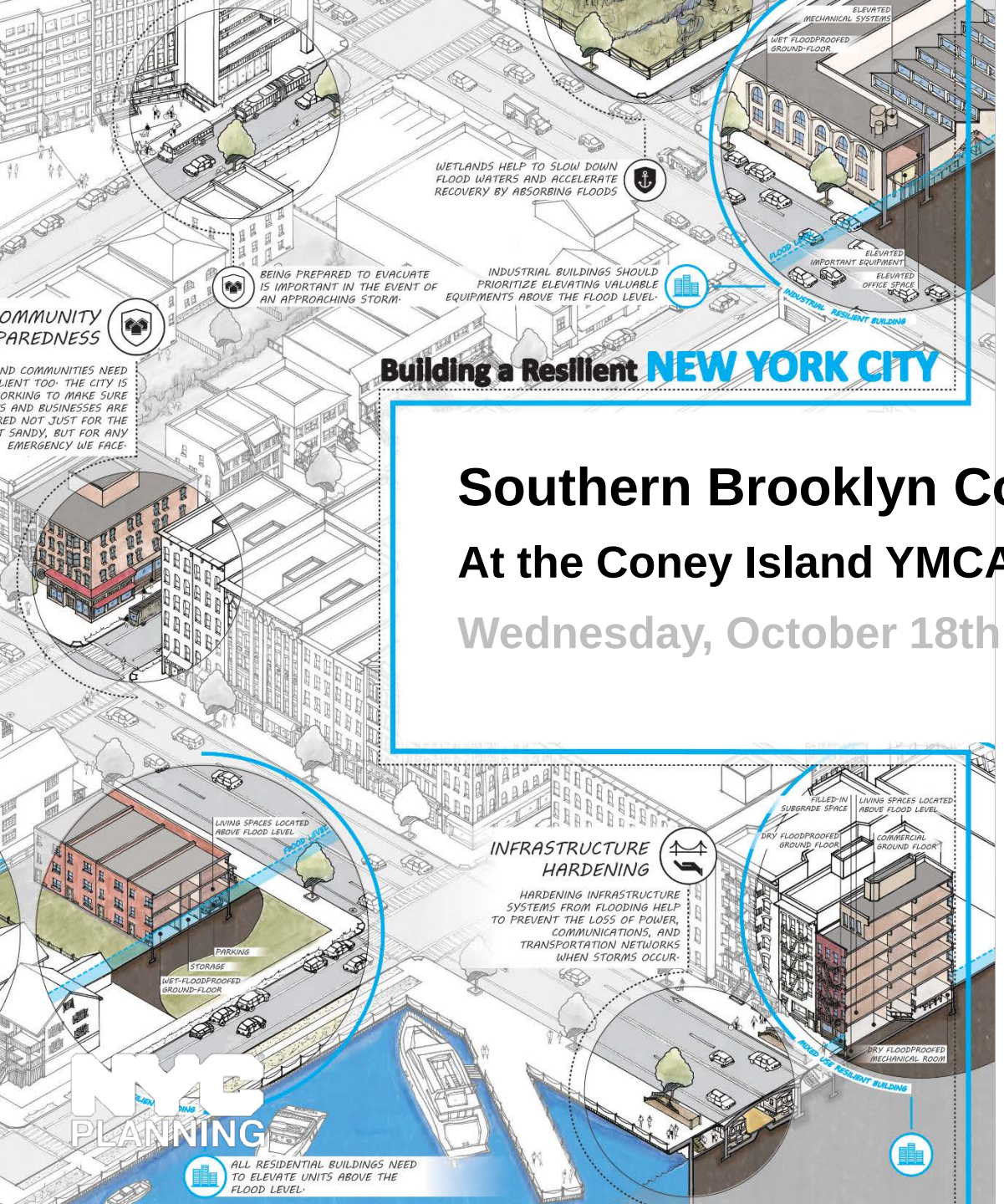

Zoning for Flood Resilience

Southern Brooklyn Community Workshop

At the Coney Island YMCA

Wednesday, October 18th – 6:30pm – 8:30pm

Zoning for Flood Resilience
Workshop Agenda

Agenda:

1. Welcome and introduction – 10 min
2. Overview of zoning for flood resilience – 15 min
3. Table activity and discussion: How can zoning help achieve building-scale resilience? – 45 min
4. Open house: Explore our stations –
    - FloodHelpNY,
    - Build It Back,
    - Parks & Recreation,
    - Resiliency @ NYCHA,
    - Emergency Management

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Zoning for Flood Resilience
Workshop Agenda

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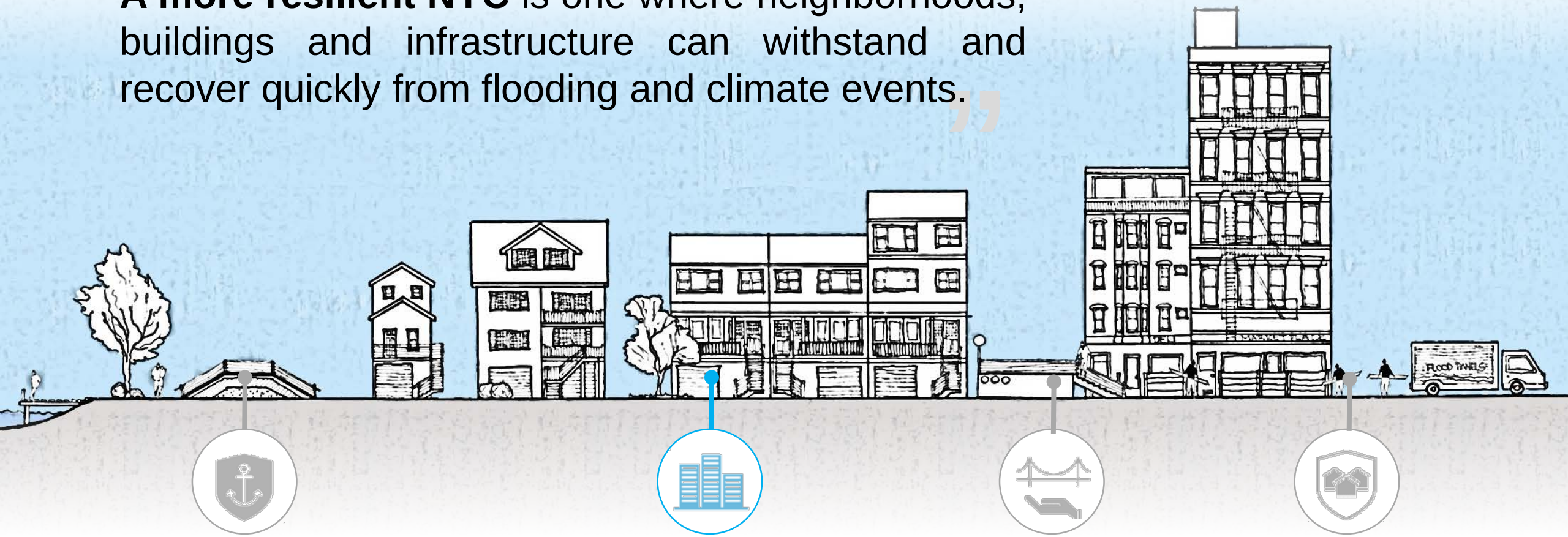
#ONENYC

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



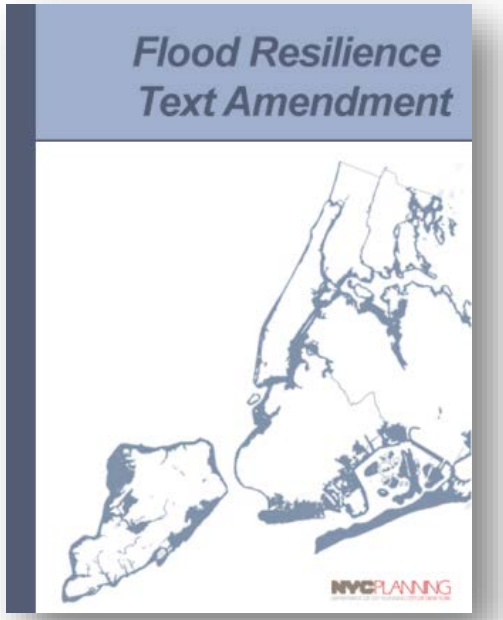
Coastal defenses
are strengthened as first line of defense against flooding
rmy Corps of Engineers, NYS DEC, NYC DPR

Buildings
are designed to withstand and recover from flooding
FEMA, DCP, DOB, HRO, NYCHA

Infrastructure is protected from climate hazards
DOT, DEP, DDC, Utility Companies, MTA

Residents and businesses
are prepared
OEM

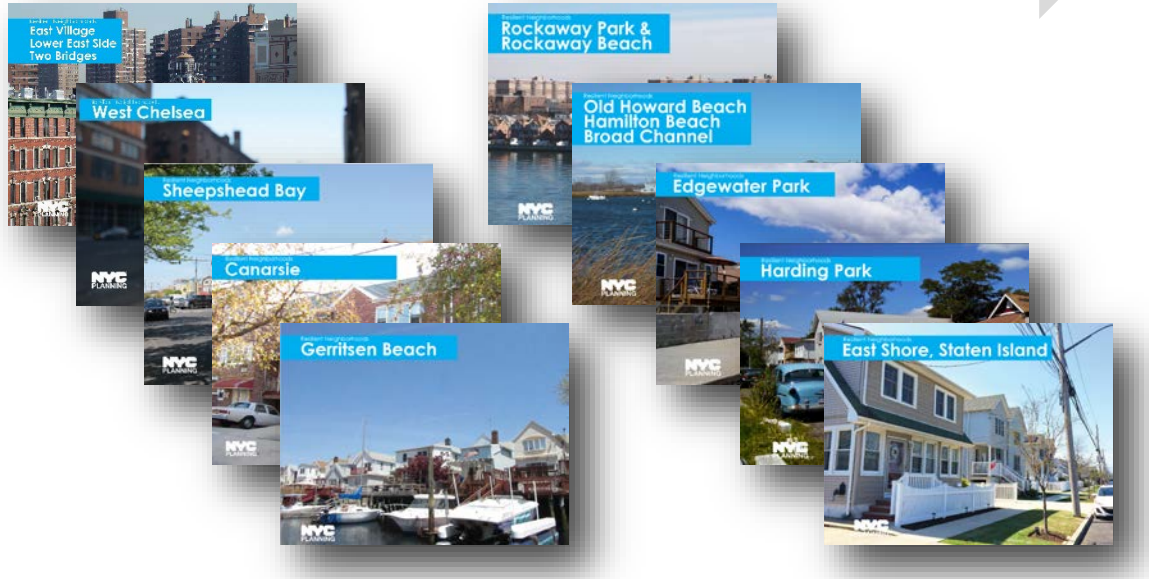
Flood Resilience Zoning
Projects at DCP

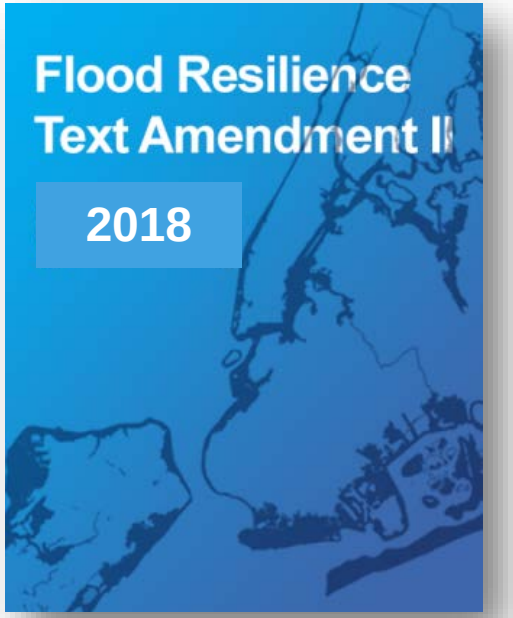


2013

“Flood Text”

initial <u>temporary</u> regulations to facilitate recovery





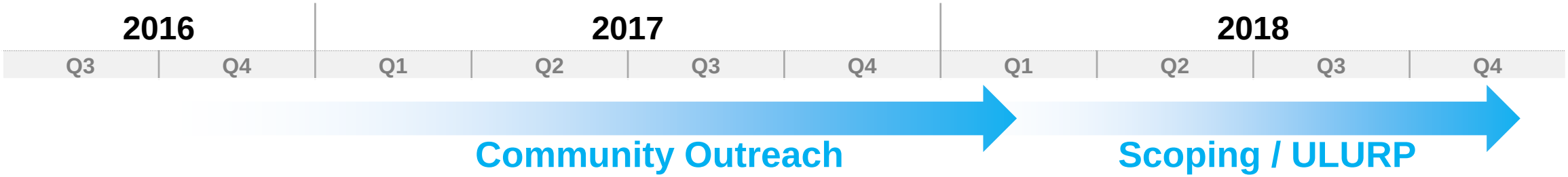
2018

“Flood Text Update”

improve upon, and make permanent, the Flood Text

Zoning for Flood Resilience
Overview of DCP's Timeline

DCP plans a robust public engagement process:



As part of this outreach process, DCP has been:

- **Partnering with stakeholders** to educate and promote awareness of flood risk and resiliency issues
- **Explain how zoning tools** relate to resiliency
- **Explore unique neighborhood issues** through in-depth public presentations and workshops
- Develop a proposal through an **iterative process** that is shaped by feedback

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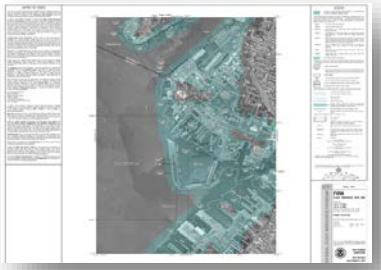
* Schedule is tentative and subject to change

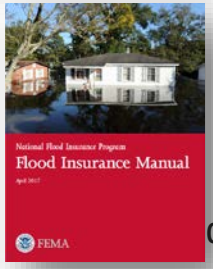
How are buildings in the floodplain regulated?

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

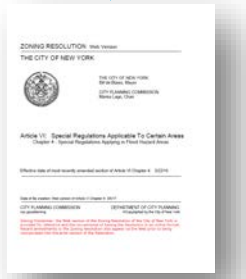
Construction Standards (ASCE 24)

Design minimum construction requirements for flood hazard areas

NYC

Building Code (DOB)

Requires new buildings and substantial improvements to meet FEMA standards



Zoning Resolution (DCP)

Zoning **accommodates** these regulations and improves neighborhood character

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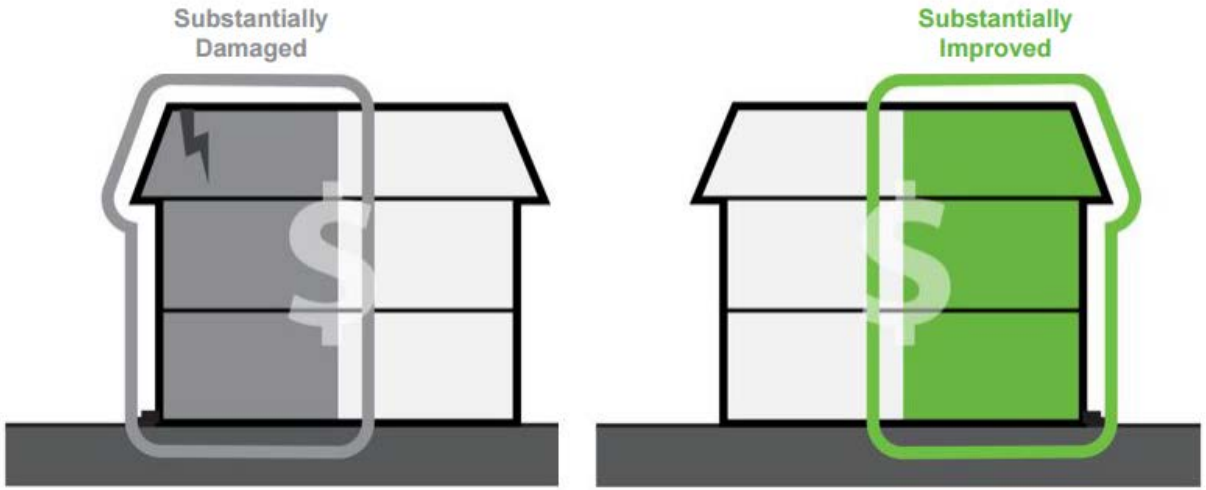
Flood resilient construction

Required by DOB

Required
for all <u>new</u> buildings

<u>Not</u> required for <u>existing</u> buildings
(unless substantially damaged or improved)

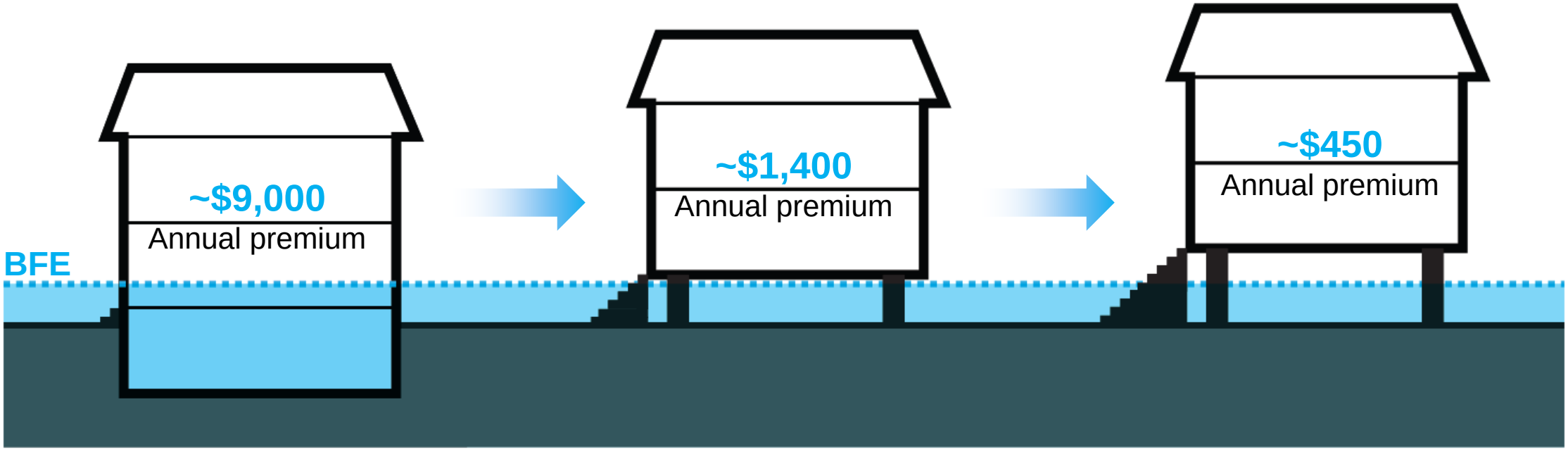


Substantially Damaged: Restoring Cost ≥ 50% Market Value
Substantially Improved: Improvement Cost ≥ 50% Market Value

Flood insurance rates
Set by FEMA

Raising or retrofitting your building or home will reduce costs

FEMA's flood insurance premiums are lowest when the lowest inhabited floor (any area not used solely for storage, access or parking) is elevated above the **Base Flood Elevation (BFE).**



4 FEET OR MORE
BELOW BFE

AT
BFE

3 FEET OR MORE
ABOVE BFE

FEMA Flood Map
Citywide Flood Risk

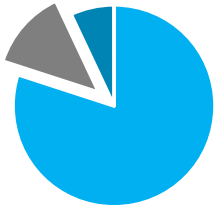
NYC's flood risk is high.

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

100 Year Floodplain
FEMA 2015 PFIRM

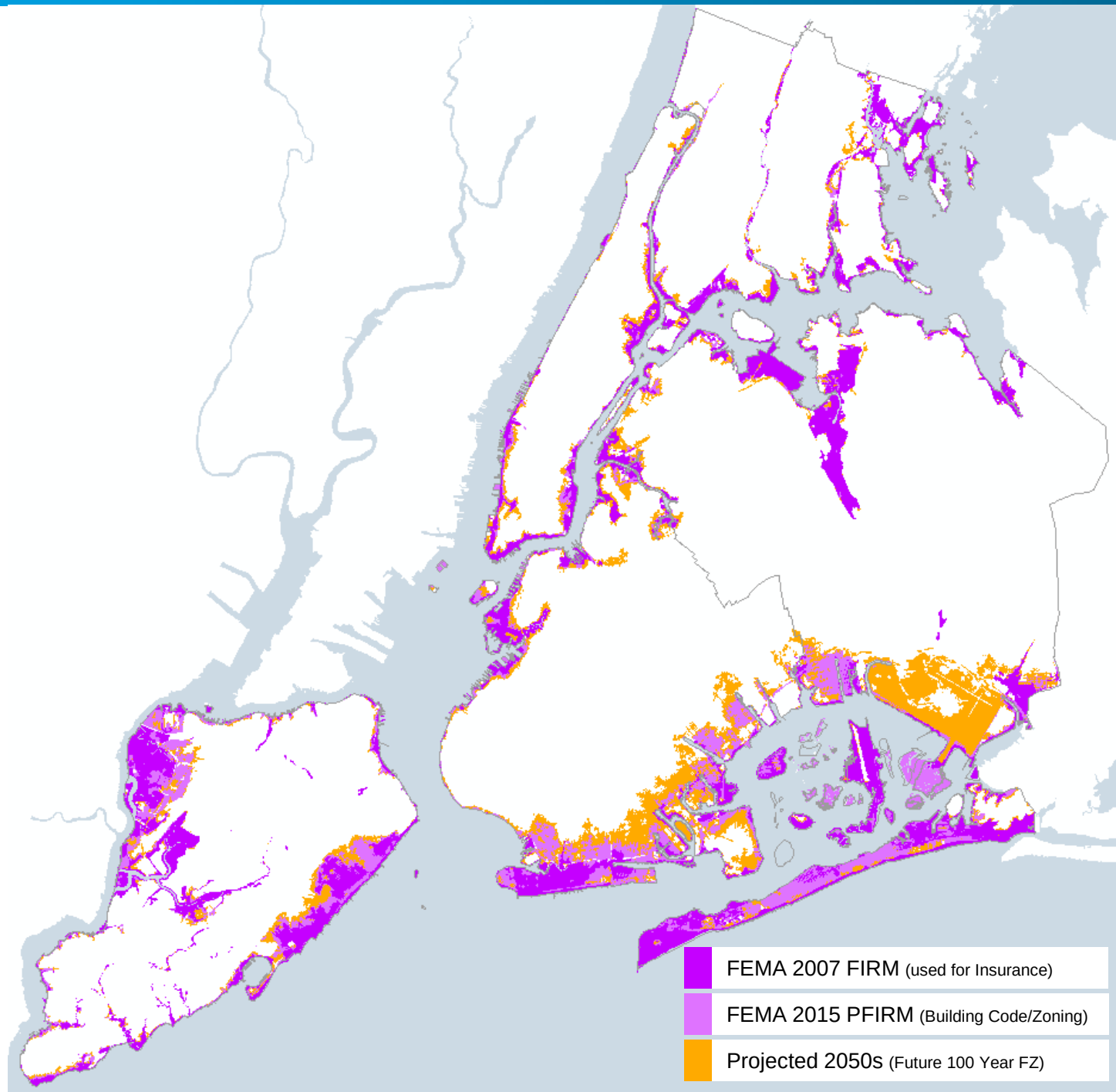
Population: **400,000**
Buildings: **71,500**

50 of 59 Community Boards
45 of 51 Council Districts



Buildings:
80% 1-4 units
7% 5+ units
13% nonresidential

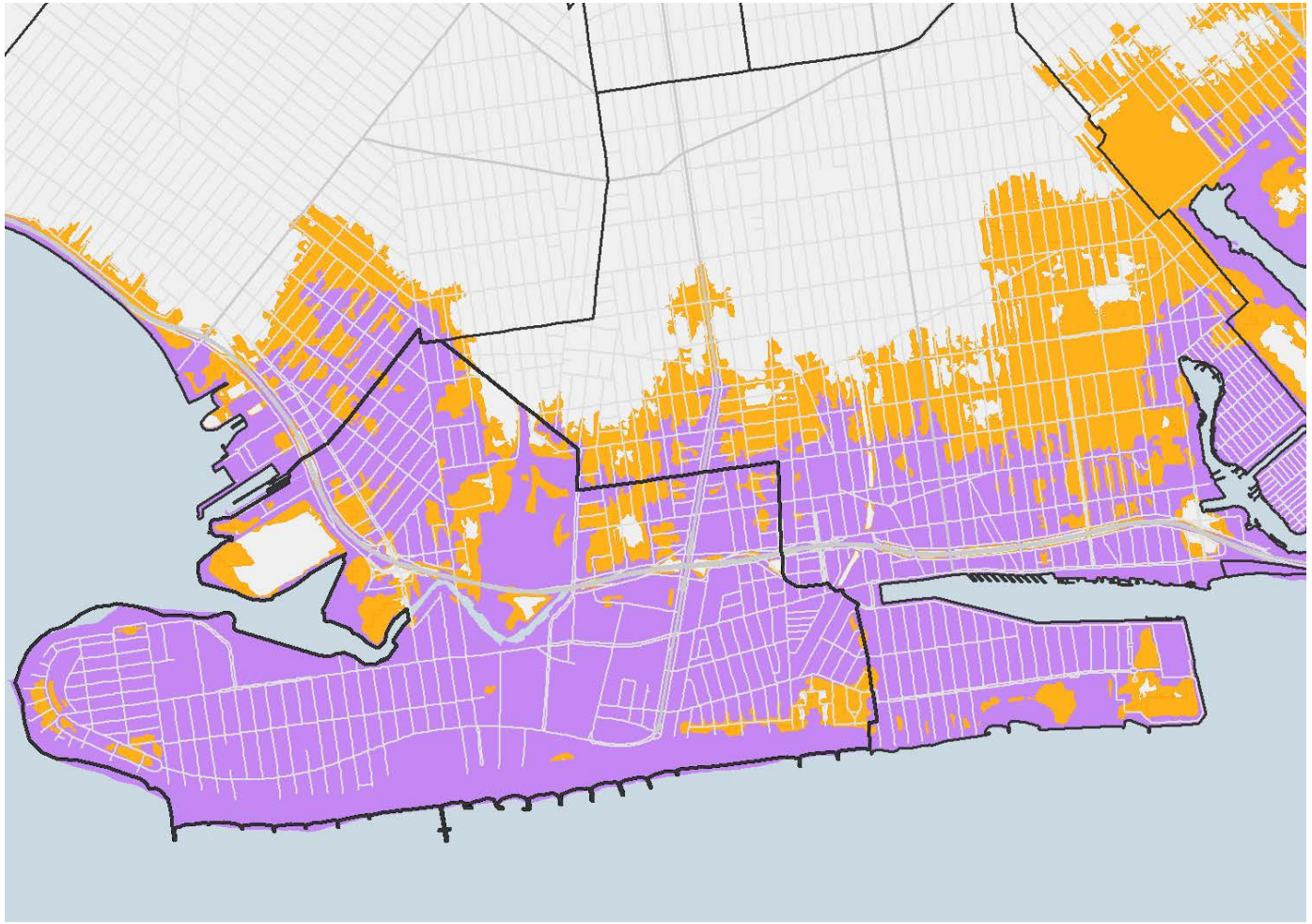
Residential Units:
30% 1-4 units
70% 5+ units



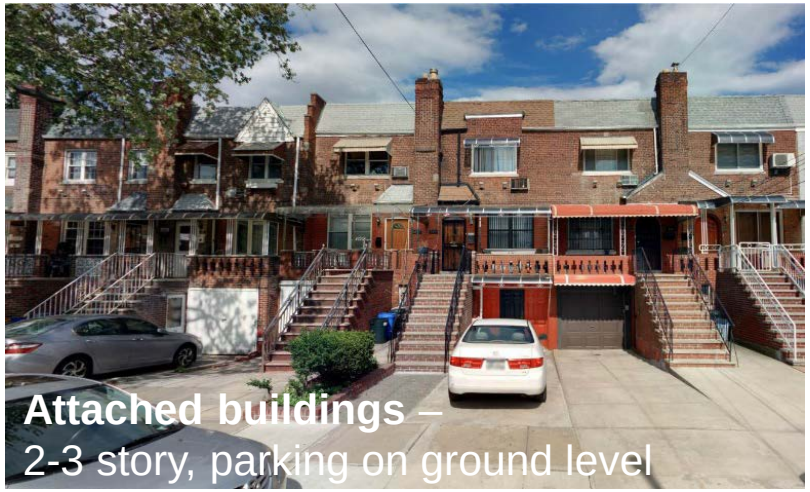
NYC PLANNING

Future Flood Map
Flood Risk in Southern Brooklyn (CD 13)

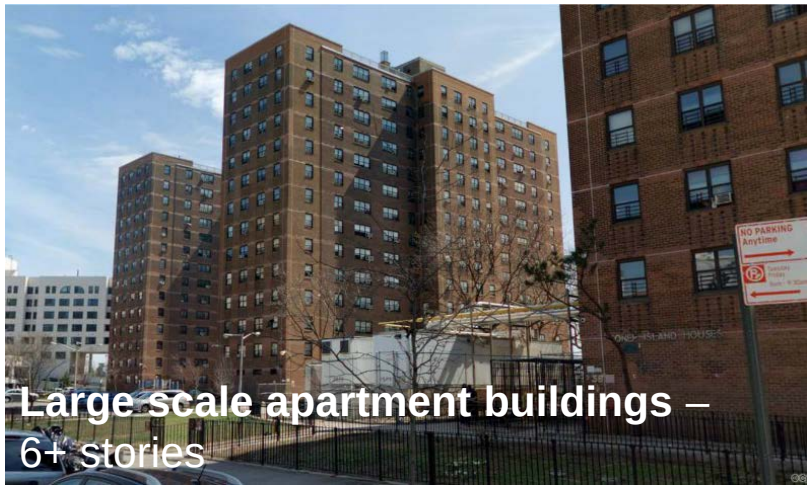
	2015 PFIRMS	2050's Projected	
R units in floodplain	42,600	45,850	8%
Buildings in floodplain	7,300	7,760	6%



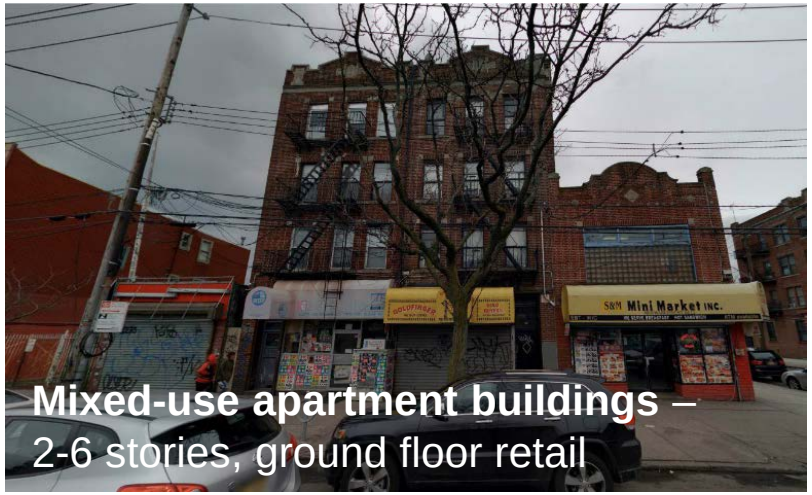
South Brooklyn
Building Typologies in the Floodplain



Attached buildings –
2-3 story, parking on ground level

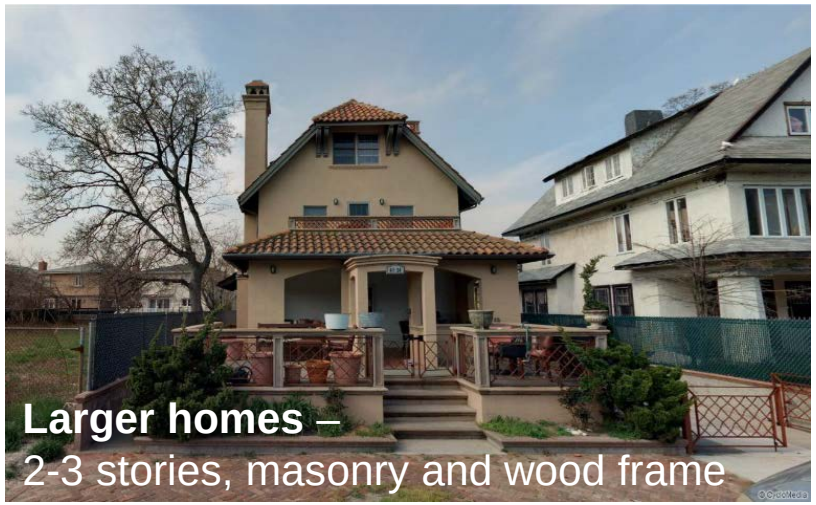


Large scale apartment buildings –
6+ stories



Mixed-use apartment buildings –
2-6 stories, ground floor retail

Small bungalows –
1-2 stories, detached, wood frame



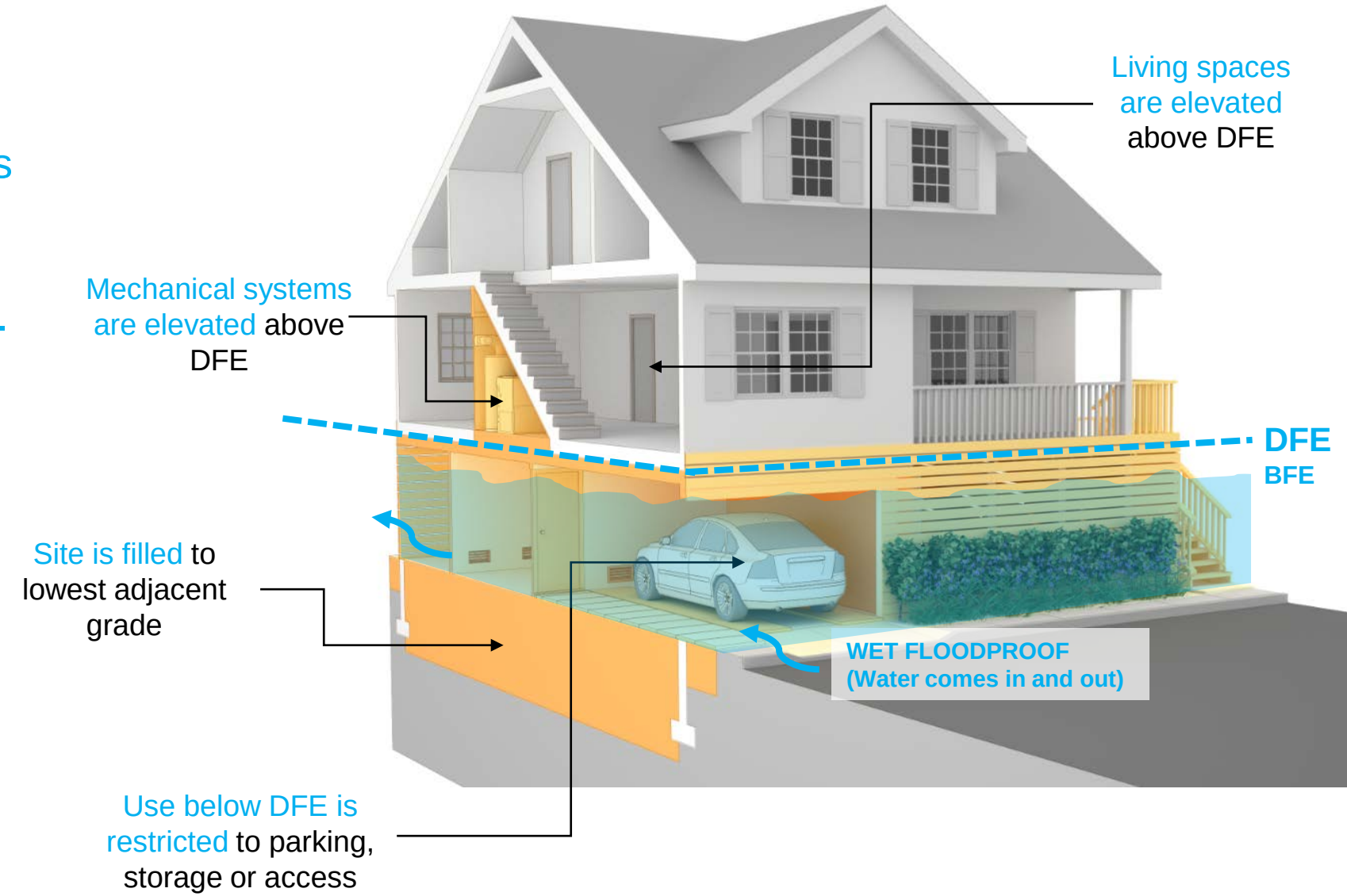
Larger homes –
2-3 stories, masonry and wood frame

Commercial corridors –
1-2 stories buildings with parking

Flood resilient construction
Required by DOB

Building Code (DOB)

Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).



Flood resilient construction
Examples of Residential Buildings

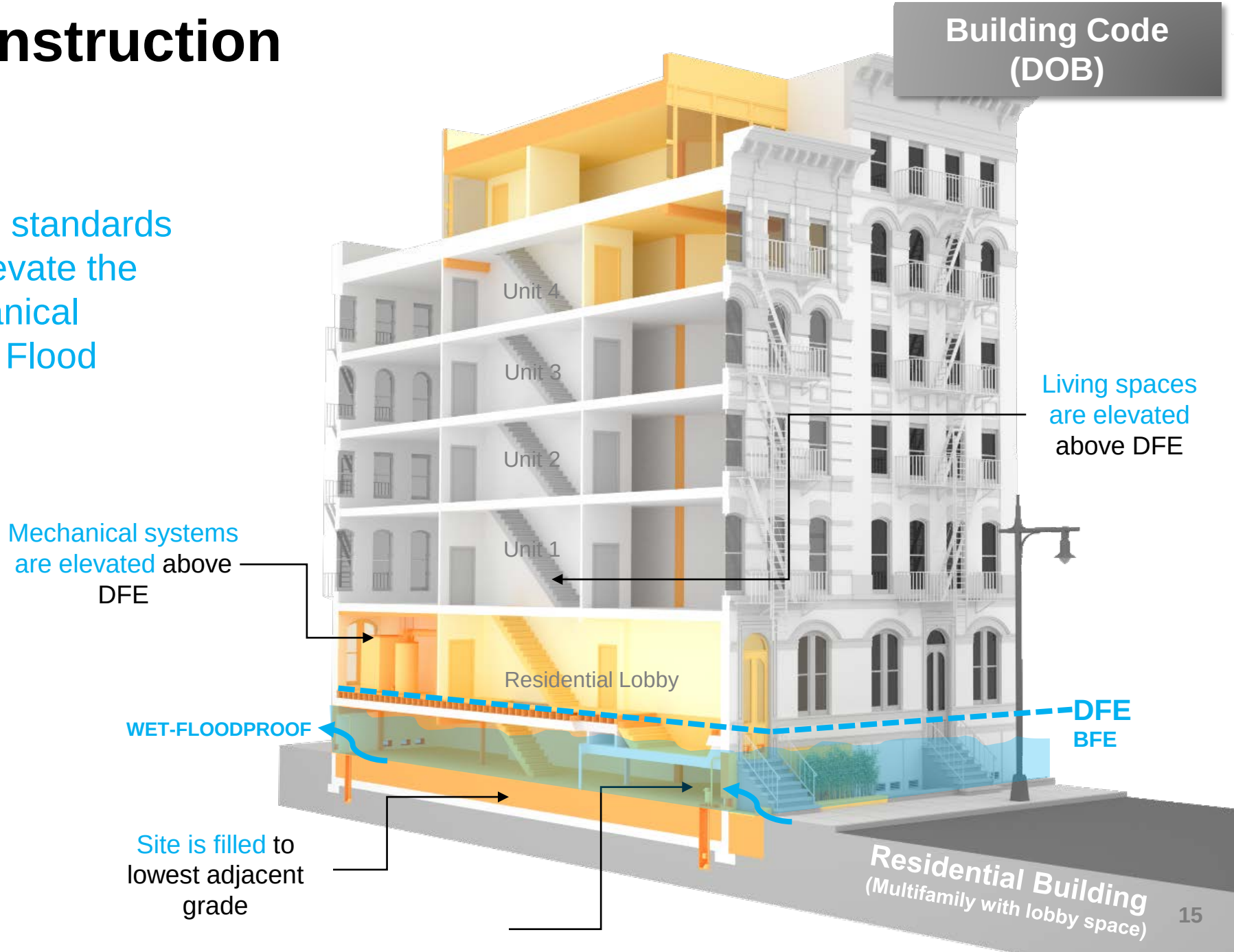
Building Code (DOB)

Residential Building
Elevated to DFE

Residential Building Under Construction
Elevated to DFE

Flood resilient construction
Required by DOB

Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).



Flood resilient construction
Examples of Residential Buildings

Building Code (DOB)

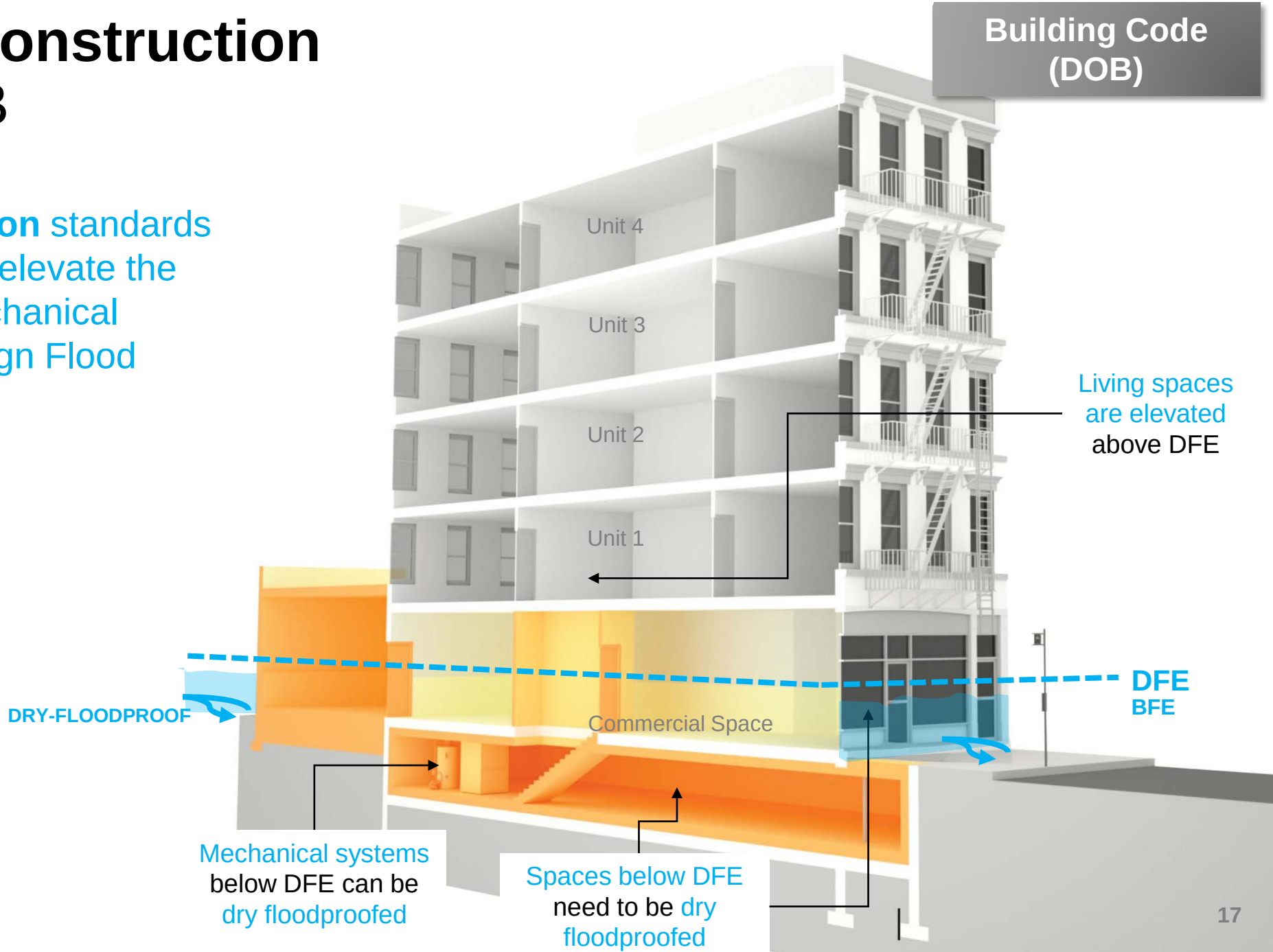
Residential Building
Elevated to DFE ~ 6 feet above grade

Residential units are elevated above the DFE

Ground floor is used for parking and access

Flood resilient construction
Required by DOB

Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the Design Flood Elevation (DFE).



Flood resilient construction
Required by DOB

Building Code (DOB)

Deployable floodgate
(currently allowed only at doors and operable windows)

Aquarium Glass
('aquarium-grade' glass for glazing or curtain-wall systems)

Flood resilient construction
Examples of Commercial Buildings

Building Code (DOB)

Commercial Ground Floor
Existing Building with access at grade (deployable flood shields)

Commercial Ground Floor
Elevated to DFE ~ 3 feet

Flood resilient construction

NYCHA’s Recovery Program

2013 Citywide Flood Text
Temporary Rules

Zoning Resolution (DCP)

Main Goal

Facilitate Recovery
from Hurricane Sandy

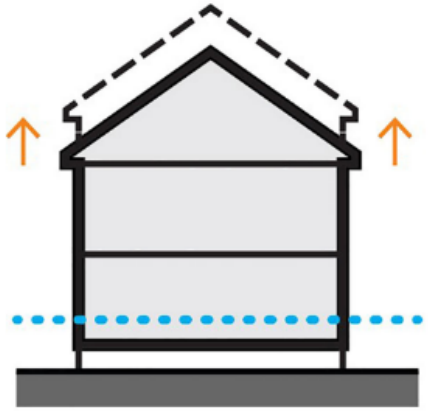
2013: Temporary provisions that allow storm-damaged and new buildings to comply with higher flood elevations and resilient construction requirements by **removing zoning barriers**

2015: Accelerate post-Sandy recovery in certain areas by **simplifying documentation requirements** and removing disincentives to resiliency investments, through 2022.

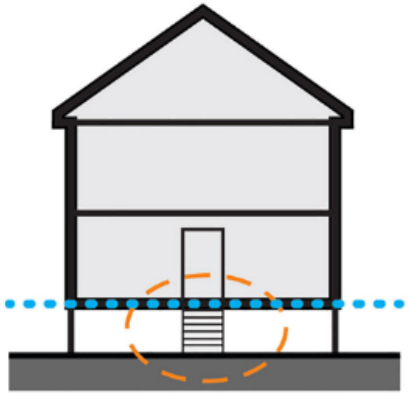
2013 Citywide Flood Text
Amended zoning in six key areas

Zoning Resolution (DCP)

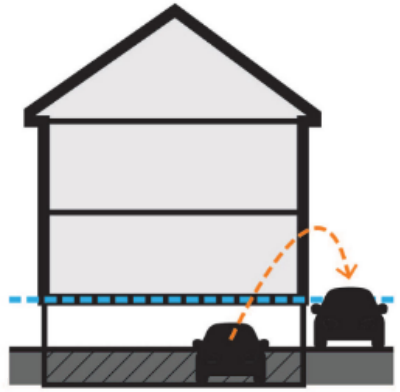
1
Height
Measured from flood elevation



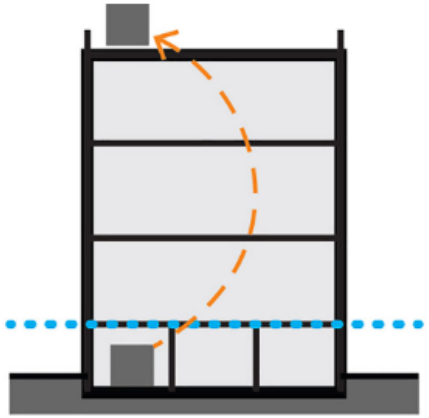
2
Access
Flexibility for stairs, ramps, lifts



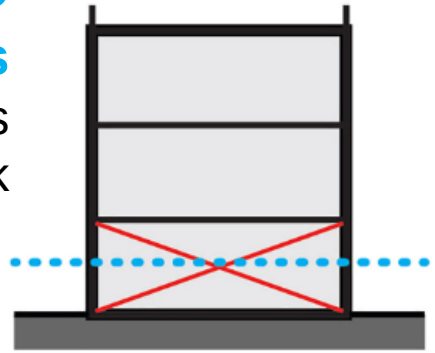
3
Parking
Flexibility to relocate parking



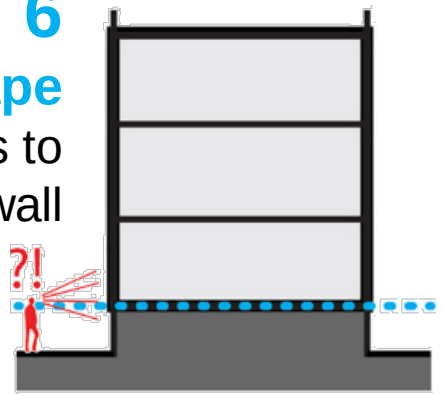
4
Systems
Flexibility to relocate/elevate



5
Ground Floors
Account for costs of new flood risk

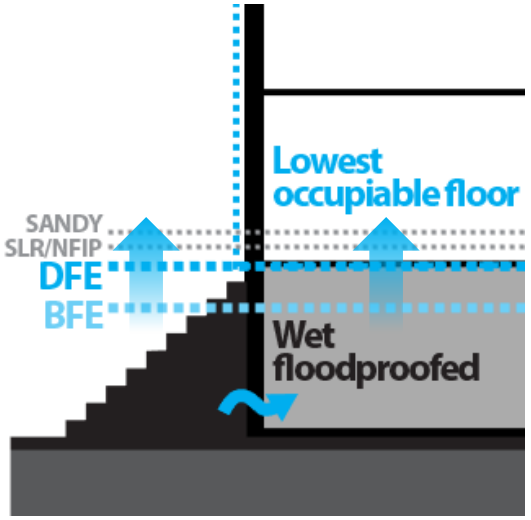


6
Streetscape
Require features to mitigate blank wall



Flood Text Update
Permanent Rules

Zoning Resolution (DCP)



Goal 1

Facilitate Recovery from Future Storms
by making the provisions of the temporary Flood Text **permanent**

Goal 2

Promote Long-Term Resiliency
by encouraging proactive retrofitting and development that is **safe in the long run**

Goal 3

Enhance Neighborhood Character
By encourage good resilient design within **coastal communities**

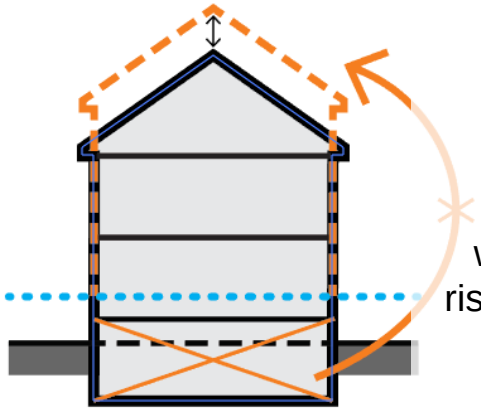
Zoning for Flood Resilience Update

Issues identified by DCP and coastal communities

Zoning Resolution (DCP)

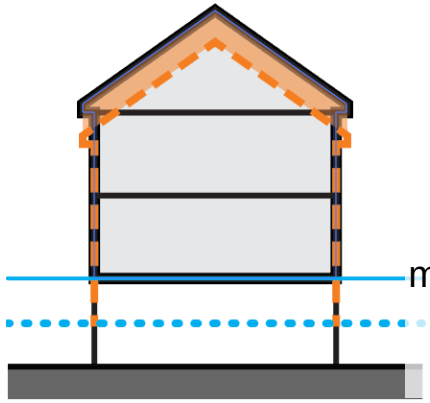
1 Subgrade Spaces

Homeowners may face the loss of subgrade spaces when retrofitting



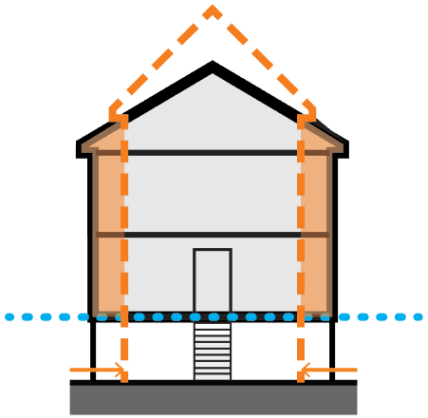
2 Future Flood Risk

Property owners may want to address future risk or reduce insurance by over-elevating



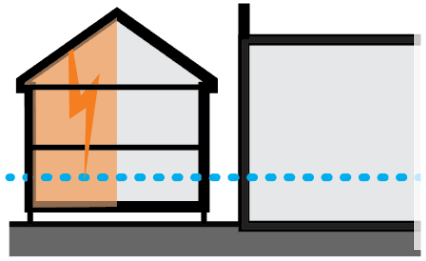
5 Old neighborhoods

Old buildings may need more flexibility to rebuild, elevate, or retrofit to resiliency standards



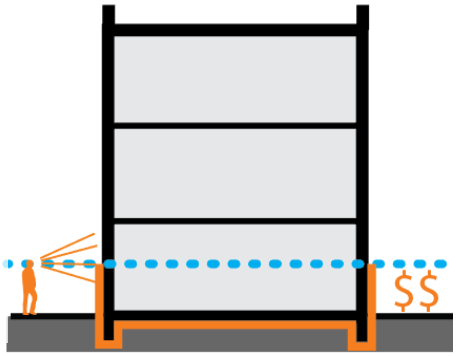
4 Future Storms

Existing homes in Manufacturing Districts, may not be able to rebuild



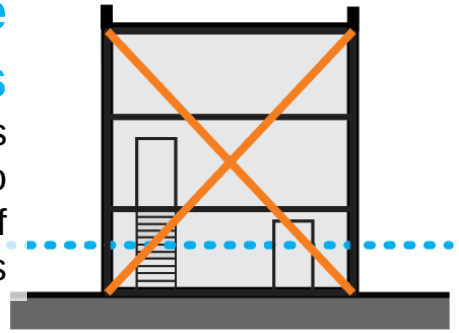
5 Active Uses

Current incentives and use options to keep active ground floors, may not be enough



6 Active Streetscapes

Design requirements may be needed to mitigate the effects of elevated buildings



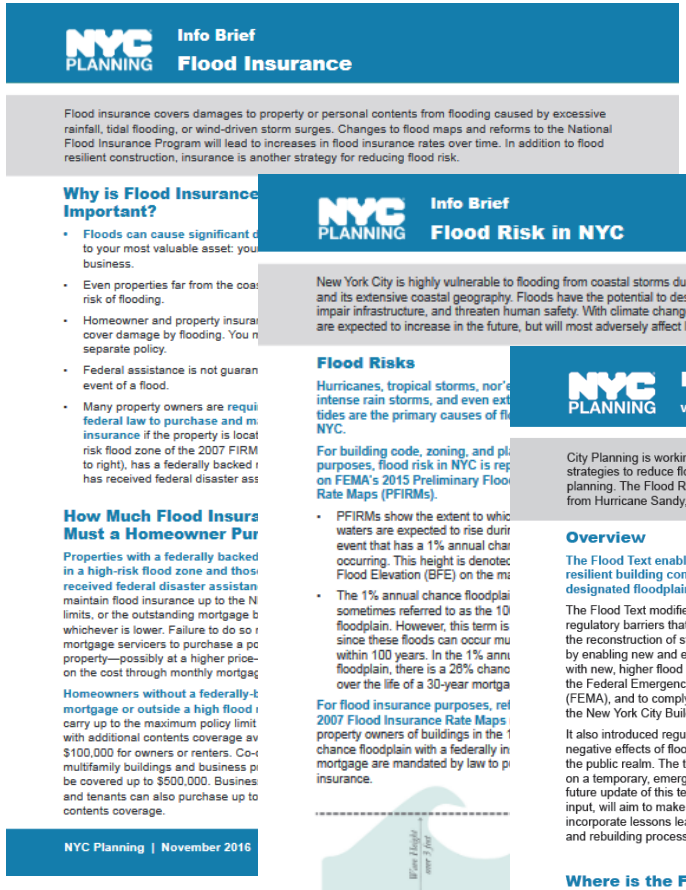
Resources

NYC Flood Hazard Mapper

www.nyc.gov/floodhazardmapper

Info briefs on Flood Resilience Zoning, Flood Risk, Flood Resilient Construction, and Flood Insurance
(available in 6 other languages!)

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 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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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' 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 28% 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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NYC PLANNING
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 Management (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.

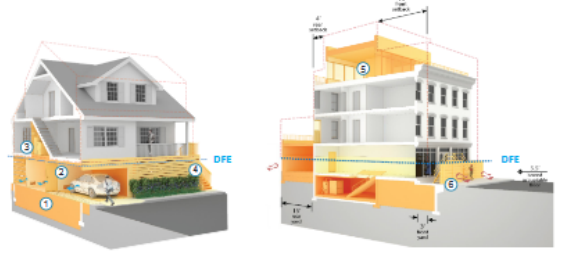
Overview

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

CENTER for NYC NEIGHBORHOODS

FloodHelpNY.org Home Resiliency Plan presented by

NHS BROOKLYN
COMMUNITY DEVELOPMENT CORPORATION, INC

About FloodHelpNY.org

Created to **Engage** & **Inform** NYC Homeowners

Help NYC Residents Protect Their Home & Finances from Flooding

Flooding is Expected to Worsen with Rising Sea Levels

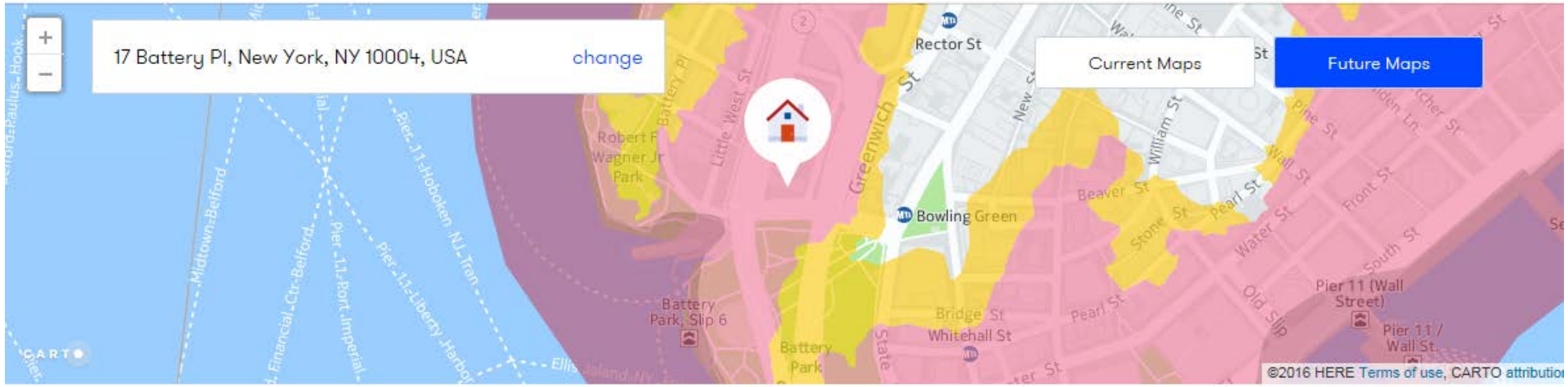
The Cost of Flood Insurance Coverage is Expected to Increase

The Special Flood Hazard Areas in NYC Will Expand by 2020

Find yourself on the flood map

NYC's flood zones are changing soon. With just your address, we can tell you what it means for you.

Learn about flood risk



KEY: Moderate risk High risk Highest risk

The map shows the current and future flood zones for New York City. Source: FEMA.

This property is currently in a high risk zone.

Since maps can be imprecise, we can't be 100% certain your property is in one or more of these zones. Learn More in our Terms & Conditions.

Learn about flood risk

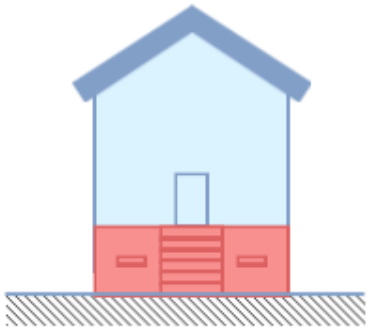
Lower your risk & your rate

There are many ways to reduce your flood risk — and many of those ways also lower your flood insurance cost.

Lower your risk and rate

Ways to lower your rate

Learn about mitigation



Elevate your home

Puts your house completely above predicted flood water levels.

For your current zone (AE)

$7439

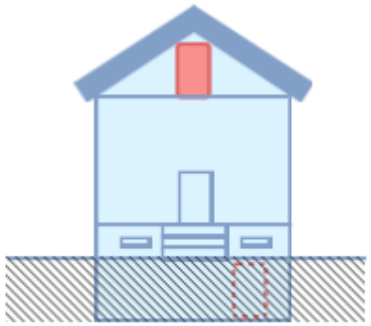
saved /year*

For your future zone (AE)

$9996

saved /year*

Learn More



Fill in your basement

Reduces damage to your home's structural foundation.

For your current zone (AE)

$6525

saved /year*

For your future zone (AE)

$9082

saved /year*

Learn More

Lower your risk and rate

Home Resiliency Plans

About Home Resiliency Plans

Connect eligible homeowners with engineers in select communities

Provide resiliency assessments so that you can make **informed decisions** about reducing risk of future floods

Counseling on the financial impact of the resiliency measures

ELEVATION CERTIFICATES & MITIGATION MEASURES MAY HELP LOWER FLOOD INSURANCE RATES NOW & IN THE FUTURE

What do homeowners receive?

- Resiliency Assessment by a Qualified Engineering Firm
- An Elevation Certificate
- Customized Resiliency Plan
- Counseling to Review Your Plan & Resiliency Options

HOW IT WORKS

An Engineer Assesses Your Home's Vulnerability to Flooding

A qualified engineering firm will take measurements of your home to assess its strength and resistance to flooding, and will issue you an elevation certificate.

Professional audit and elevation certificate

FREE

Valued at over $1800

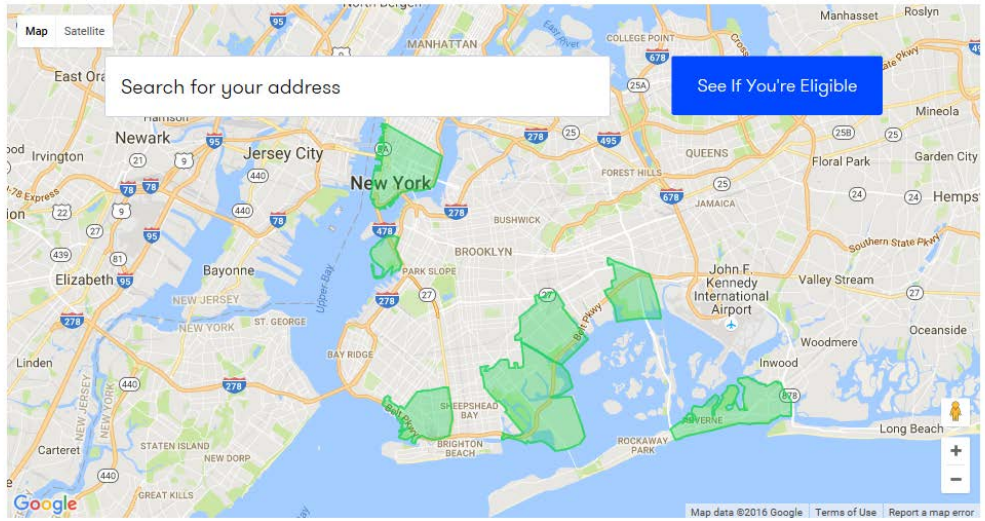
A Customized Resiliency Plan is Created for You

We will provide a plan that outlines the options that fit your home best. You can share this report with contractors, insurance agents, and others who will be helping to make your home more flood resistant.

Eligibility

- Applicant is the property owner
- Property is a primary residence
- Property is located in one of the 9 selected neighborhoods:

CURRENTLY SERVED AREAS



Neighborhoods: Canarise, Gravesend, Bensonhurst, Howard Beach, Southeast Brooklyn Waterfront, Red Hook, Lower Manhattan, Rockaway East

Questions?

Zoning for Flood Resilience
Workshop Agenda

Agenda:

1. Welcome and introduction – 10 min
2. Overview of zoning for flood resilience – 15 min
3. **Table activity and discussion: How can zoning help achieve building-scale resilience? – 45 min**
4. Open house: Explore our stations –
    - FloodHelpNY,
    - Build It Back,
    - Parks & Recreation,
    - Resiliency @ NYCHA,
    - Emergency Management

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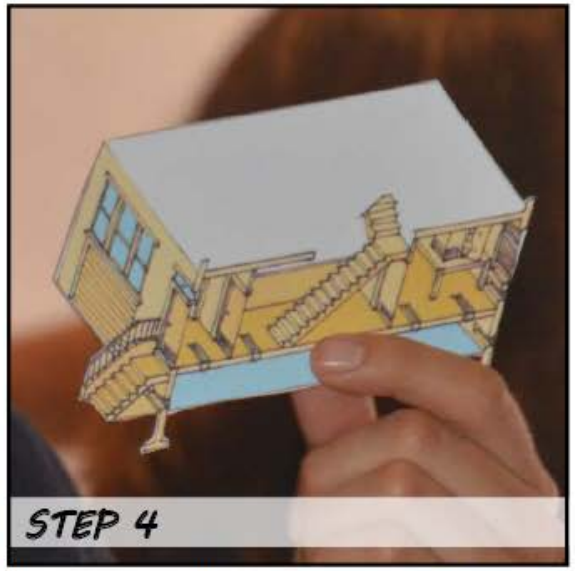
Pick a building in your neighborhood. It can be the place you live, work or are interested in!

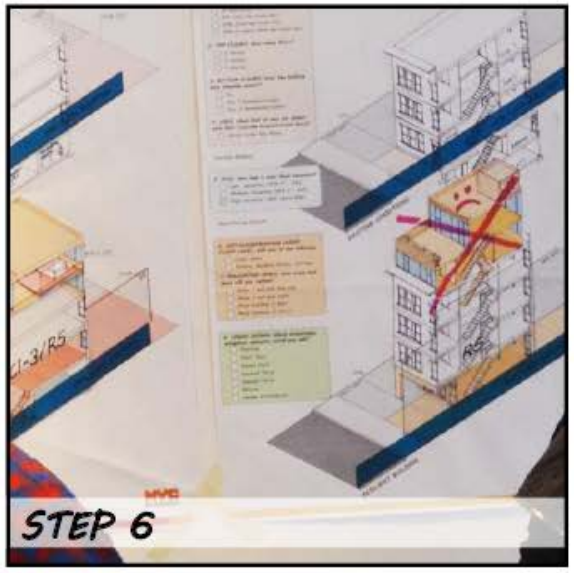
Build the existing conditions of your building with available cut-out cards (black and white).

Place your flood elevation (low, medium or high) above existing building and check your risk!



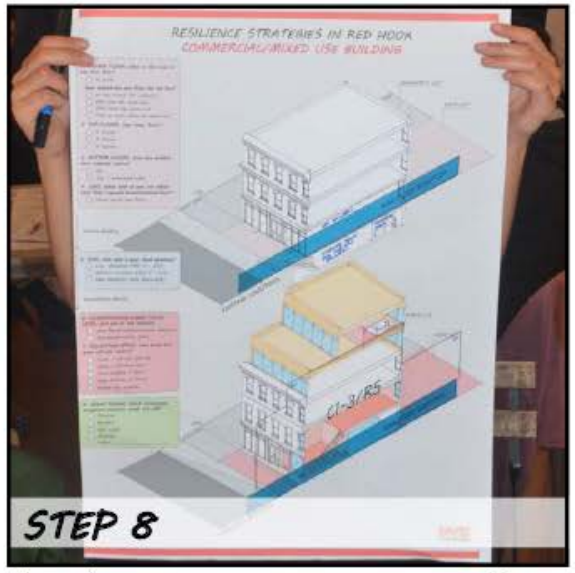
Retrofit your building to become resilient by using available cards (colored).

Add the zoning envelope that reflects your neighborhood's zoning above the flood level.



Check if there are any zoning conflicts. Does the retrofitted building fit within the envelope?

Add your building to the wall and imagine how your neighborhood could look like!



What do you think about the results? Add a post-it with your thoughts on the wall!

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