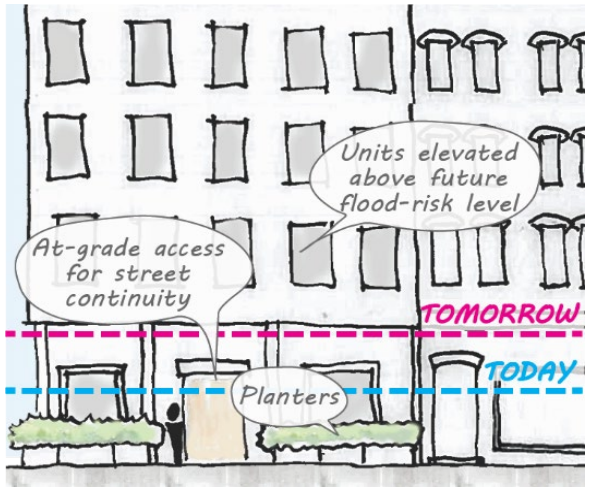
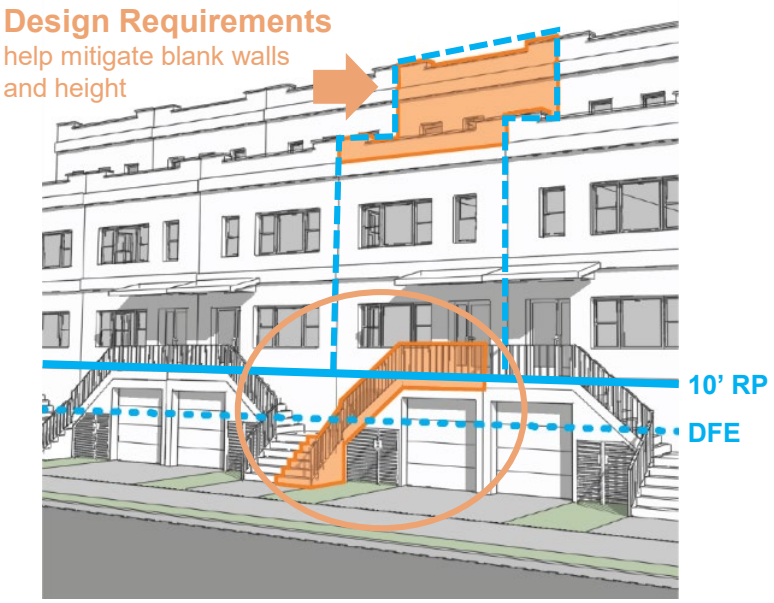
Zoning for Coastal Flood Resiliency

An enhanced Building Envelope

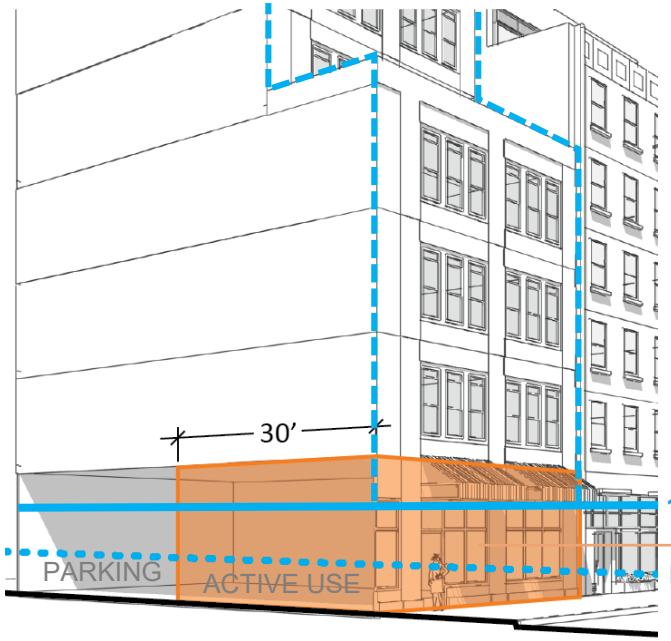


2. Support long-term resilient design of all building types through flexibility in zoning



Height Allowances

Measure building envelope from the Design Flood Elevation (DFE) or a higher Reference Plane (10' or 5', depending on the 100-year or 500-year floodplain)



Floor Area Exemptions

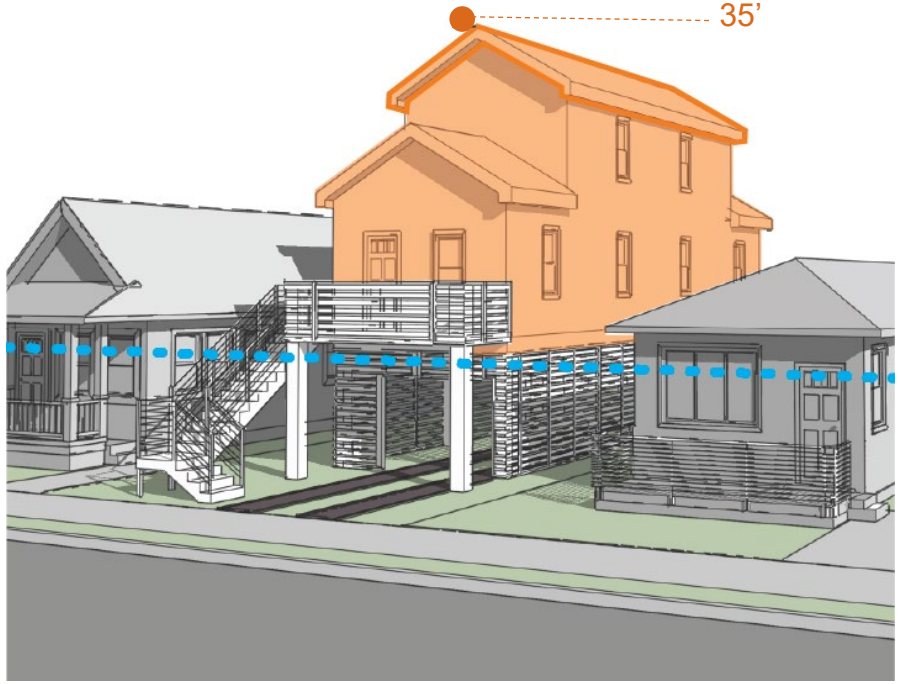
For active uses (commercial and community facilities) that are dry-floodproofed and kept at grade, and any wet-floodproofed spaces

Building Envelope

Cottage Envelope

Optional *Building Envelope* would facilitate the **construction, reconstruction, and *retrofit*** of homes located on pre-existing substandard lots, 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

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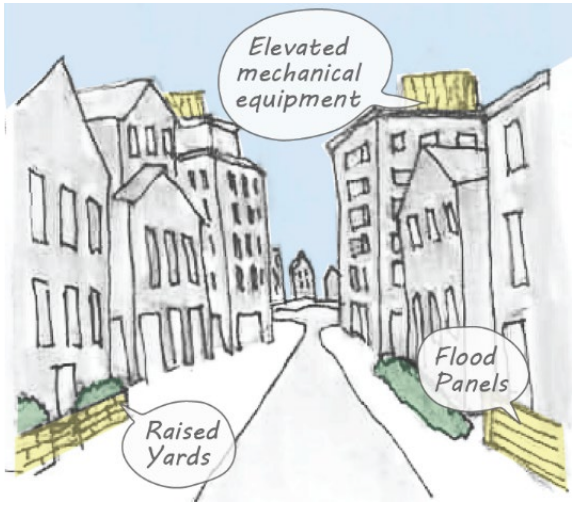
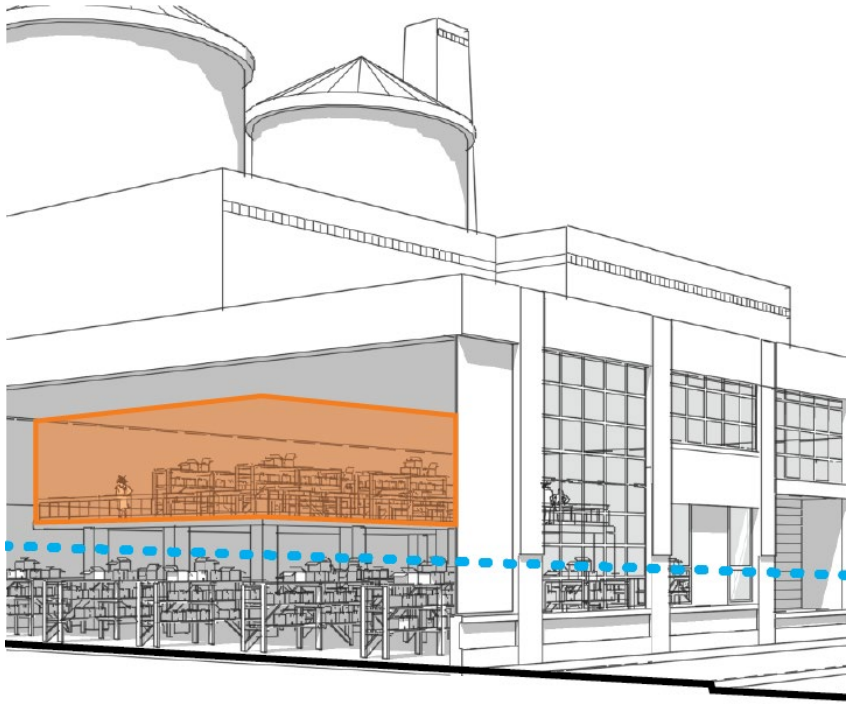
* Rules available if the building fully meets Appendix G of the Building Code

Zoning for Coastal Flood Resiliency

Alternatives for the relocation of important equipment

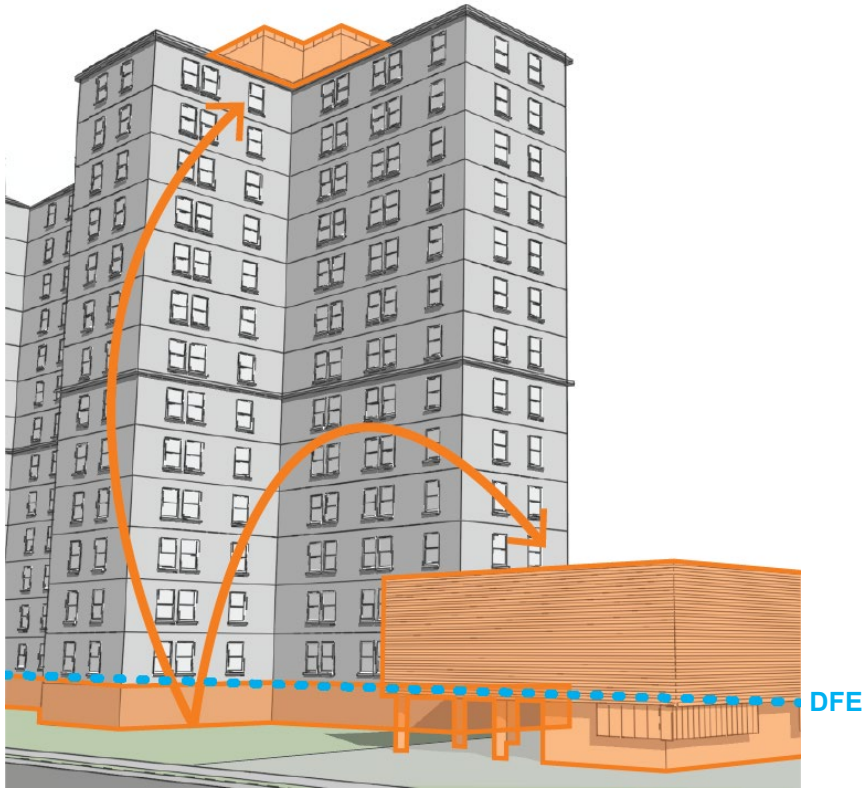


3. Allow for adaptation over time through incremental retrofits



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

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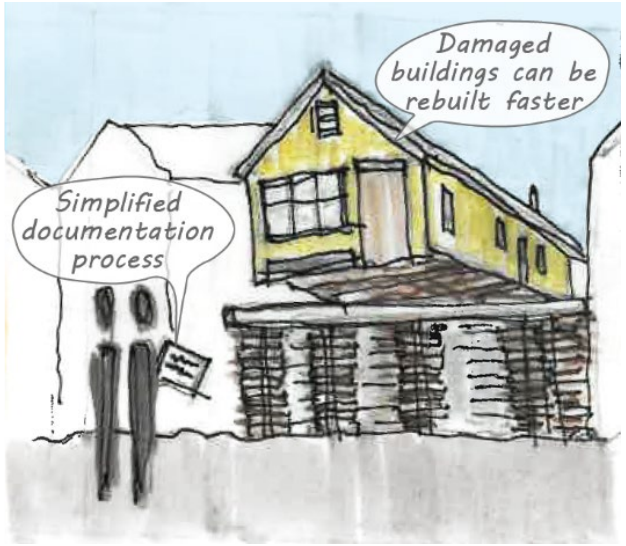
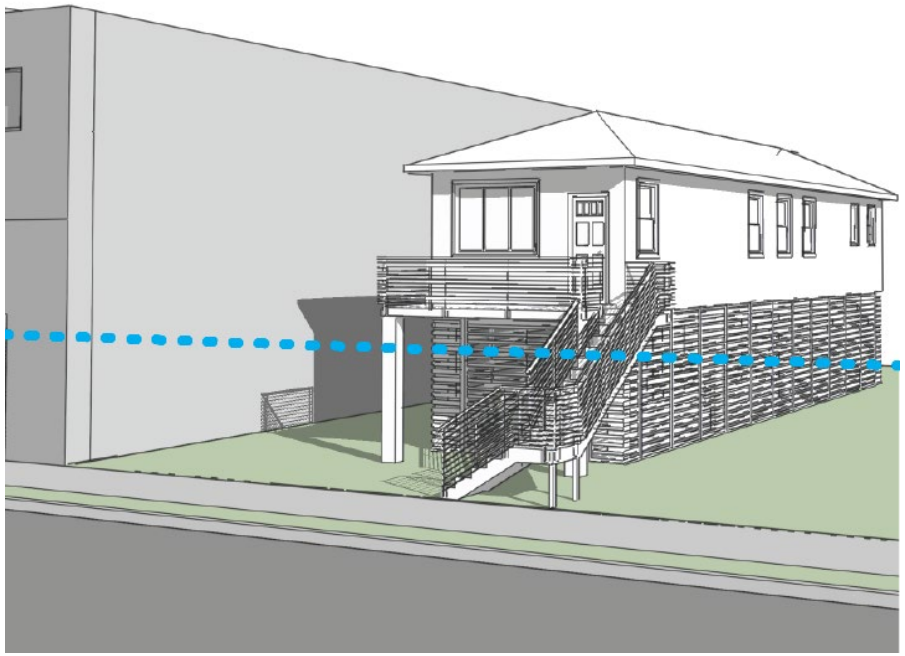
Zoning for Coastal Flood Resiliency

Future storm recovery

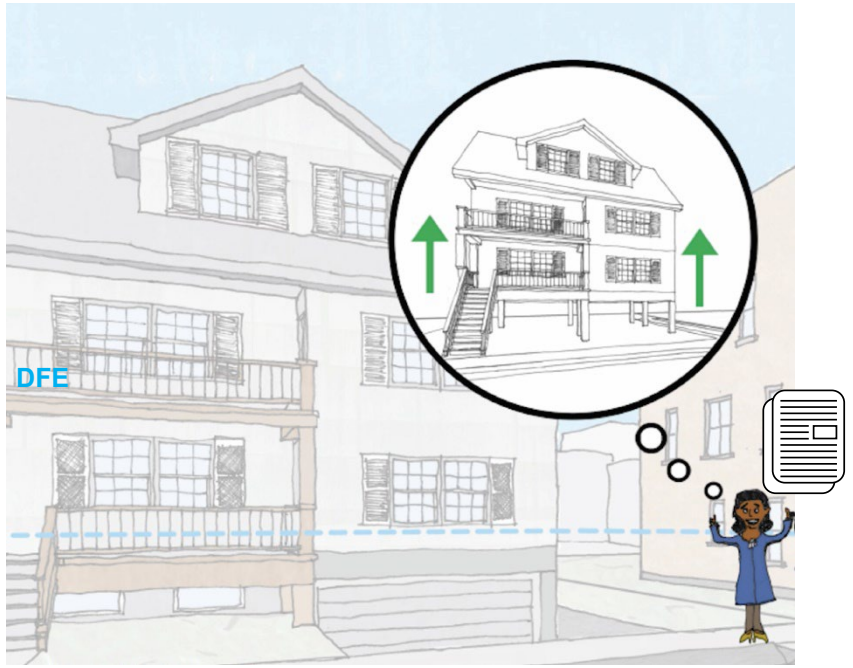


4. Facilitate future storm recovery



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

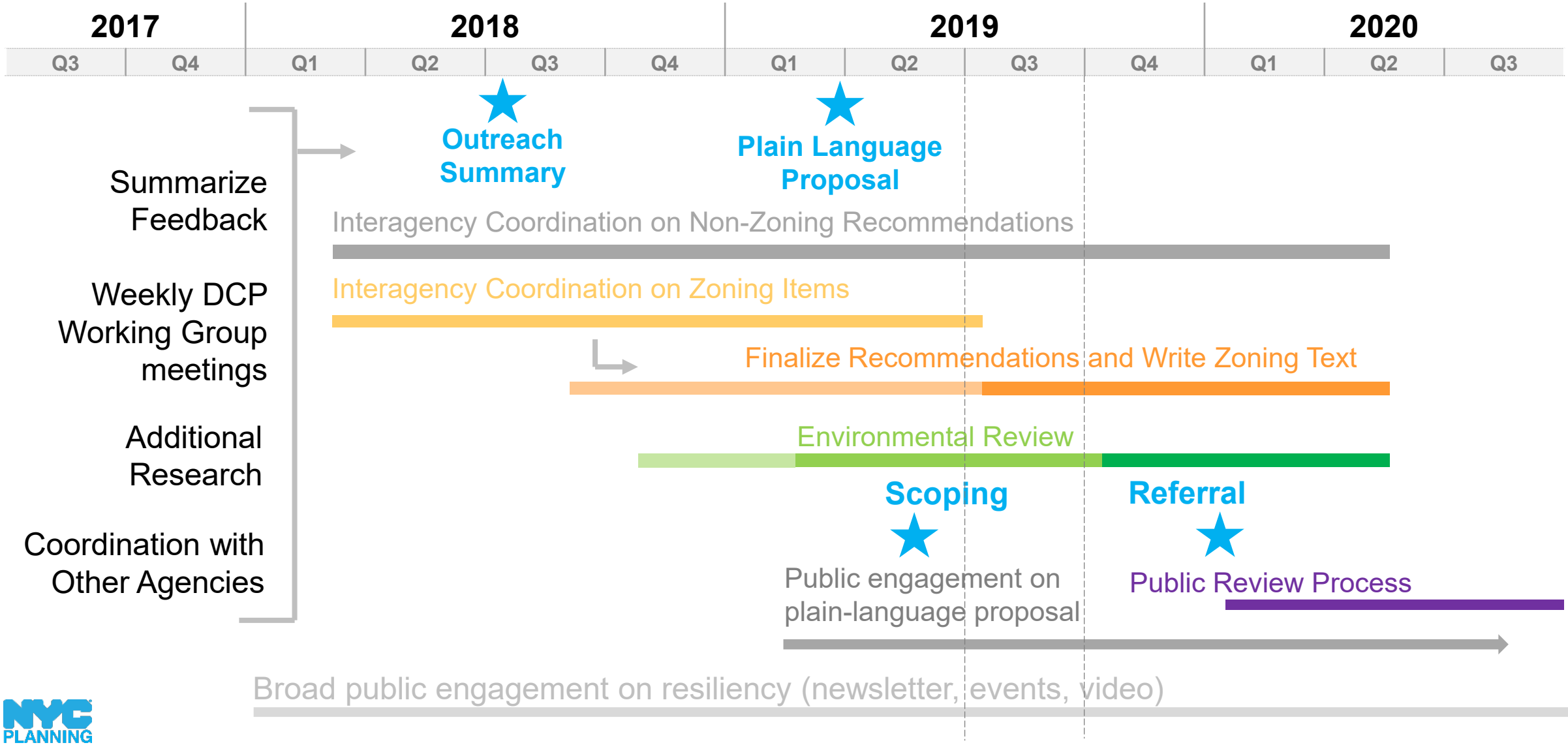
Zoning for Coastal Flood Resiliency

3. Project Timeline & Outreach Resources

Zoning for Coastal Flood Resiliency

Project Timeline

** Timeline subject to change*



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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

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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 d to your most valuable asset: you business.
- Even properties far from the coas risk of flooding.
- Homeowner and property insura cover damage by flooding. You n separate policy.
- Federal assistance is not guaran event of a flood.
- Many property owners are requi federal law to purchase and m insurance if the property is locat risk flood zone of the 2007 FIRM to right), has a federally backed has received federal disaster ass

How Much Flood Insura Must a Homeowner Pur

Properties with a federally backed in a high-risk flood zone and thos received federal disaster assistan maintain flood insurance up to the N limits, or the outstanding mortgage b whichever is lower. Failure to do so mortgage servicers to purchase a po property—possibly at a higher price- on the cost through monthly mortgag

Homeowners without a federally-b mortgage or outside a high flood carry up to the maximum policy limit with additional contents coverage av $100,000 for owners or renters. Co- multifamily buildings and business p be covered up to $500,000. Busines and tenants can also purchase up to contents coverage.

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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.

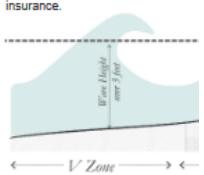
Flood Risks

Hurricanes, tropical storms, nor'e intense rain storms, and even ext tides are the primary causes of fl NYC.

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

- PFIRMs show the extent to whic waters are expected to rise duri event that has a 1% annual cha occurring. This height is denotec Flood Elevation (BFE) on the ma
- The 1% annual chance floodpla sometimes referred to as the 10 floodplain. However, this term is since these floods can occur mu within 100 years. In the 1% annu floodplain, there is a 26% chanc over the life of a 30-year mortga

For flood insurance purposes, rel 2007 Flood Insurance Rate Maps property owners of buildings in the 1 chance floodplain with a federally in mortgage are mandated by law to p insurance.



The 1% annual chance floodplain is divided different degree of flood risk. V and Coastal flooding but not wave damage. The maps al which has a lower annual chance of flooding

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Flood Resilience Zoning
www.nyc.gov/resilientneighborhoods

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 encou resilient building construction thr designated floodplains.

The Flood Text modified zoning to re regulatory barriers that hindered or p the reconstruction of storm-damaged by enabling new and existing buildin with new, higher flood elevations issu the Federal Emergency Managemen (FEMA), and to comply with new req the New York City Building Code.

It also introduced regulations to mitig negative effects of flood resilient con the public realm. The text was adopt on a temporary, emergency basis. Th future update of this text, guided by input, will aim to make the text perma incorporate lessons learned during th and rebuilding process.

Where is the Flood Text Applicable?

The Flood Text is available to build located entirely or partially within annual chance floodplain*.

These rules can be found in Article V of the Zoning Resolution and, if utiliz require the building to fully comply w resilient construction standards foun G of the New York City Building Cod some provisions, such as elevation d spaces, are available to all buildings the floodplain, even if not fully compl Appendix G.

For more information about the Floo www.nyc.gov/resilientneighborho

*Per the more restrictive of the 2007 FIRMs PFIRMs.

NYC Planning | March 2017 | Fl

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.

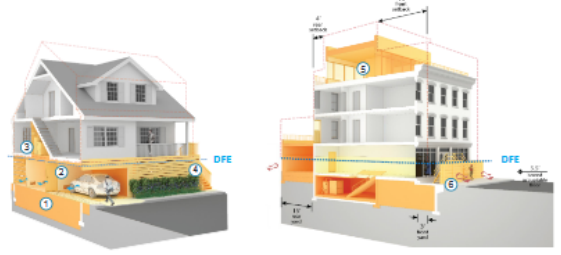
Overview

There is a wide range of accepted flood resilient construction practices for buildings to better withstand floods and reoccupy 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.



Wet floodproofed residential building

1. Site is filled to the lowest adjacent grade
2. Space below the DFE is for parking, building access or minor storage
3. Mechanical systems are above the DFE
4. Plants and stair turns improve the look of the building from the street

Dry floodproofed mixed-use building

5. Rooftop addition replaces lost below grade space
6. Commercial space is dry floodproofed with removable barriers

NYC Planning | November 2016 | Flood Resilient Construction

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