

Today's Agenda

- 1. Introduction | Context**
- 2. Outreach Process | Zoning issues identified by communities**
- 3. Preliminary Recommendations | Summary**
- 4. Project Timeline & Outreach Resources**

Zoning for Coastal Flood Resiliency

1. Introduction

Context



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

FEMA Flood Map

Flood Risk in Manhattan

NYC's flood risk is high.

The floodplain affects a large geography and most community boards and council districts.

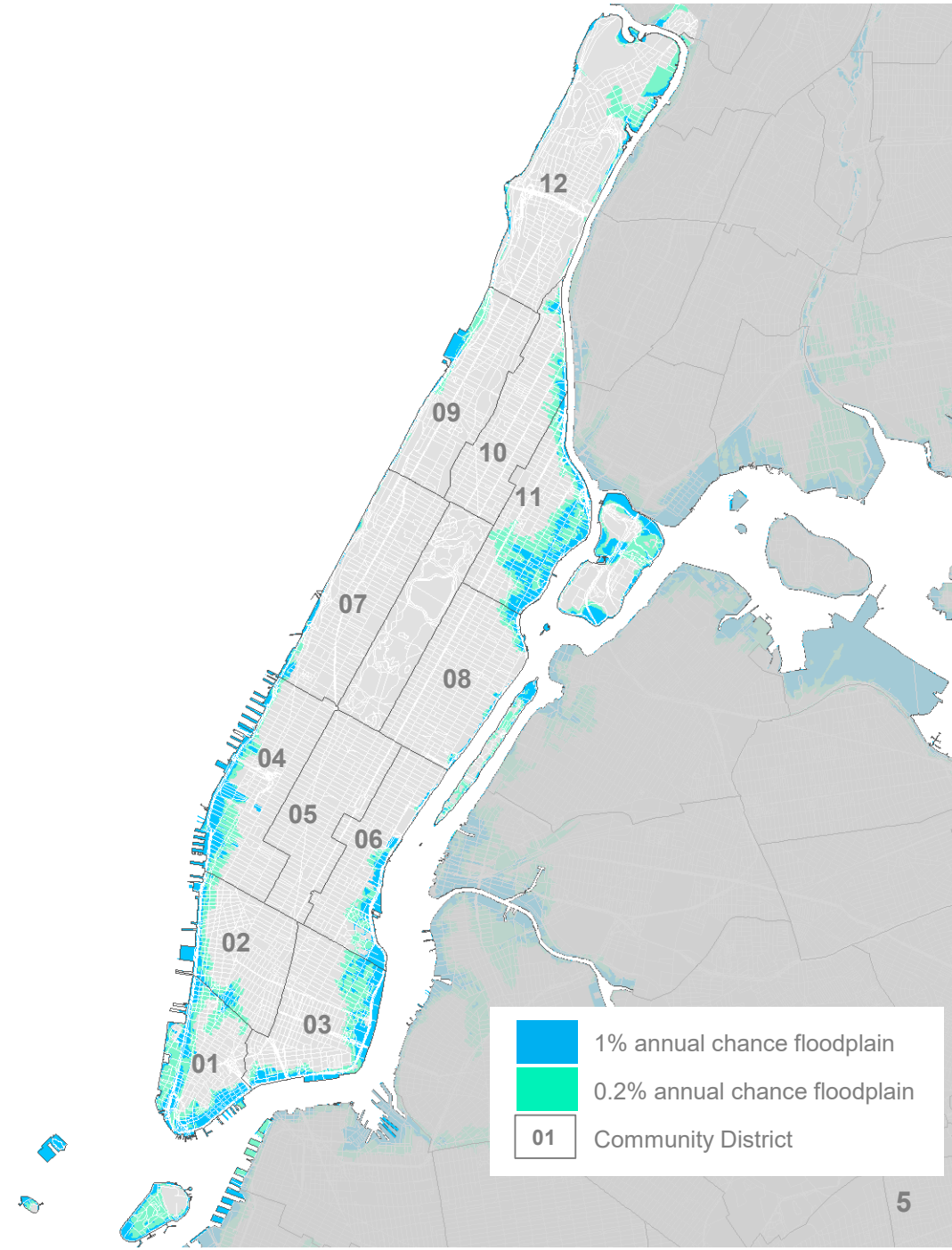
The vast majority of the floodplain is already developed.

	1% annual chance floodplain (FIRM+ PFIRM)	0.2% annual chance floodplain (FIRM+ PFIRM)	TOTAL
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Citywide Total # of Lots	65,582	36,723	102,305
Manhattan Total # of Lots	2,724	2,083	4,807

	1% annual chance floodplain (FIRM + PFIRM)	0.2% annual chance floodplain (FIRM+PFIRM)	TOTAL
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Citywide Total # of Buildings	80,907	44,636	125,539
Manhattan Total # of Buildings	3,461	2,276	5,737



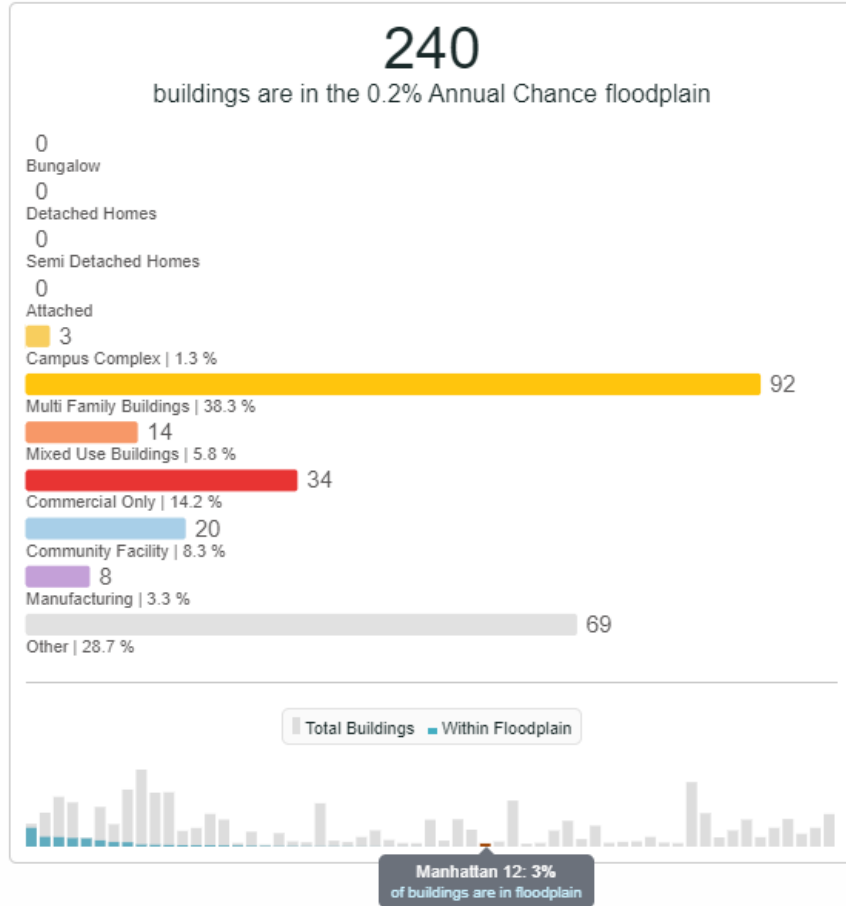
- 1% annual chance floodplain
- 0.2% annual chance floodplain
- 01 Community District

FEMA Flood Map

Flood Risk in Manhattan

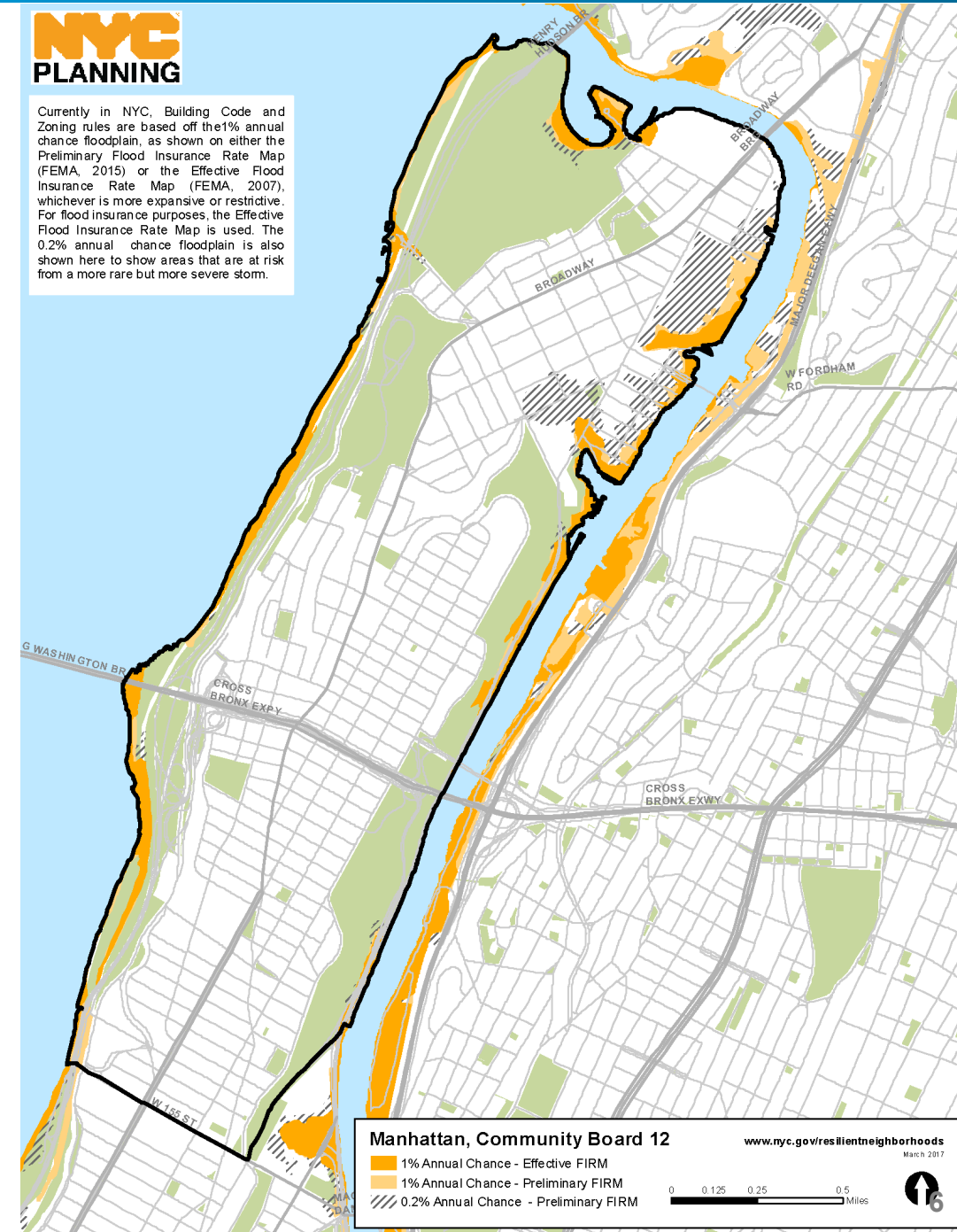
Buildings in the 1% and 0.2% Floodplains:
Manhattan Community District 12

Buildings in Floodplain ⁶



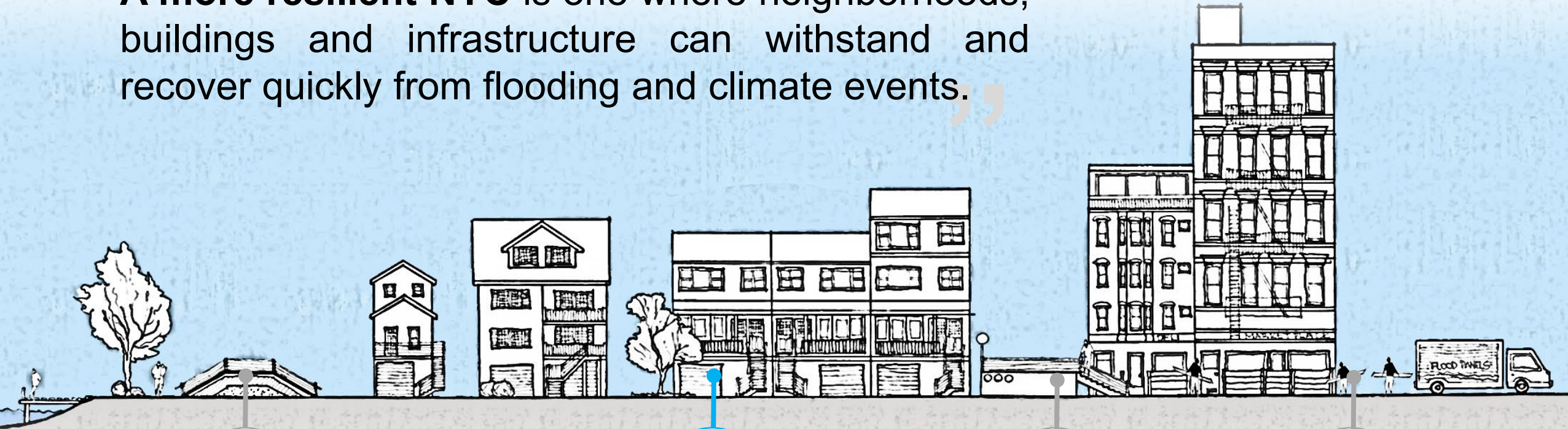
NYC
PLANNING

Currently in NYC, Building Code and Zoning rules are based off the 1% annual chance floodplain, as shown on either the Preliminary Flood Insurance Rate Map (FEMA, 2015) or the Effective Flood Insurance Rate Map (FEMA, 2007), whichever is more expansive or restrictive. For flood insurance purposes, the Effective Flood Insurance Rate Map is used. The 0.2% annual chance floodplain is also shown here to show areas that are at risk from a more rare but more severe storm.



#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?

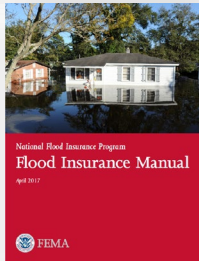


FEMA



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

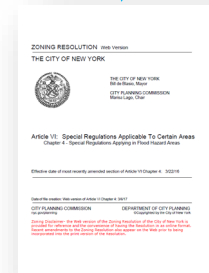
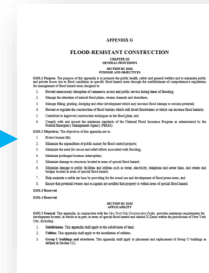
NYC

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



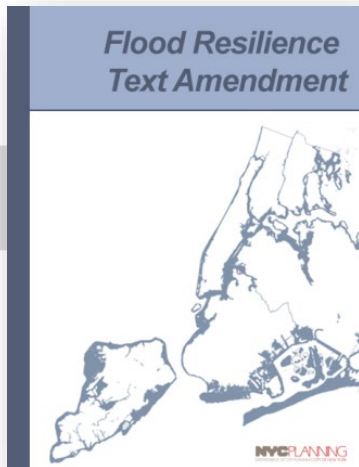
DCP's work since Sandy

Overview of Zoning Text Amendments

After Sandy, DCP issued 2 zoning text amendments that focused on facilitating Sandy's Recovery process

Post-Sandy

SHORT-TERM



2013 – FT1: Temporary provisions that **removed zoning barriers** to allow storm-damaged and new buildings to comply with higher flood elevations and resilient construction requirements (***expires 1 year after adoption of the new FIRMs***)



2015 – SRNR: **Simplified documentation requirements** and **removed additional zoning barriers** to give extra relief and accelerate post-Sandy recovery in certain areas that were heavily damaged by Sandy (***expires 2020***)



**Facilitate
Sandy Recovery**

Zoning for Coastal Flood Resiliency

2. Outreach Process

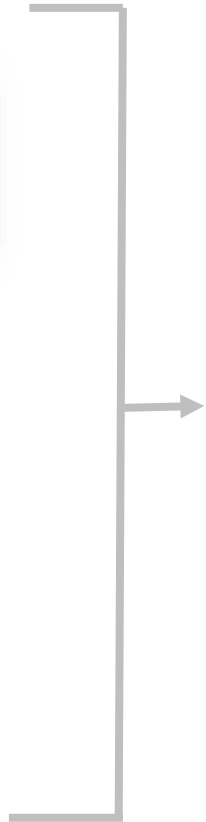
Zoning issues identified by communities

DCP's work since Sandy

Overview of Outreach



**Citywide /
Neighborhood
Studies**
(2014-2017)



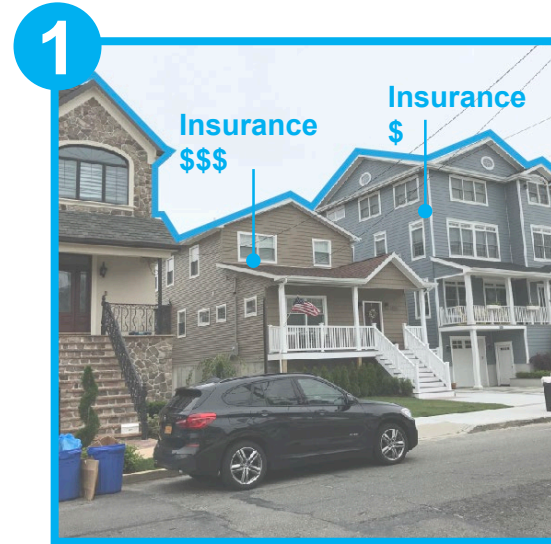
**Community Outreach
(2016-2018)
Workshops**
*Learn about other challenges
communities faced*

We have briefed **2,500** stakeholders at **138** events since August 2016.

- **10** Council Members
- **5** Borough Presidents & Borough Boards
- **35** Community Boards
- **16** Civic Associations
- **12** Non-Profits
- **15** Other Public Events
- **6** Architect Workshops
- **7** Community Workshops

Overview of zoning issues identified by communities

From Community Outreach Summary document



1. More flexibility with height
2. Make the Cottage Envelope permanent
3. Allow homes in industrial areas to recover
4. Need better design controls
5. Keep active uses at the sidewalk level
6. More options for businesses to retrofit

Zoning for Coastal Flood Resiliency

3. Preliminary Recommendations Summary

Land Use Planning in the Floodplain

Citywide vs. Local Approach

Zoning for Coastal Flood Resiliency

Where flood risk is high, including where sea level rise will lead to future daily tidal flooding

Where risk from extreme events can be managed through infrastructure and context can support growth

Flood risk and Land Use Considerations

Limit Density

In some areas, there is a need to limit future density, as to decrease the exposure to damage and disruption.

Support Planned Density

Adjust zoning to allow all buildings to meet resiliency standards, by providing flexibility and removing zoning obstacles.

*Zoning for Flood Resiliency
(citywide)*

Encourage Density

In other areas, the city can encourage new development, as to increase the resilient building stock.

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

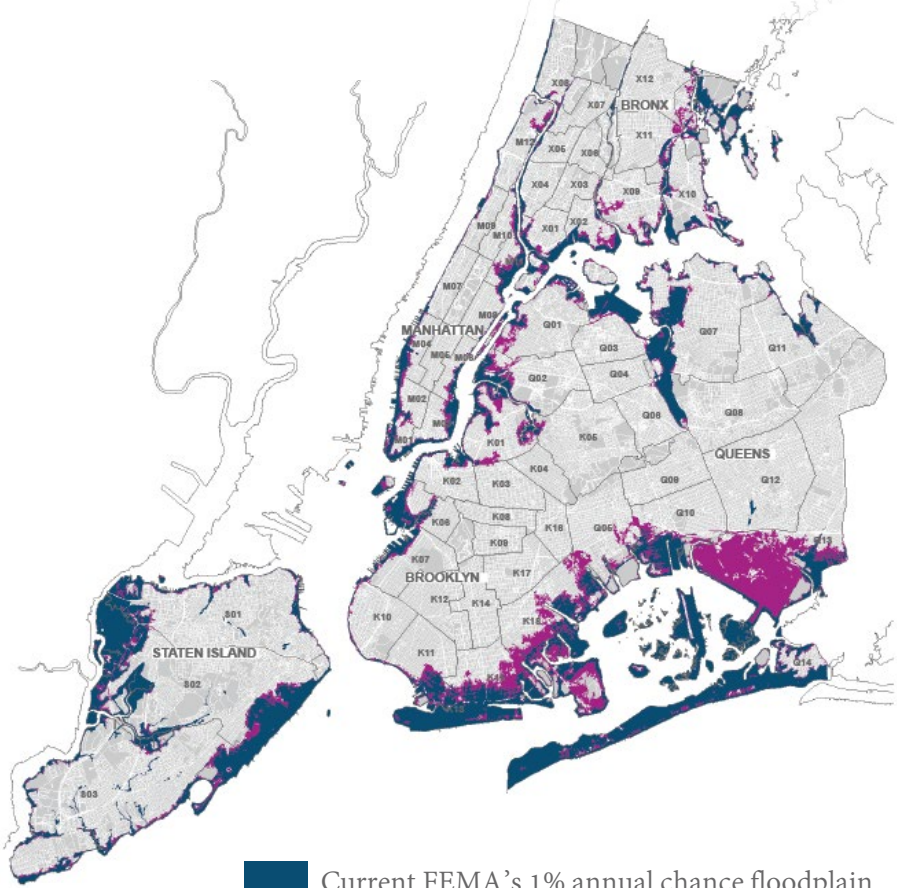
Zoning for Coastal Flood Resiliency

An expanded geography

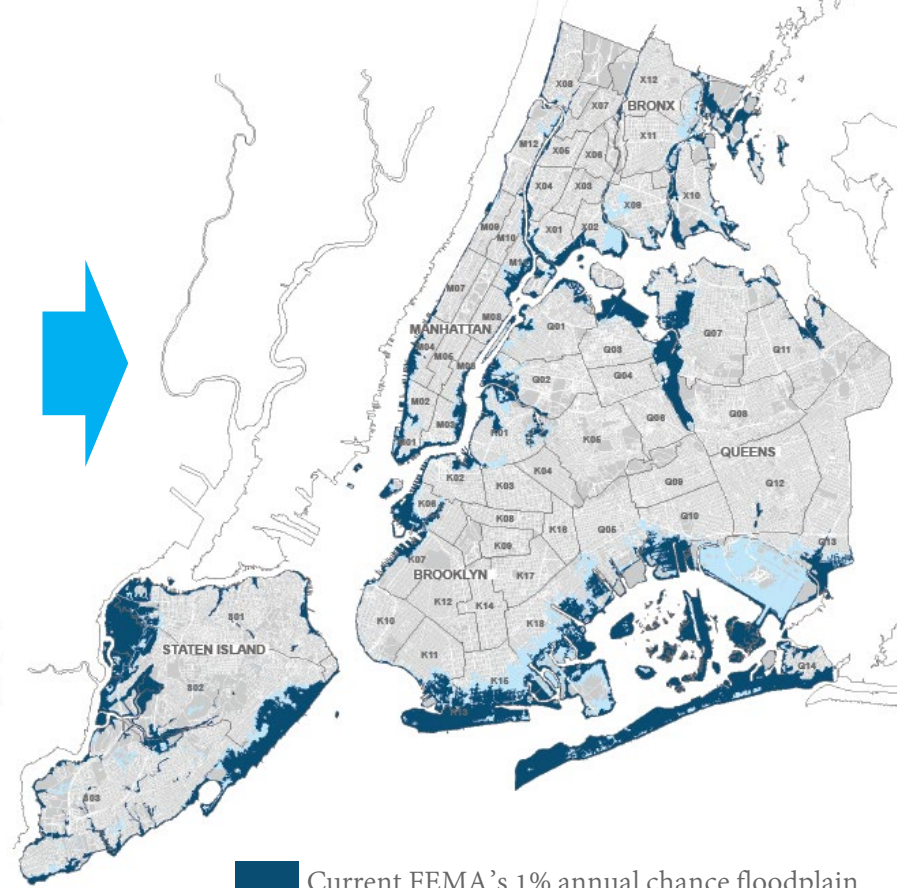
Building owners in both the city's 1% and 0.2% annual chance floodplains would be able to invest in resiliency improvements to fully meet or exceed flood-resistant construction standards, even when these standards are not required by the Federal Emergency Management Agency (FEMA) and NYC's Building Code.



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



■ Current FEMA's 1% annual chance floodplain
■ 2050's 1% annual chance floodplain

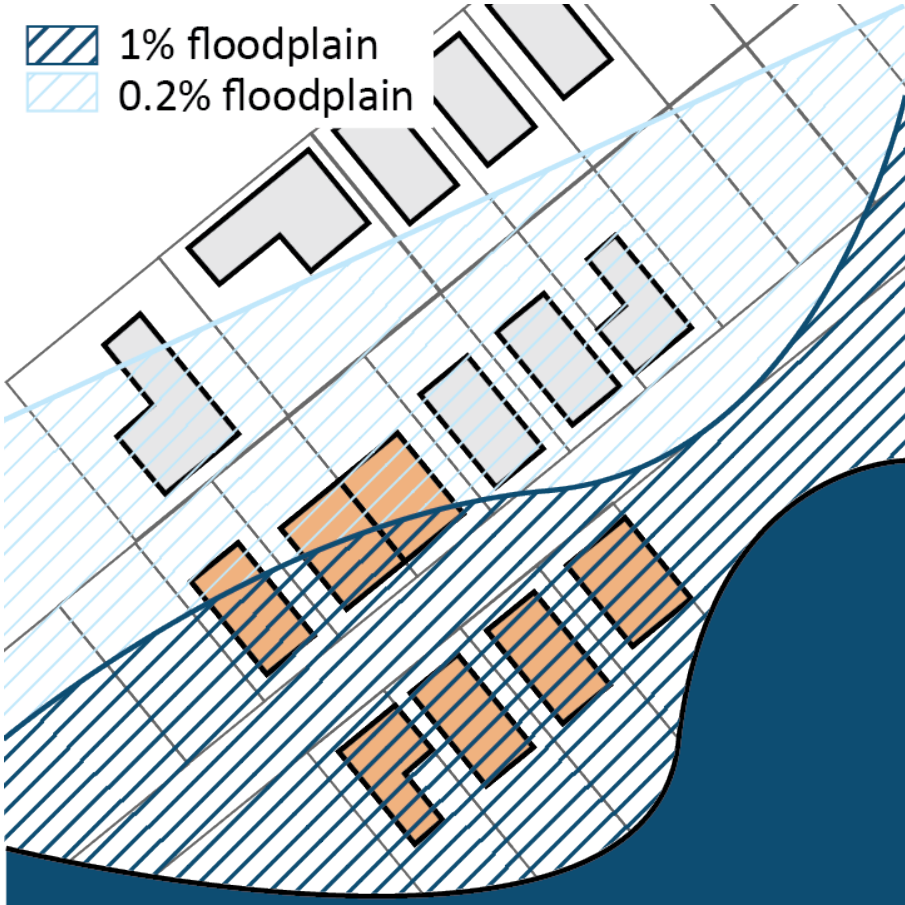


■ Current FEMA's 1% annual chance floodplain
■ Current FEMA's 0.2% annual chance floodplain

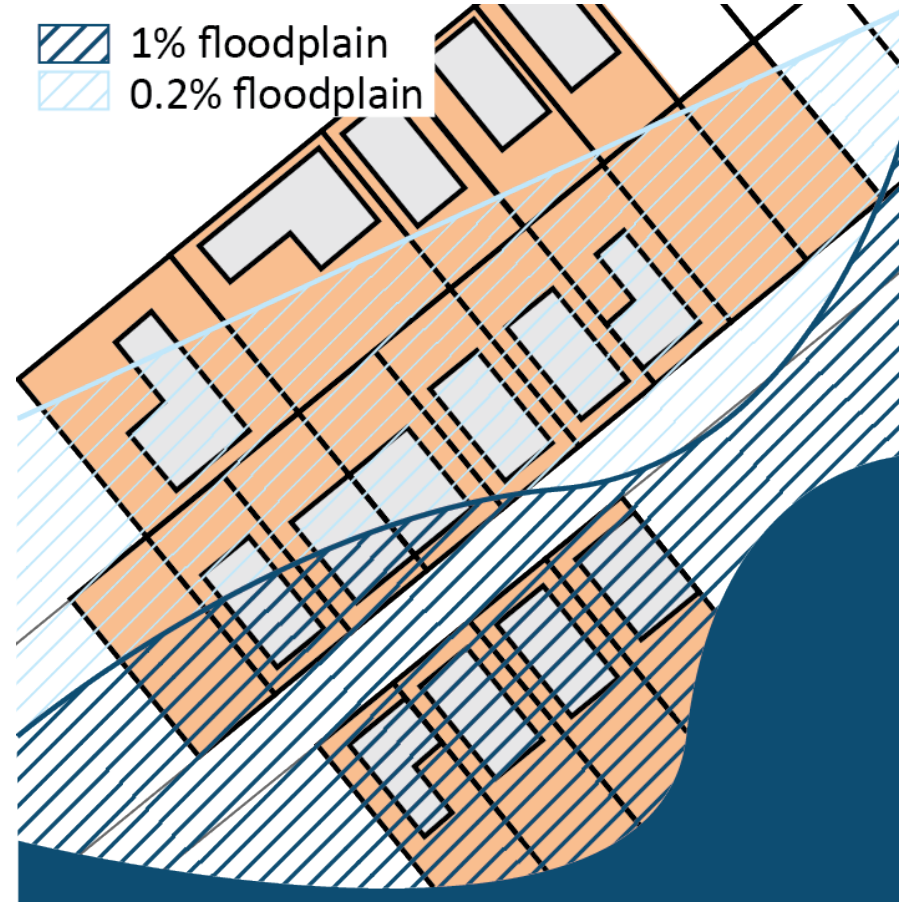
Applicability

General Applicability

Permanent regulations would facilitate buildings to **proactively** incorporate resiliency improvements to fully meet **or exceed** *flood-resistant construction standards* while maintaining the same allowable *Building Envelope*.



Existing Rules: apply to buildings within the 1% floodplain

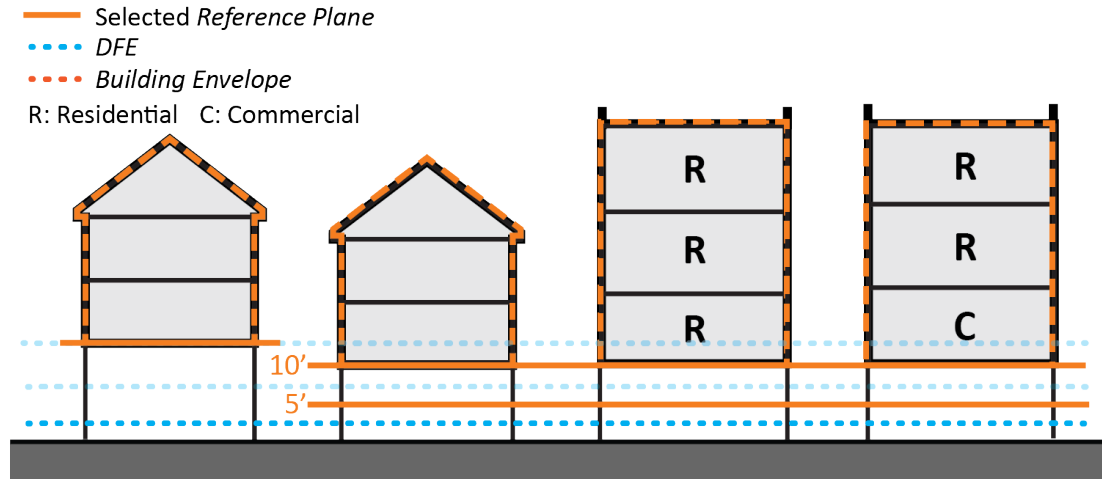
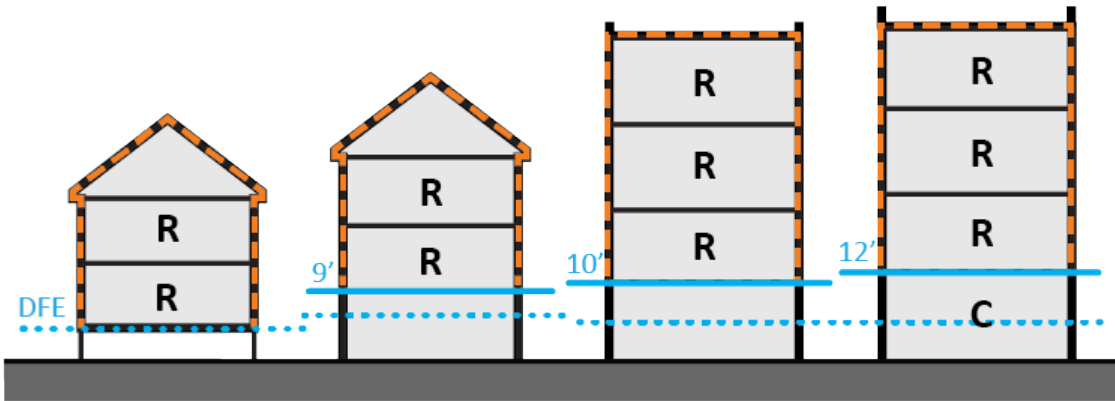


Proposed Rules: apply to lots within the 0.2% floodplain

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

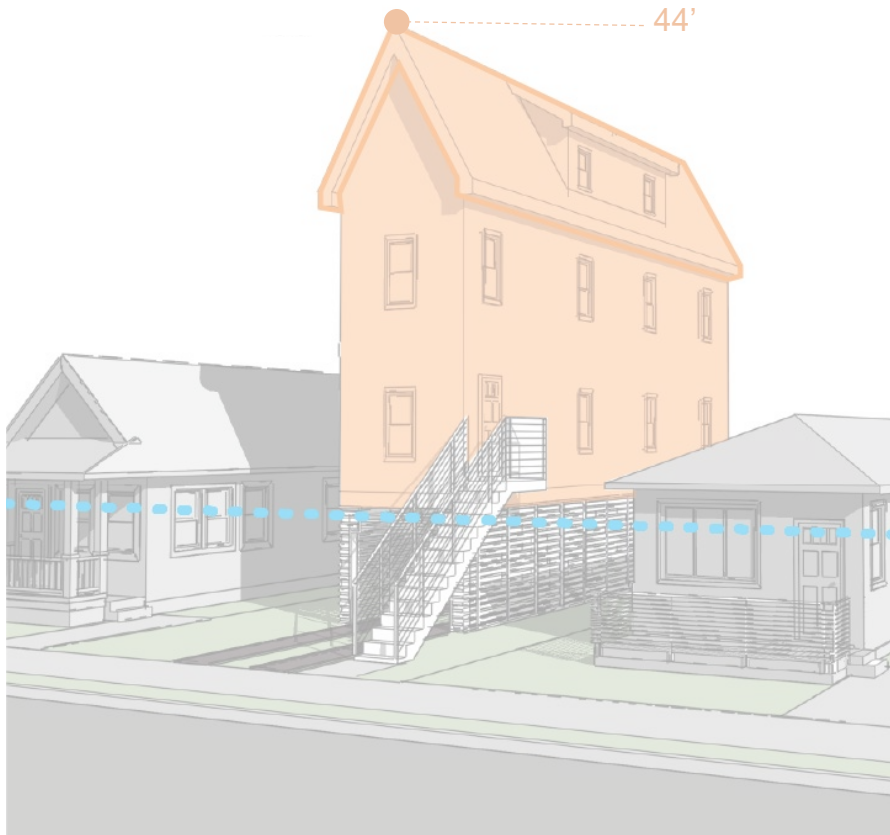
Proposed Rules: DFE or a Reference Plane (up to 10' or 5') available to all lots in the 1% and 0.2% floodplains, respectively

Updated Item

Building Envelope

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



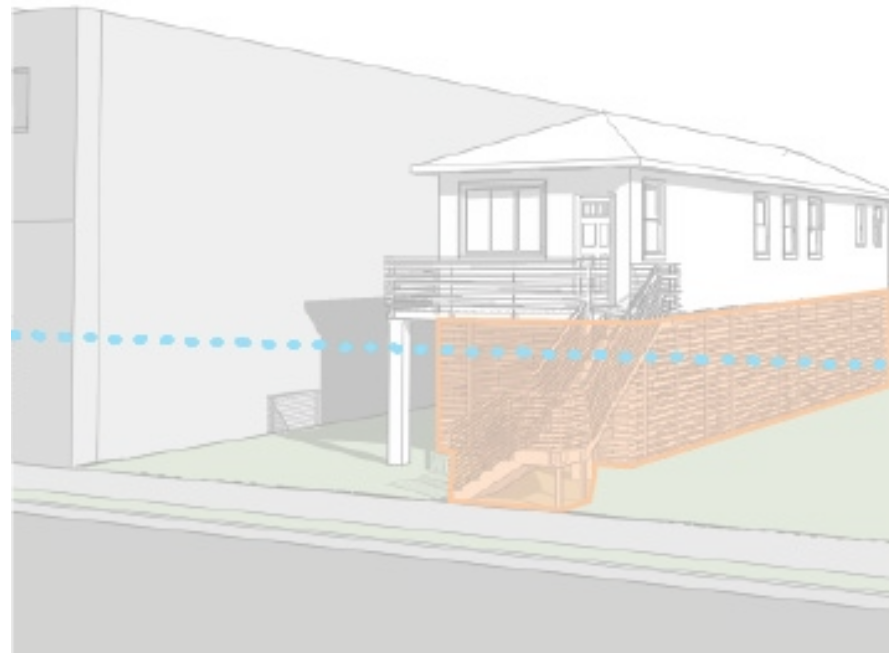
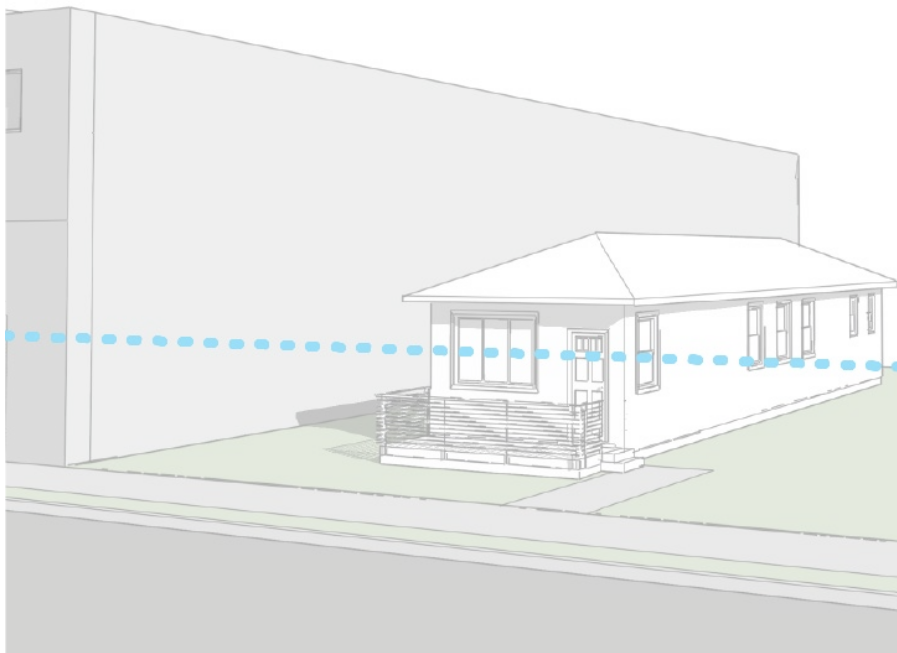
Proposed Rules: maximum height of 25' as measured from the DFE up to 10' Reference Plane

Updated Item

Building Envelope

Existing Buildings

Regulations would allow the reconstruction, enlargement or alteration of a **greater range of existing non-complying and/or non-conforming buildings to meet or exceed flood-resistant construction standards.**



Existing Rules: homes in M/C8 districts cannot be retrofitted or rebuilt

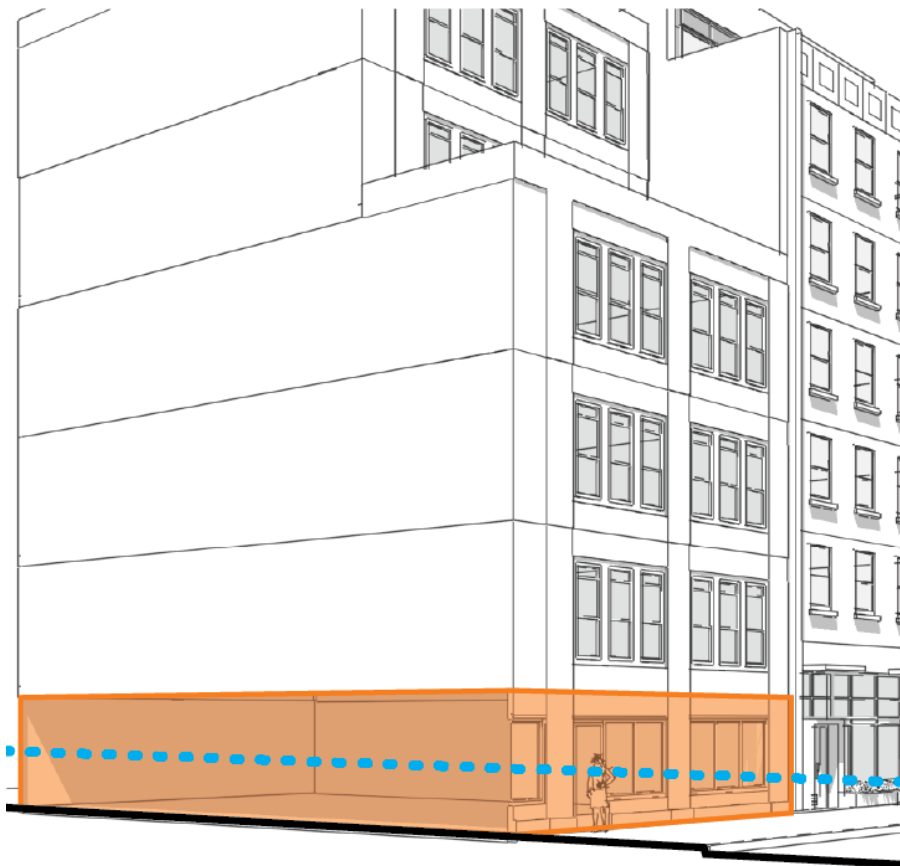
Proposed Rules: homes in M/C8 districts can be retrofitted or rebuilt

New Item

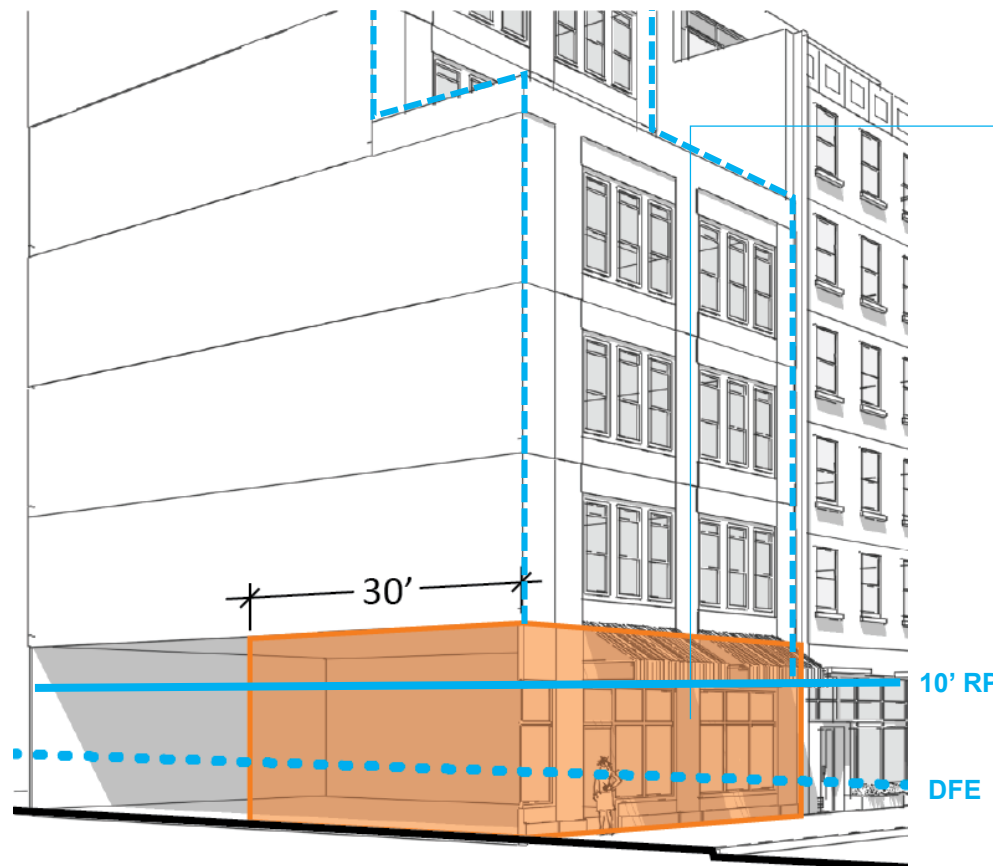
Building Design

Floor Area Exemptions

Floor Area regulations would exempt floor area to encourage new and existing buildings to meet **or exceed flood-resistant construction standards, while ensuring quality ground-floors that are kept at street level.**



Existing Rules: entire ground-floor is exempted if > half of the floor-to-ceiling height is below the DFE



Design Requirements
Require transparency and quality ground-floors

And for wet-flood proofed ground floors

Or to provide internal access or mechanical equipment

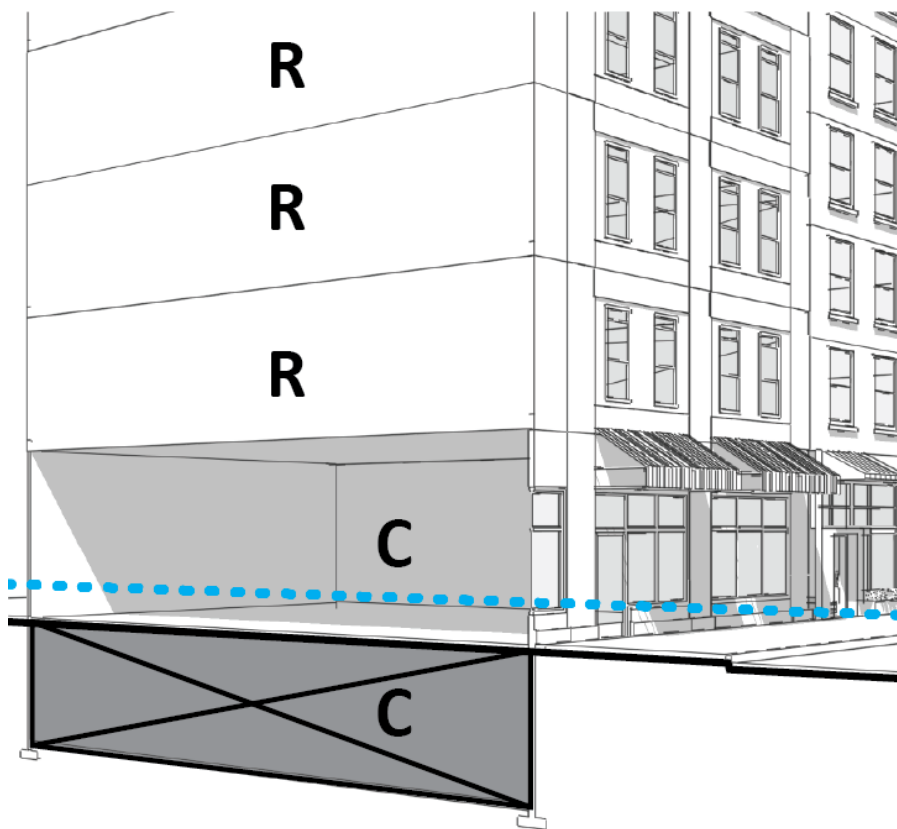
Proposed Rules: a portion of the ground-floor is exempted if meeting design requirements

Updated Item

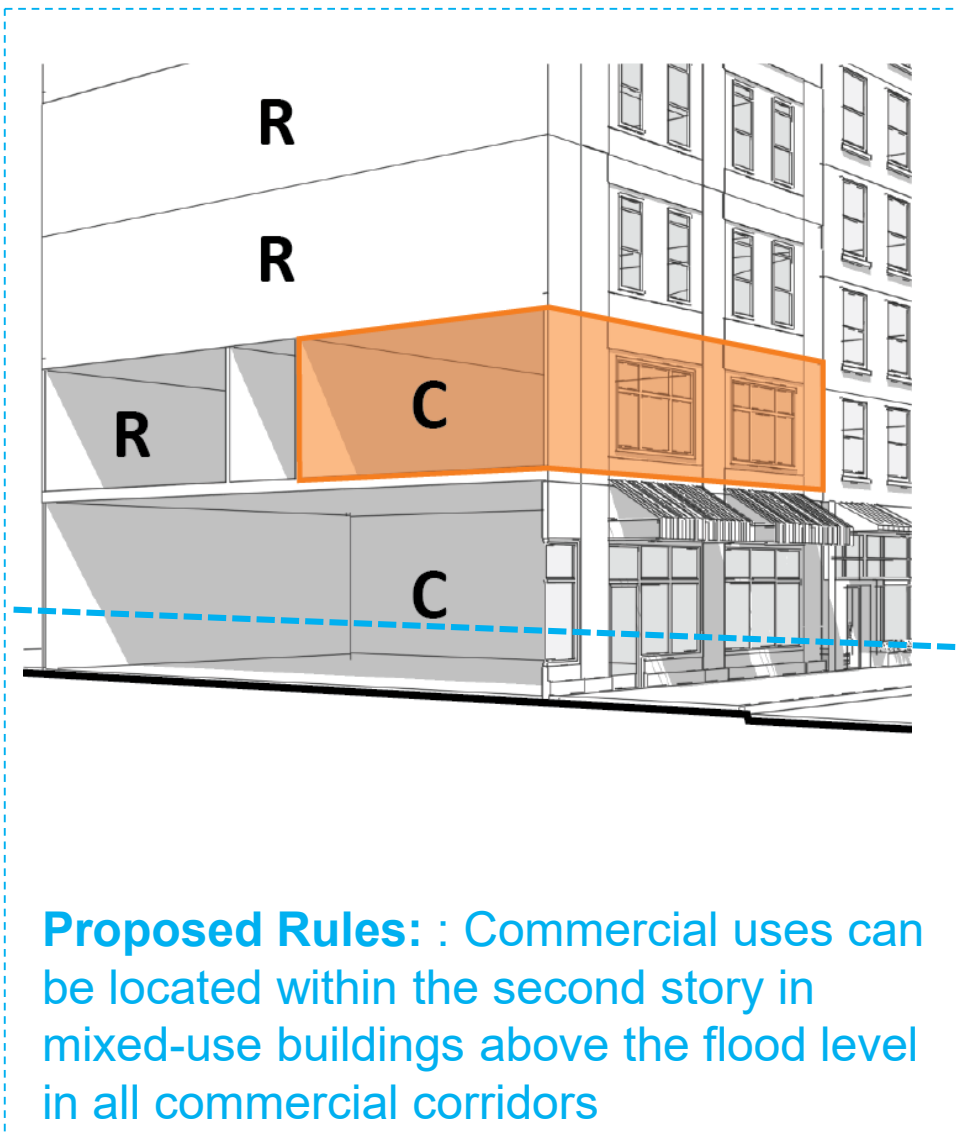
Building Design

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

Streetscape Regulations

Streetscape regulations would promote walkability across the city's **floodplain** by ensuring an accessible design that makes the streetscape more inviting while mitigating additional height.



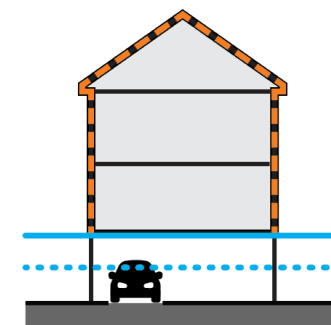
Existing Rules: Few design options to help mitigate potential blank walls



Proposed Rules: Wider range of design options to make the streetscape more inviting while mitigating additional height

Parking

Flexible curb-cut rules allow for parking below elevated homes (R1-R5)

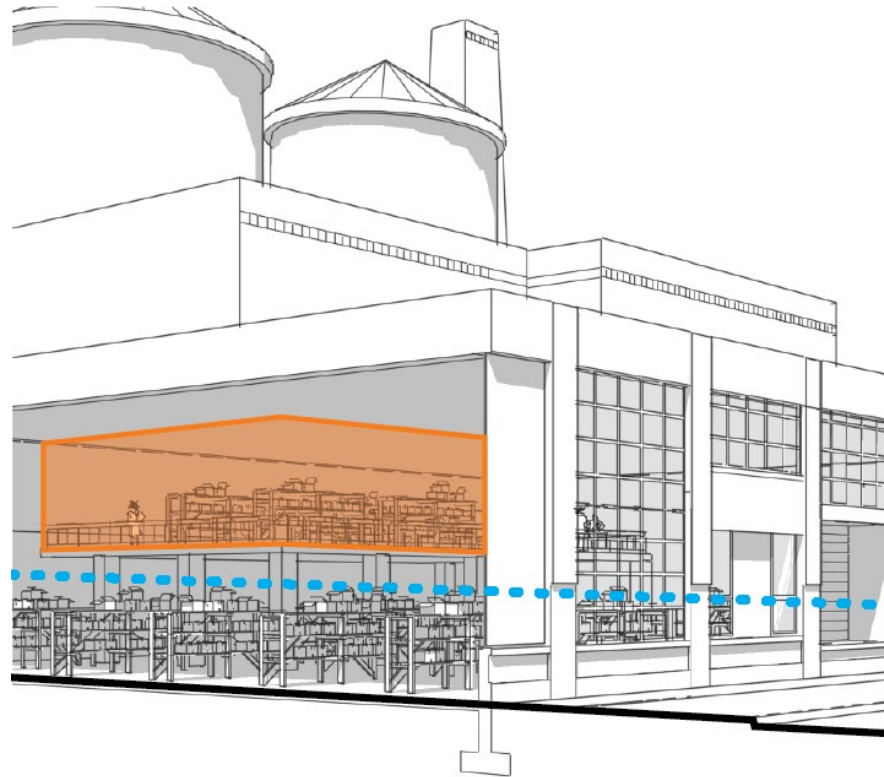
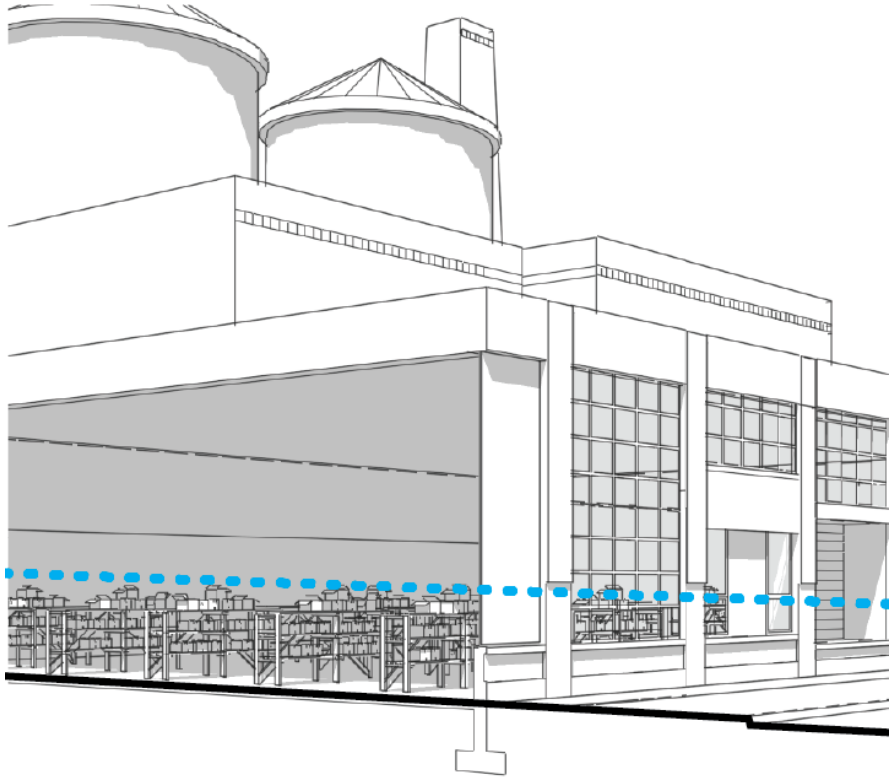


Updated Item

Partial Resiliency Strategies

Floor Area Exemption

Industrial buildings can create small mezzanine or 2nd floor to store important space/equipment



Existing Rules: Existing industrial buildings may not have enough floor area to elevate important equipment/spaces

Proposed Rules: Floor area can be exempted to facilitate the placement of important equipment/spaces above the flood level within small mezzanines

New Item

Partial Resiliency Strategies

Mechanical Equipment

Permitted obstruction and floor area regulations would facilitate the placement of **MEP equipment** above the **DFE**, including emergency generators within or outside of buildings, including within separate **MEP buildings**.

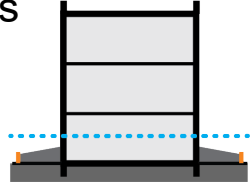


Existing Rules: Additional flexibility with permitted obstructions facilitate mechanical equipment to be relocated to the roof of buildings

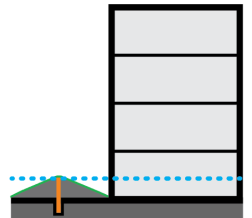


Proposed Rules: Additional flexibility to facilitate mechanical, electrical and plumbing equipment to be placed on the roof or in a separate structure

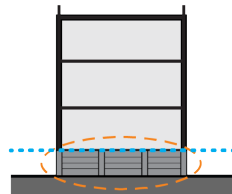
Or to build retaining walls and raise yards



Or to build berms



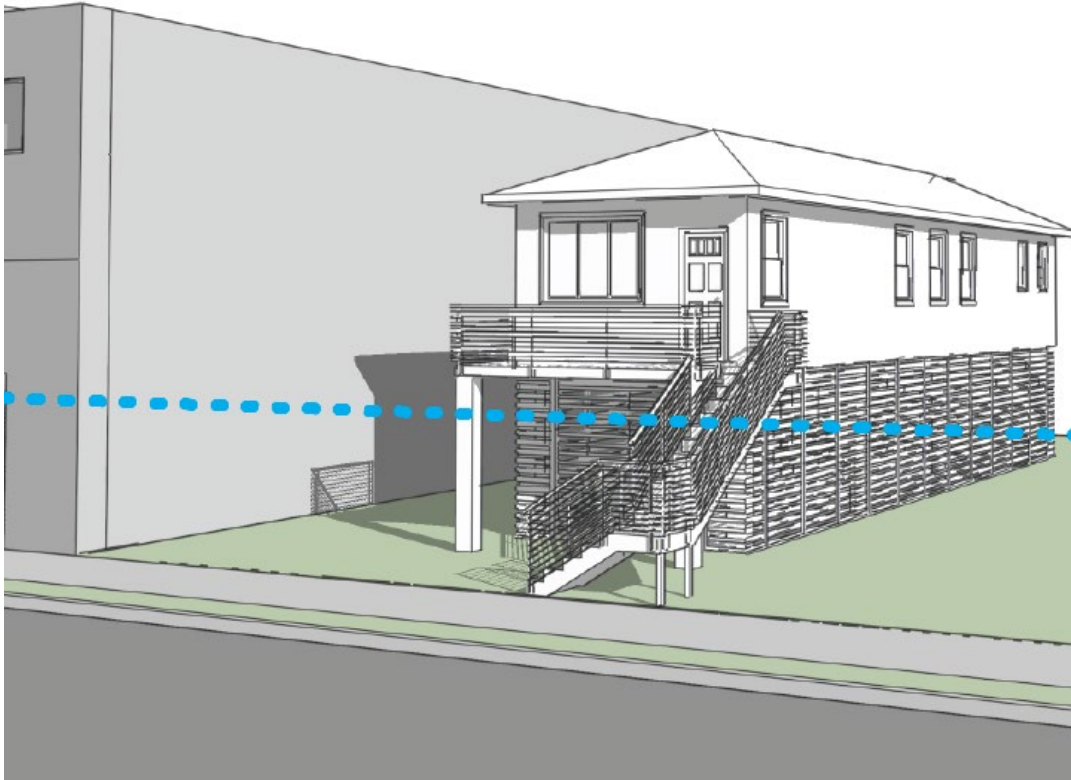
Or deploy flood panels



Updated Item

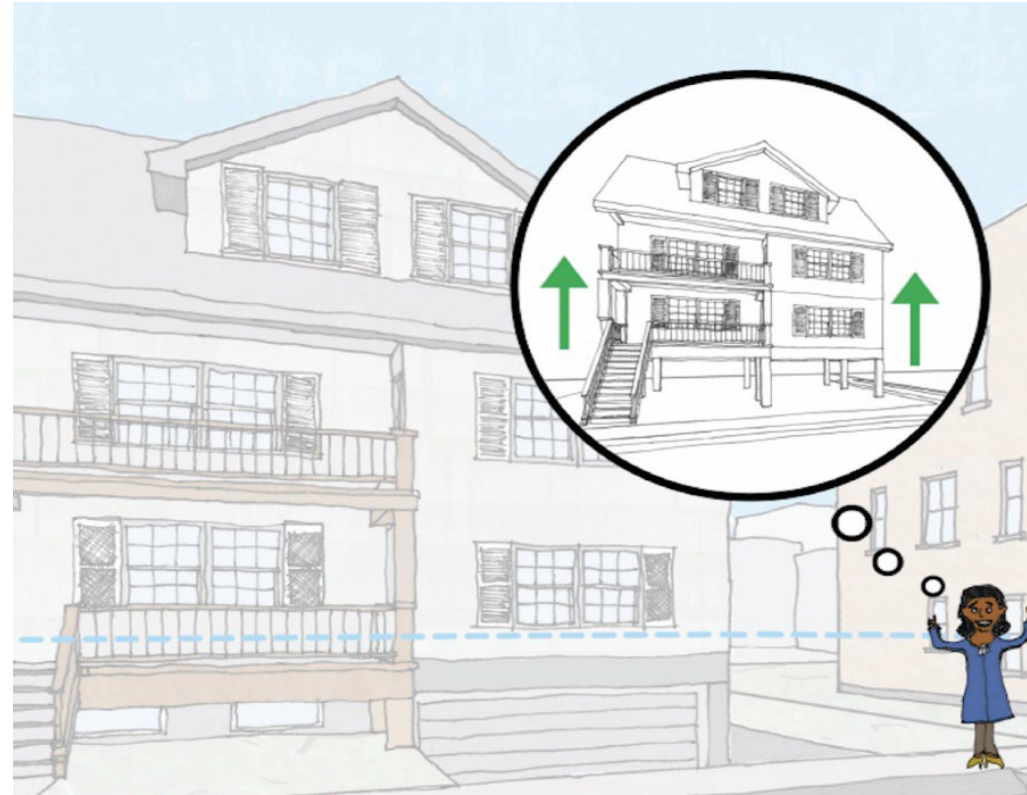
Emergency Rules

Regulations would facilitate the reconstruction of existing non-complying and/or non-conforming buildings that were **damaged by a future disaster in future recovery area.**



Reconstruction allowances

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



Documentation process

Aerial photographs and tax bills can be used to establish the existence of a building// Survey prepared by a land surveyor may be used to document non-compliances

New Item

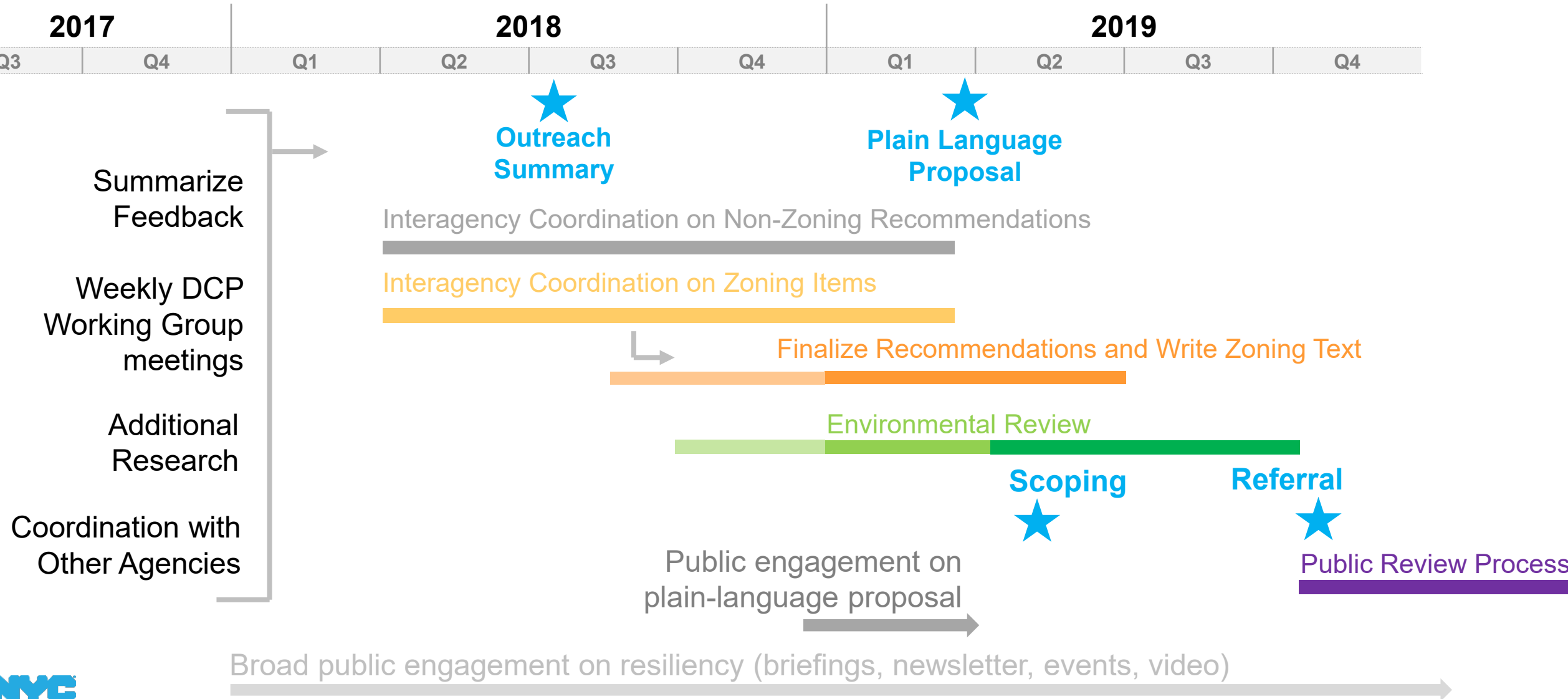
Zoning for Coastal Flood Resiliency

4. Project Timeline & Outreach Resources

Zoning for Coastal Flood Resilience Update (FT2)

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 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 FIRM (to the right), has a federally backed mortgage, and 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 have 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-located multifamily buildings and business properties may also purchase up to 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.

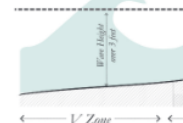
Flood Risks

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 Risk Rate Maps (PFIRMs).

- PFIRMs show the extent to which waters are expected to rise during an event that has a 1% annual chance of occurring. This height is denoted as Flood Elevation (FE) 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 since these floods can occur more frequently than once in 100 years. In the 1% annual chance floodplain, there is a 26% chance over the life of a 30-year mortgage.

For flood insurance purposes, refer to FEMA's 2007 Flood Insurance Rate Maps (FIRMs). Property owners of buildings in the 1% annual chance floodplain with a federally backed mortgage are mandated by law to purchase flood insurance.



NYC Planning | November 2016

NYC PLANNING Info Brief 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 encourages resilient building construction throughout designated floodplains.

The Flood Text modified zoning to remove regulatory barriers that hindered or prevented the reconstruction of storm-damaged buildings by enabling new and existing 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 public input, will aim to make the text more comprehensive by incorporating 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 24 of the Zoning Resolution and, if utilized, require the building to fully comply with resilient construction standards found in the Code of the New York City Building Code. Some provisions, such as elevation requirements, 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.

*Per the more restrictive of the 2007 PFIRMs and FIRMs.

NYC Planning | March 2017 | Flood Resilience Zoning

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 options for flood resilient construction.

- Elevating mechanical equipment and utility
- Wet floodproofing
- Flood elevating and out of unit
- Dry floodproofing

Examples

Visit www.nyc.gov



NYC Planning |

NYC PLANNING Info Brief Zoning for Coastal Flood Resiliency

Zoning for Coastal Flood Resiliency seeks to enable and help promote resilient buildings throughout the city's current and future floodplains. This set of zoning recommendations would provide homeowners, business owners and practitioners living or working in the city's floodplain, the option to design or otherwise retrofit buildings to reduce damage from future flood events, (b) be resilient in the long term, and (c) potentially save on long-term flood insurance costs. These recommendations build upon the NYC Department of City Planning's (DCP) work with communities throughout the floodplain since Hurricane Sandy in 2012, which identified zoning and land use strategies to help reduce flood risks and support the city's vitality and resiliency through long-term adaptive planning. As a result, DCP is proposing to make permanent and improve upon existing zoning rules that were adopted on a temporary, emergency basis following Sandy, which are set to expire in the next couple of years. More information about this effort can be found in the Zoning for Coastal Flood Resiliency document that describes DCP's preliminary recommendations to a zoning text amendment that will enter the public review process later in 2019.



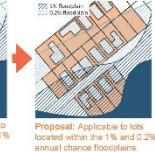
Features of the preliminary recommendations include:

Goal 1.

Encourage resiliency throughout the city's current and future floodplains

Applicability

Zoning for Coastal Flood Resiliency would expand the applicability of optional zoning rules that currently apply within the city's 1% annual chance floodplain to also include areas that will be subject to high-risk of flooding in the future. These rules would help facilitate buildings owners in both the 1% and 0.2% annual chance floodplains to proactively invest in resiliency improvements by either installing or upgrading flood-resistant construction elements, even when these standards are not required by FEMA and the NYC Building Code.

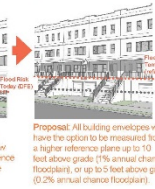


Goal 2.

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

Height Allowances

Zoning for Coastal Flood Resiliency would address the wide variety of building conditions and degrees of risk from coastal flooding found in the city's floodplain by offering the option to new and existing buildings to meet flood-resistant construction standards, but also to exceed them if a building owner decides to include future sea level rise projections when designing or retrofitting a building. This means that building owners would be able to proactively locate all living spaces and important equipment to higher elevations of protection. This precautionary approach helps make the building safer in the long term, decreasing the chance of property damage in the event of a future storm. It may also assist in the reduction of flood insurance costs.



NYC Planning | May 2019 | Zoning for Coastal Flood Resiliency