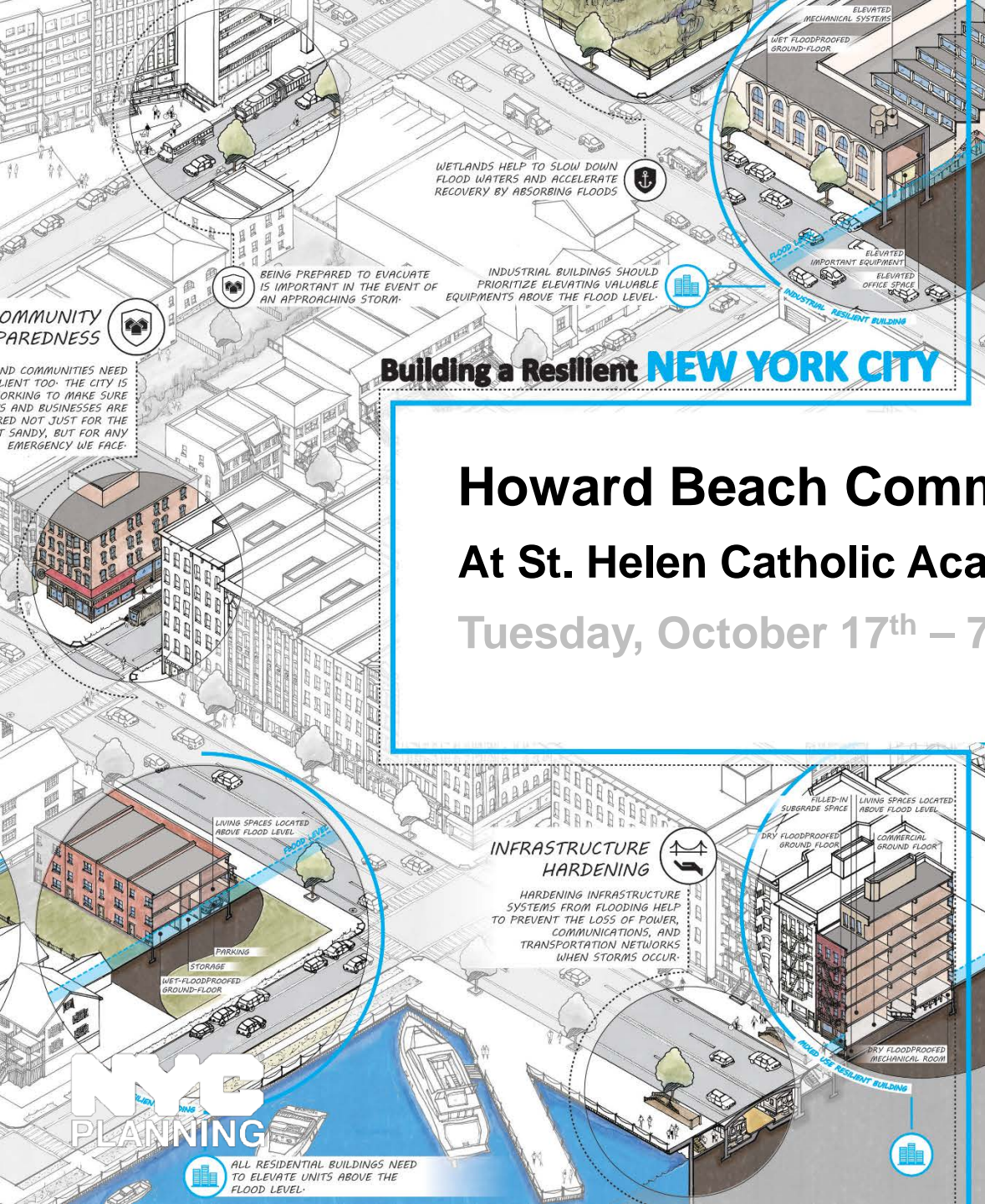


Zoning for Flood Resilience



Zoning for Flood Resilience

Workshop Agenda

1. Welcome and Overview – 20 min
 - Flood Risk
 - Flood Insurance
 - Resilient Buildings
 - Zoning for Flood Resilience
 - **Q&A**
2. Table Activity about building-scale resilience strategies in Howard Beach – 50 min
3. Report Summary of Table Discussions – 20 min

FEMA Flood Map

Citywide Flood Risk

NYC's flood risk is high.

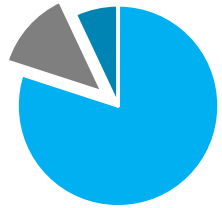
The floodplain affects a large geography and most community and council districts.

100 Year Floodplain

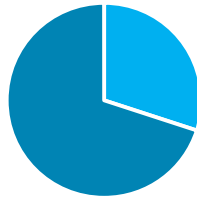
FEMA 2015 PFIRM

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

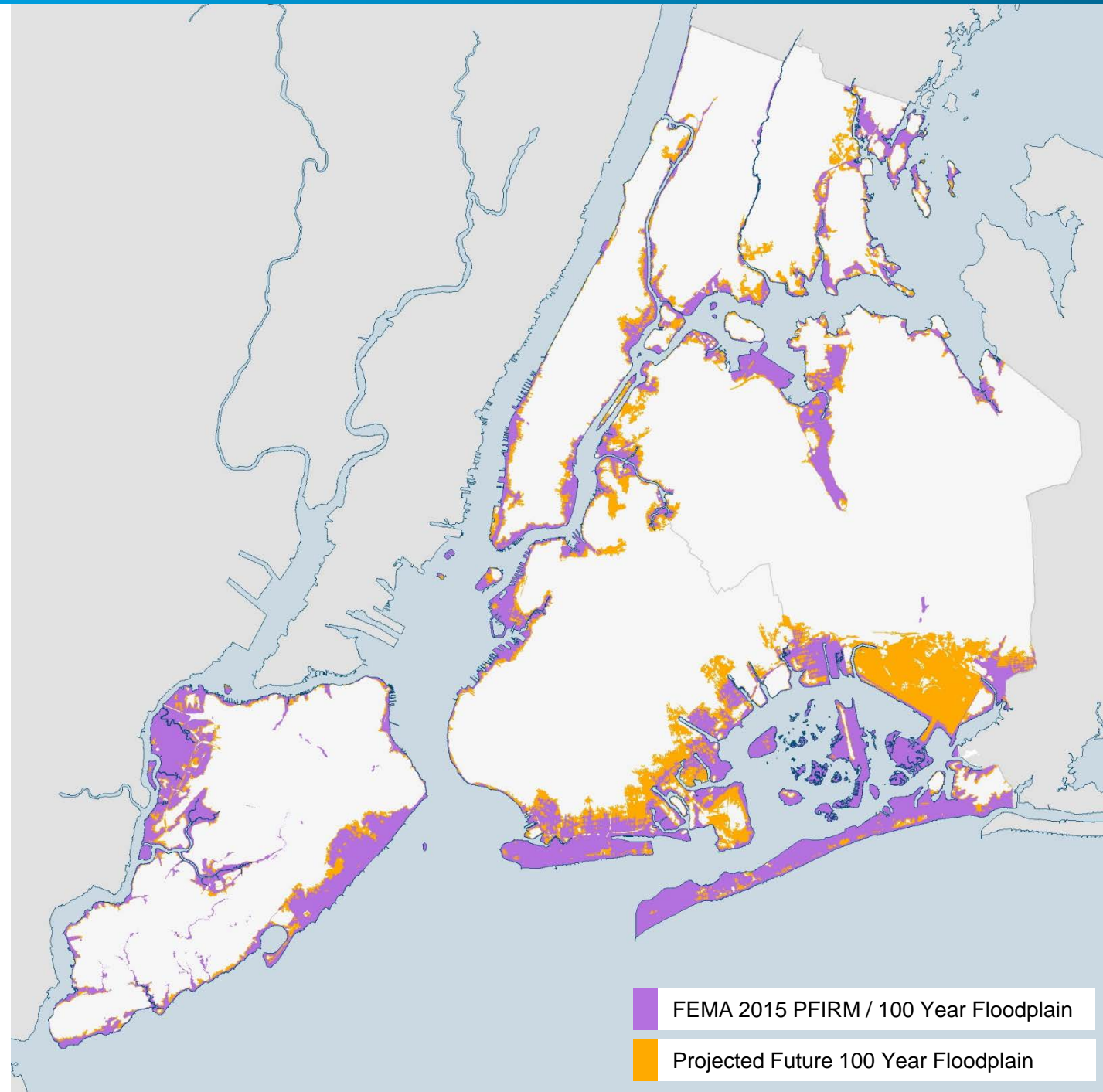
50 of 59 Community Boards
45 of 51 Council Districts



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



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



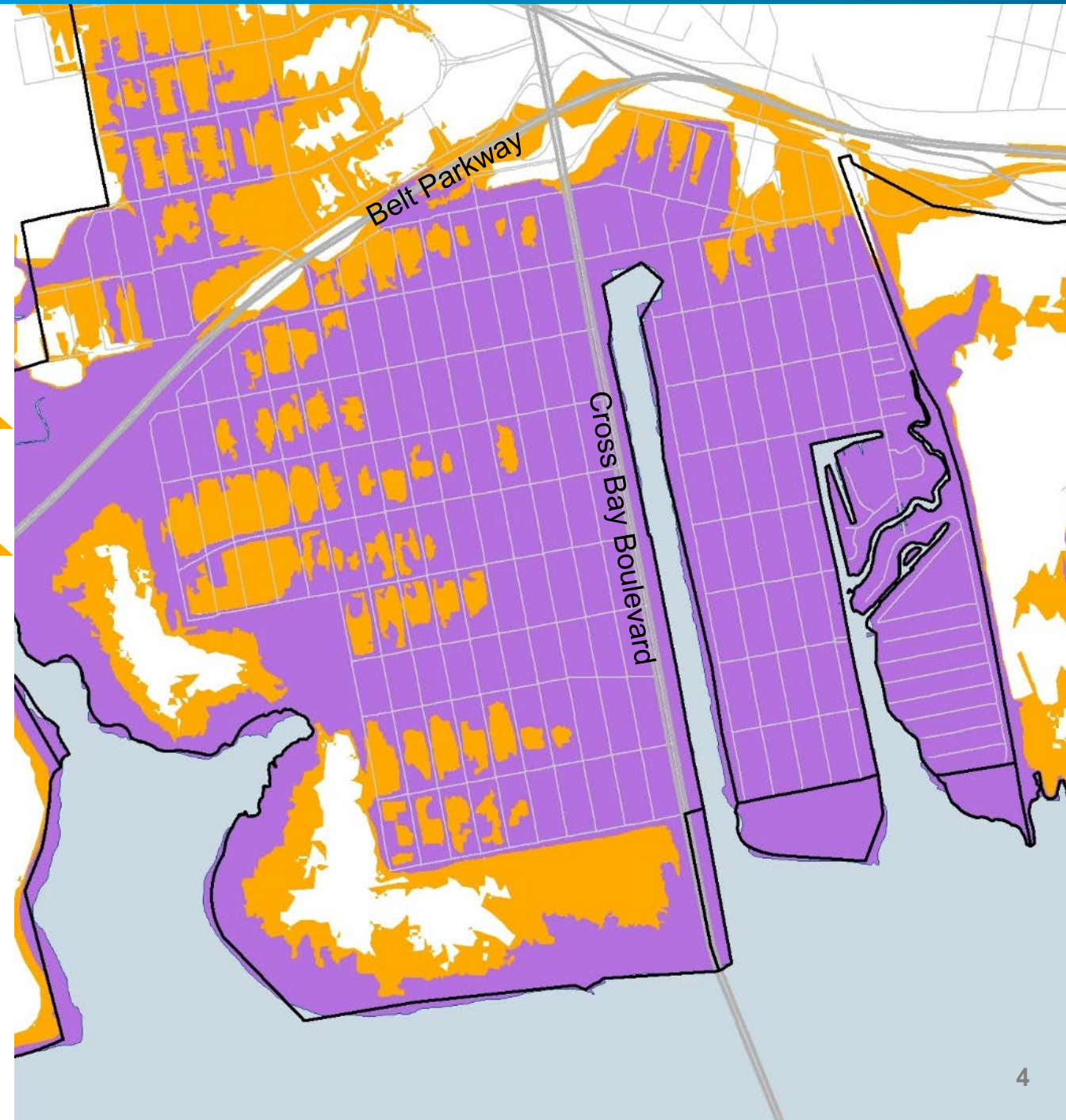
Flood Map

Flood Risk in Queens CD 10

| | 2015 PFIRMs | 2050s Projected |
|-----------------------------|----------------|--------------------|
| Population in Floodplain | 11,910 | 20,580 |
| Buildings in Floodplain | 5,440 | 6,500 |

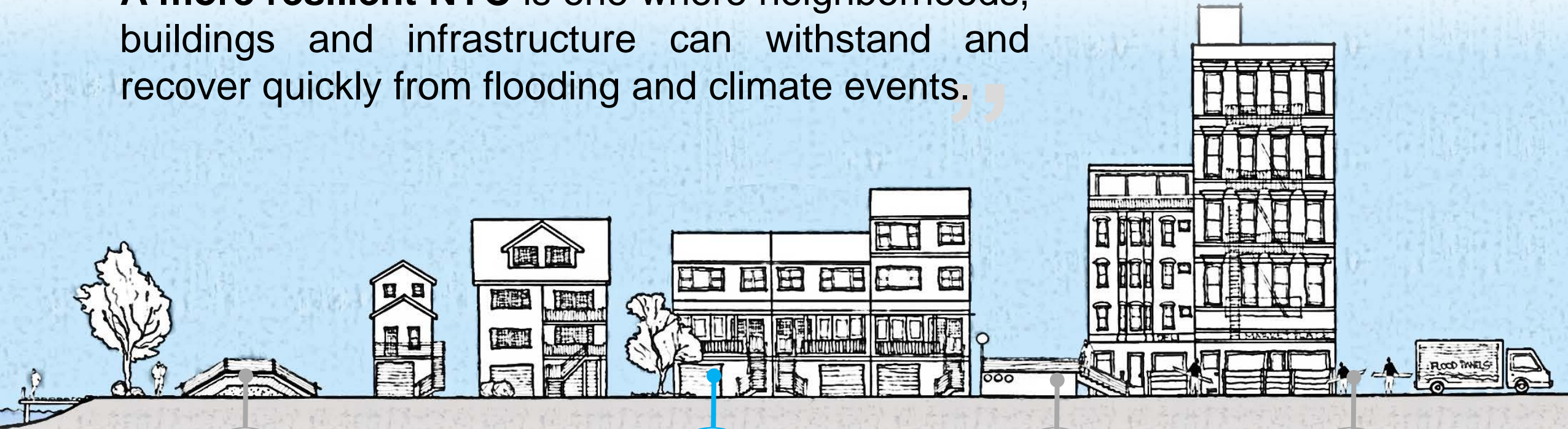
↑
72%

↑
19%



#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



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?

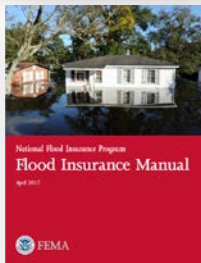


FEMA



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)

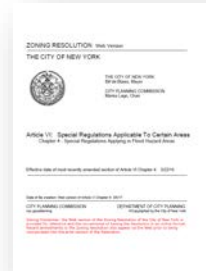
Design minimum construction requirements for flood hazard areas

NYC



Building Code (DOB)

Requires new buildings and substantial improvements to meet FEMA standards



Zoning Resolution (DCP)

Zoning accommodates these regulations and improves neighborhood character

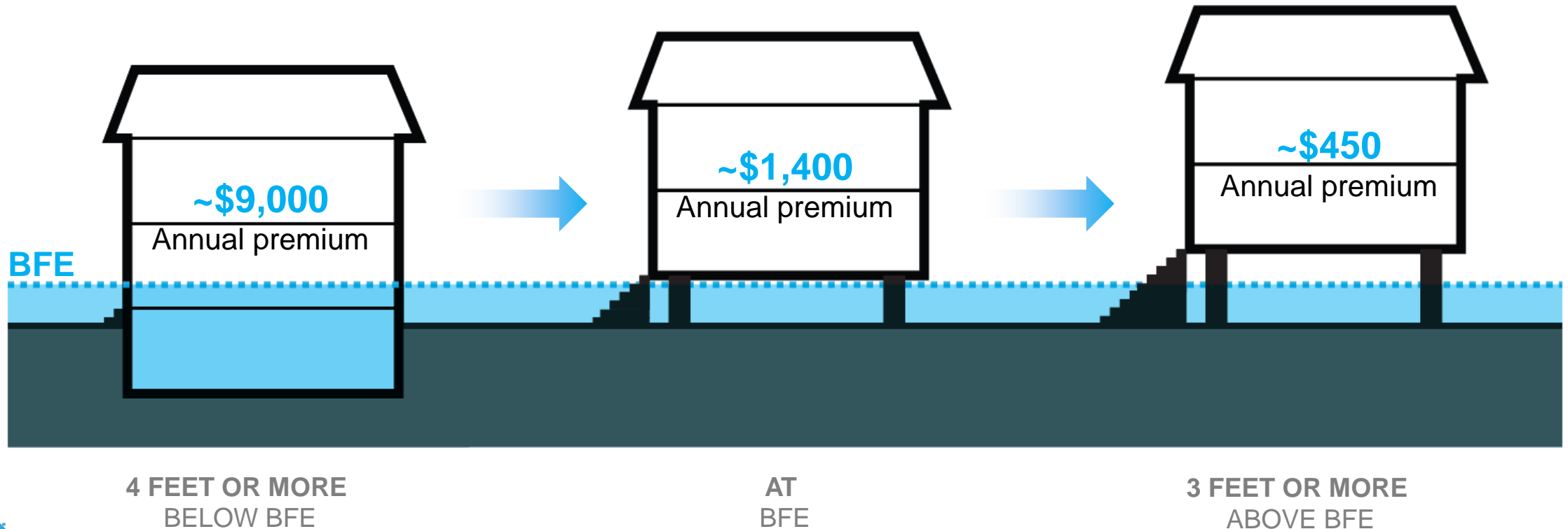
Flood insurance rates

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)**.



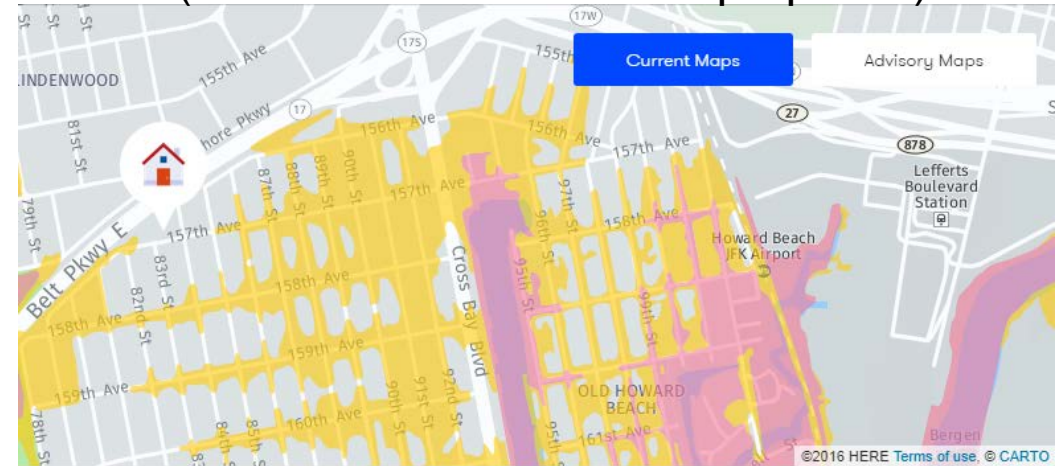
Resources for Homeowners

#ONENYC

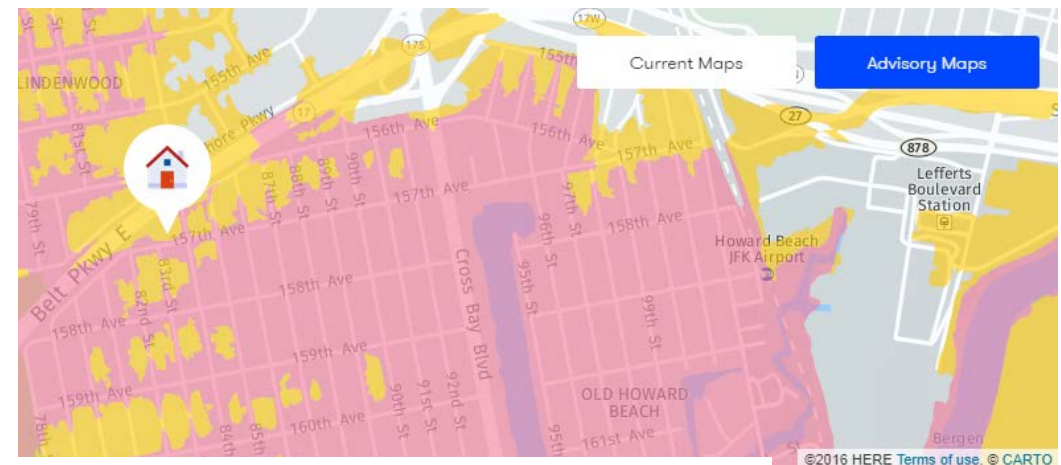
- FloodHelpNY.org
- NFIP Preferred Risk Policy (PRP)



FIRMs (used for flood insurance purposes)



Preliminary FIRMs (used for building code/zoning)



KEY: ● Moderate risk ● High risk ● Highest risk



The Cost and Affordability of Flood Insurance in New York City

Economic Impacts of Rising Premiums and Policy Options for One- to Four-Family Homes

Lloyd Dixon, Noreen Clancy, Benjamin M. Miller, Sue Hoegberg, Michael M. Lewis, Bruce Bender, Samara Ebinger, Mel Hodges, Gayle M. Syck, Caroline Nagy, Scott R. Choquette



Ensure NFIP Affordability

Expand Mitigation Options and Premium Credits

Increase availability of mitigation funding for all building types

Improve communication to agents, real estate, property owners

Key Takeaways for Homeowners

#ONENYC

- NYC's flood risk is rising; homeowners insurance does not cover floods
- Until the new maps are issued, flood insurance rates will continue to be based on the 2007 Effective FIRMs
- When revised maps are adopted, new flood insurance requirements will go into effect
- For those outside the high-risk floodplain, flood insurance can be as low as \$500/year
- Flood insurance policy is tied to the property

Howard Beach

Building Typologies in the Floodplain



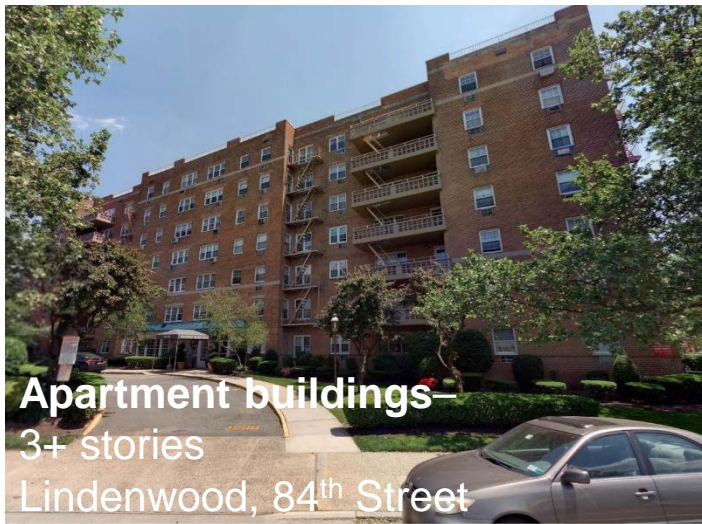
Bungalows—
1-2 stories, detached, narrow lot
Hamilton Beach, 164th Road



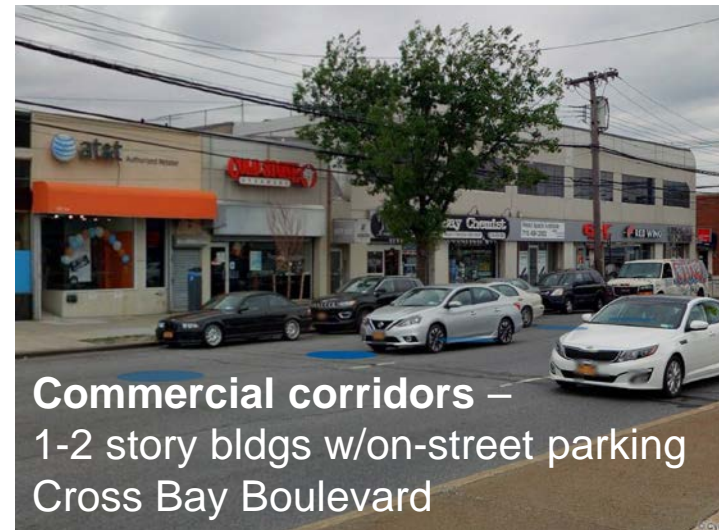
Detached homes—
1-2 stories, detached, 40'+ lot width
New Howard Beach, 163rd Avenue



Attached residences—
2 stories, shared party wall
Old Howard Beach, 95th Street



Apartment buildings—
3+ stories
Lindenwood, 84th Street



Commercial corridors—
1-2 story bldgs w/on-street parking
Cross Bay Boulevard

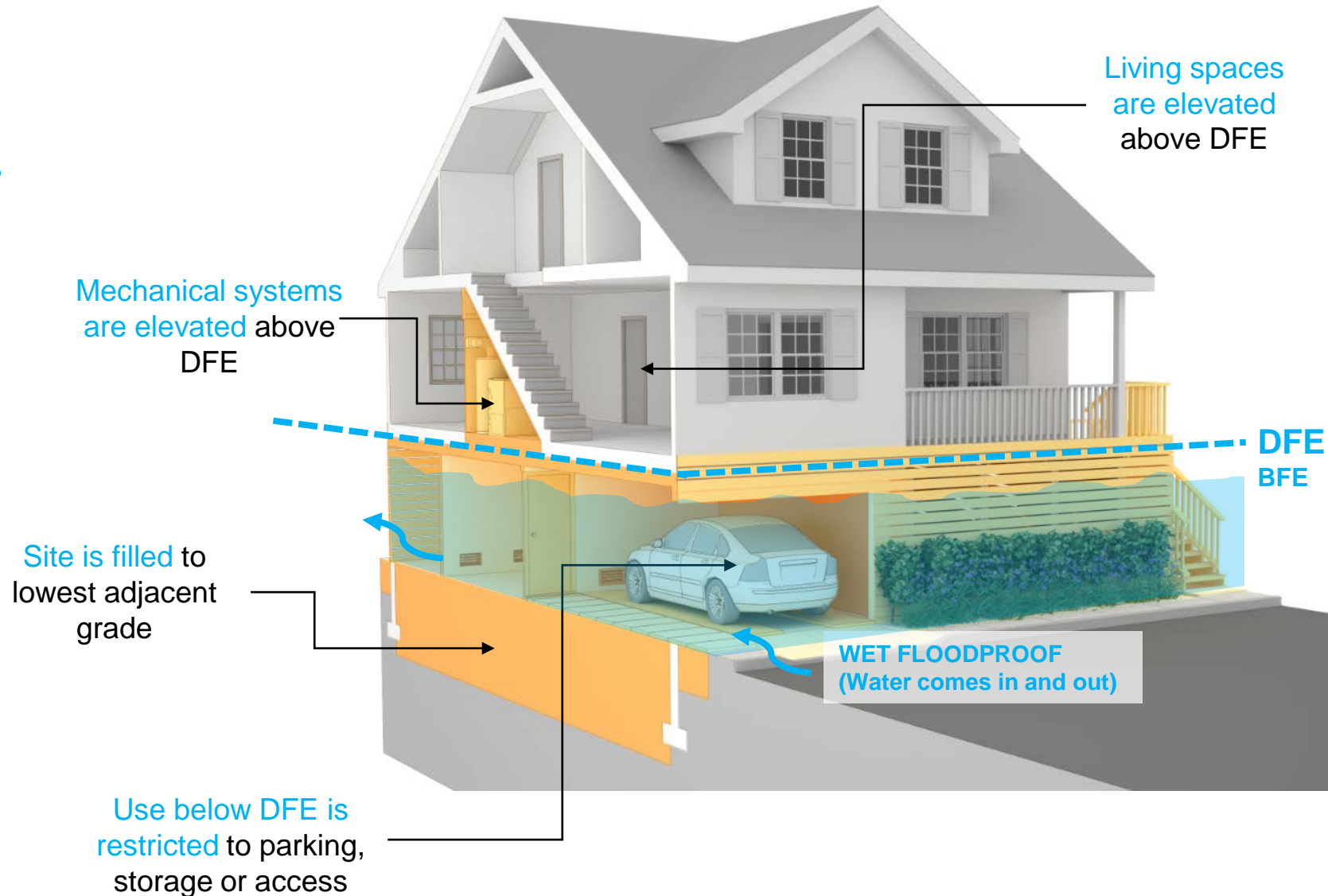


Commercial corridors—
1-2 story bldgs w/on-street parking
Coleman Square

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

Before construction – House on 91st St./161st Ave.

Source: Google Streetview, August 2013

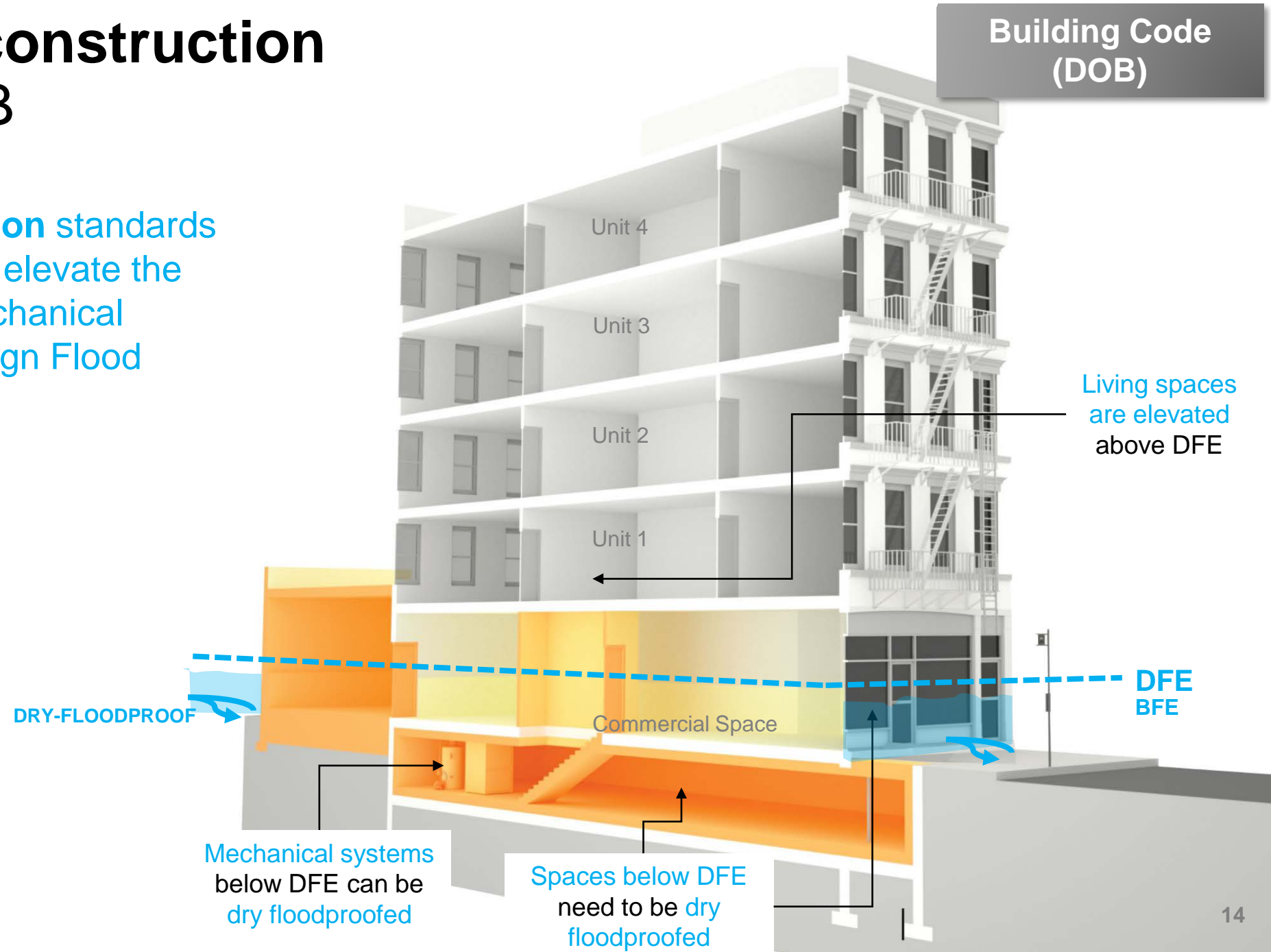


Resilient Residential Building – Elevated to DFE

After construction - House on 91st St./161st Ave.

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 Commercial Buildings

Building Code
(DOB)

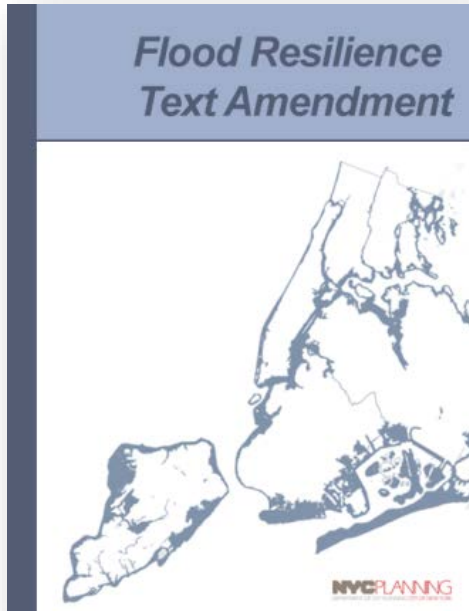


Commercial Ground Floor
Existing Building with access at grade (deployable flood shields)



Commercial Ground Floor
Elevated to DFE ~ 3 feet

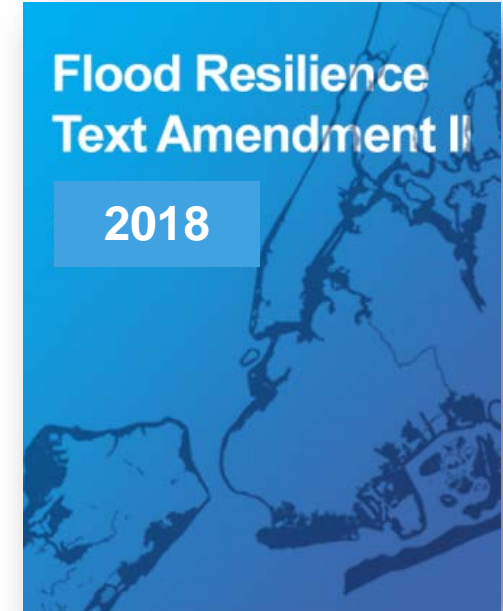
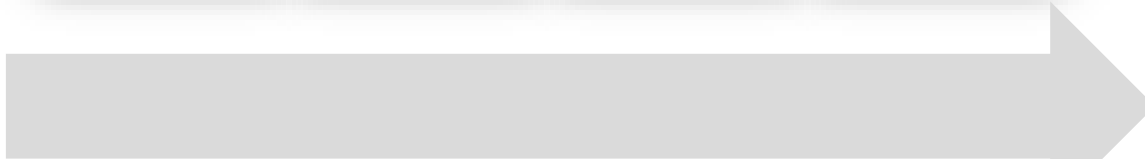
Flood Resilience Zoning Projects at DCP



2013

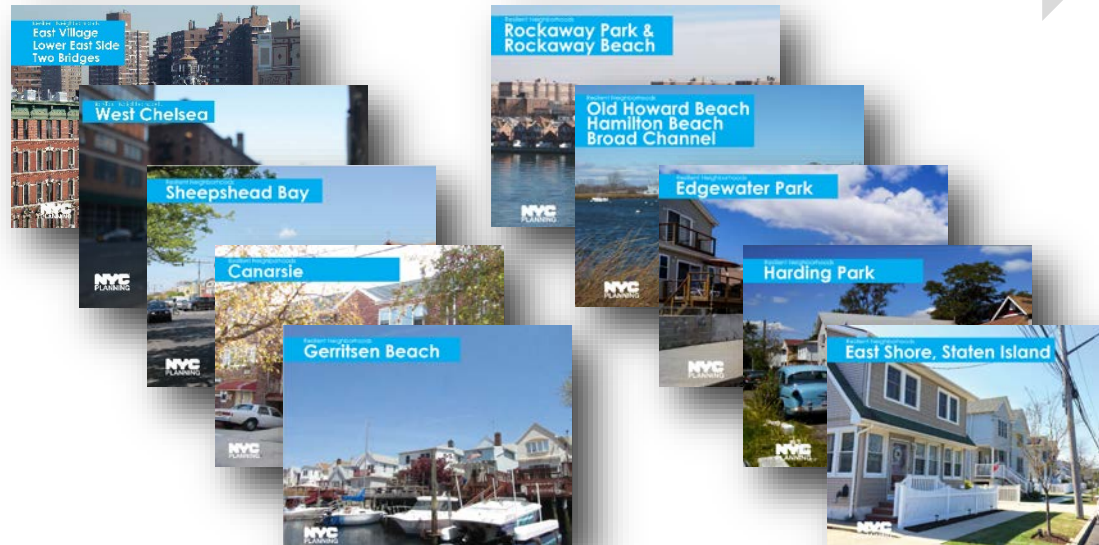
“Flood Text”

initial temporary regulations
to facilitate recovery



2018

“Flood Text Update”
improve upon, and make
permanent, the Flood Text



2013 Citywide Flood Text Temporary Rules



Main Goal

Facilitate Recovery
from Hurricane Sandy

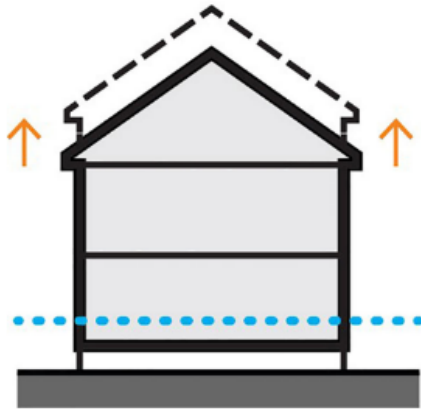
2013: Temporary provisions that allow storm-damaged and new buildings to comply with higher flood elevations and resilient construction requirements by **removing zoning barriers**

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

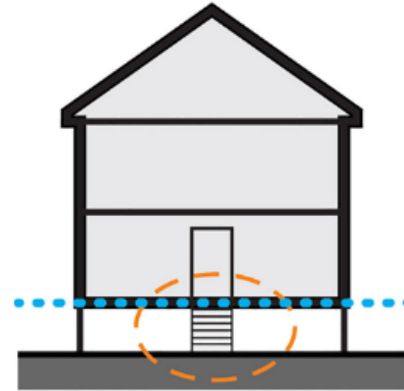
2013 Citywide Flood Text

Amended zoning in six key areas

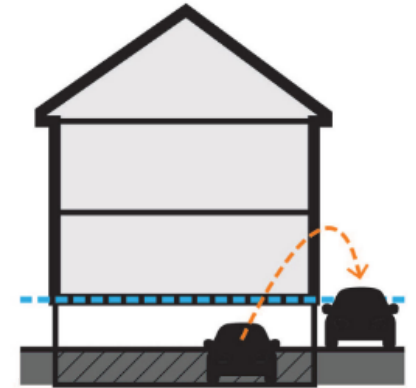
1
Height
Measured from
flood elevation



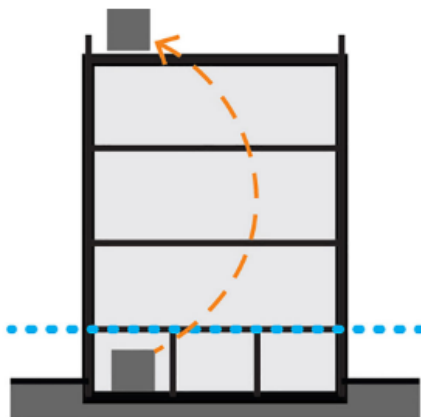
2
Access
Flexibility for
stairs, ramps, lifts



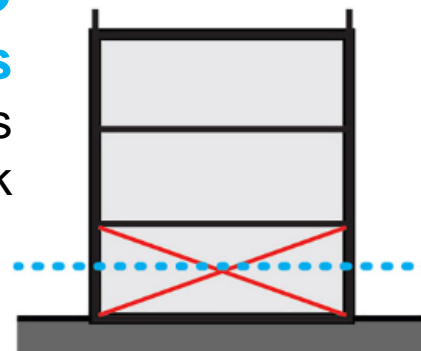
3
Parking
Flexibility to
relocate parking



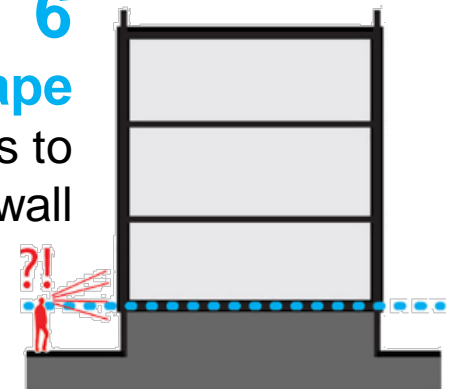
4
Systems
Flexibility to
relocate/elevate



5
Ground Floors
Account for costs
of new flood risk



6
Streetscape
Require features to
mitigate blank wall

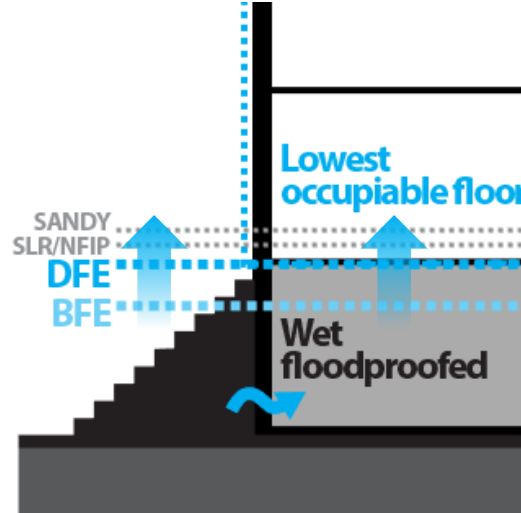


Flood Text Update Permanent Rules



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

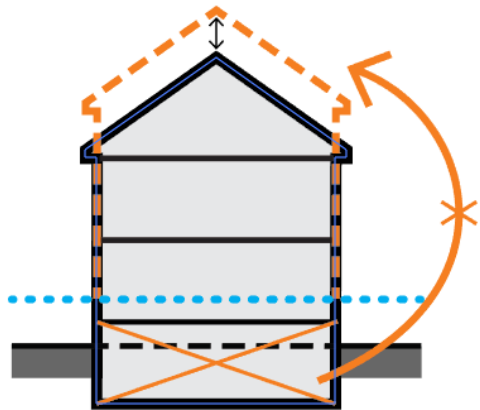
Enhance Neighborhood Character
By encourage good resilient design within **coastal communities**

Flood Text Update

Issues identified by DCP and coastal communities

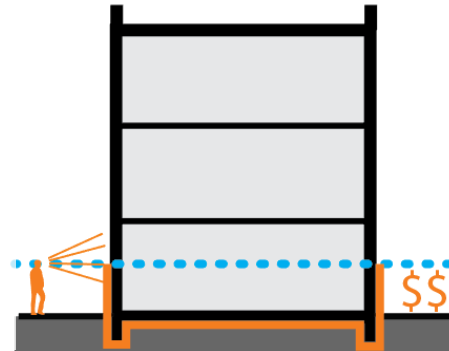
1 Subgrade Spaces

Homeowners may face the loss of subgrade spaces when retrofitting



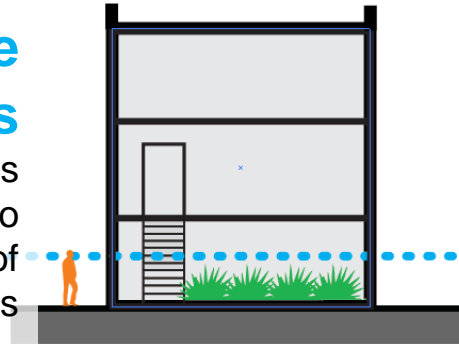
2 Active Uses

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



3 Active Streetscapes

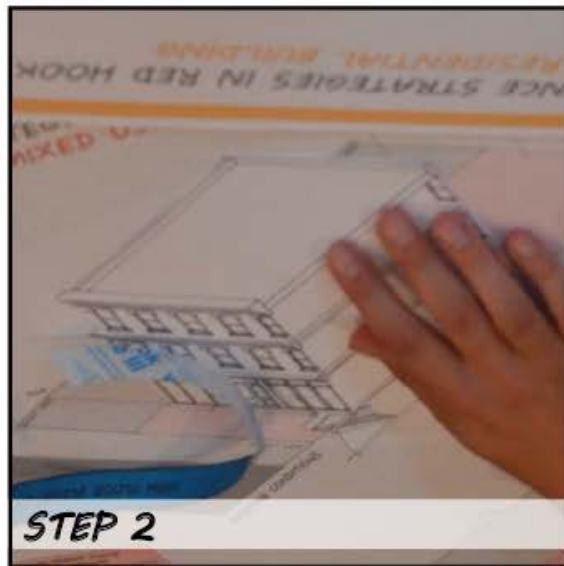
Design requirements may be needed to mitigate the effects of elevated buildings





STEP 1

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



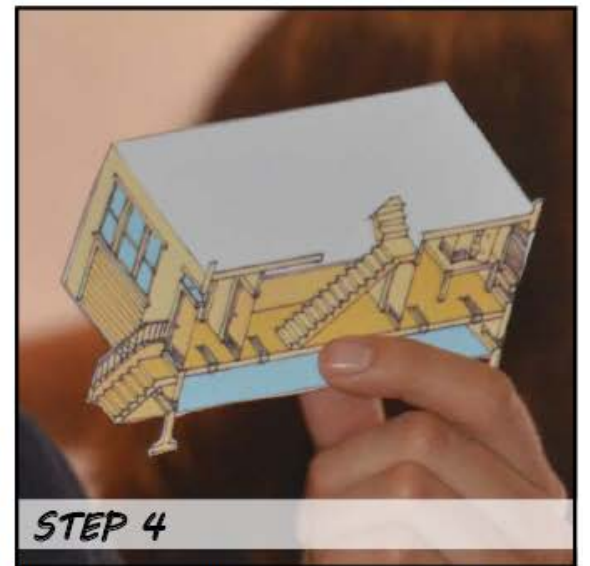
STEP 2

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



STEP 3

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



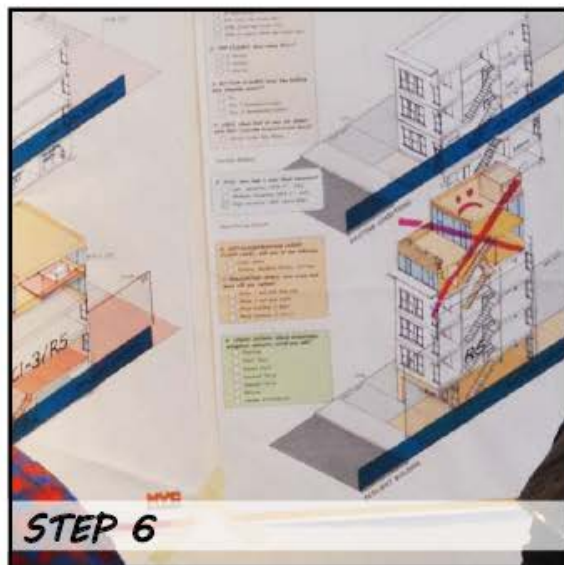
STEP 4

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



STEP 5

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



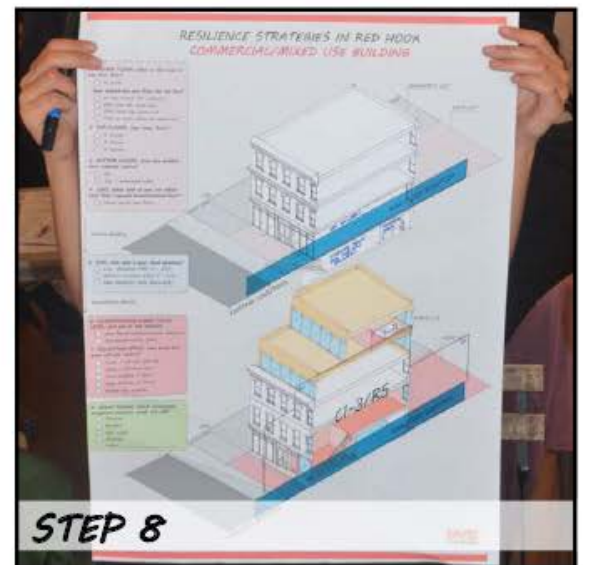
STEP 6

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



STEP 7

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



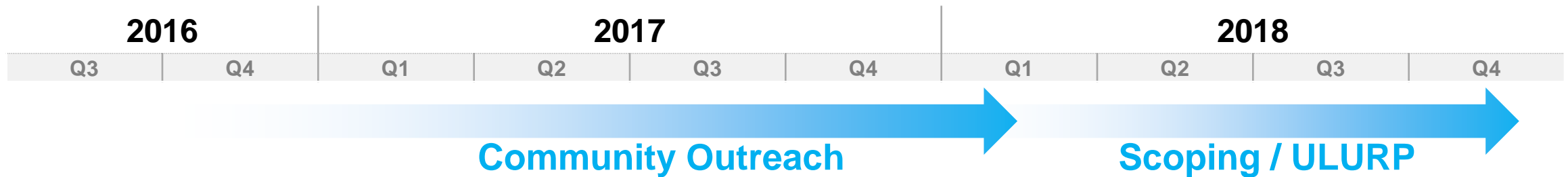
STEP 8

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

Flood Text Update

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