Flood Resilience Text Amendment II

Staten Island Borough Board

April 5, 2017

NYC PLANNING

#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

FEMA Flood Map
Citywide Flood Risk

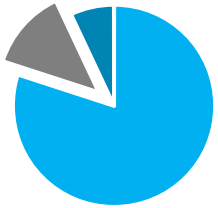
NYC's flood risk is high.

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

100 Year Floodplain
FEMA 2015 PFIRM

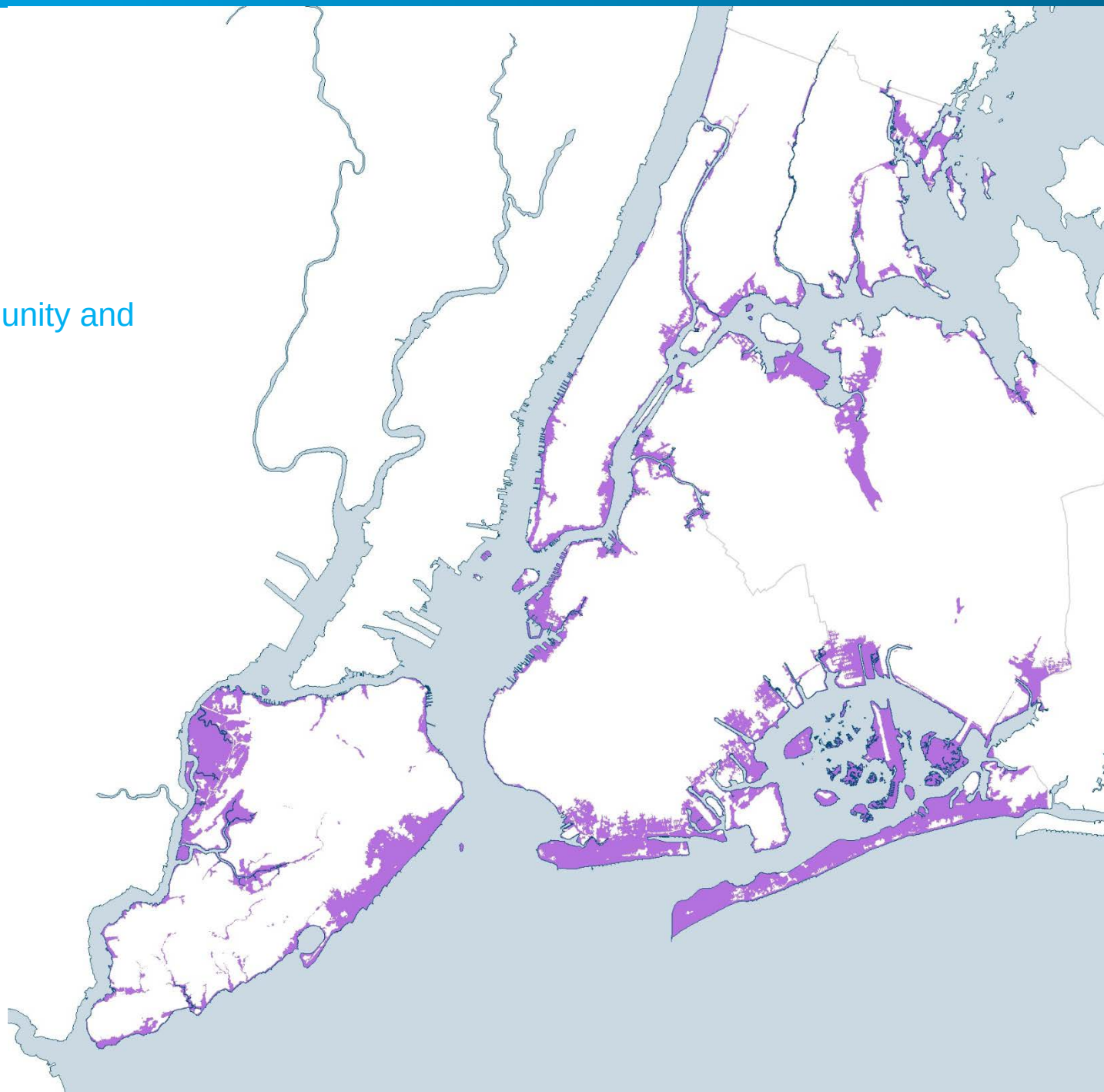
Population: **400,000**
Buildings: **71,500**

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



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FEMA Flood Map
Flood Risk in Staten Island

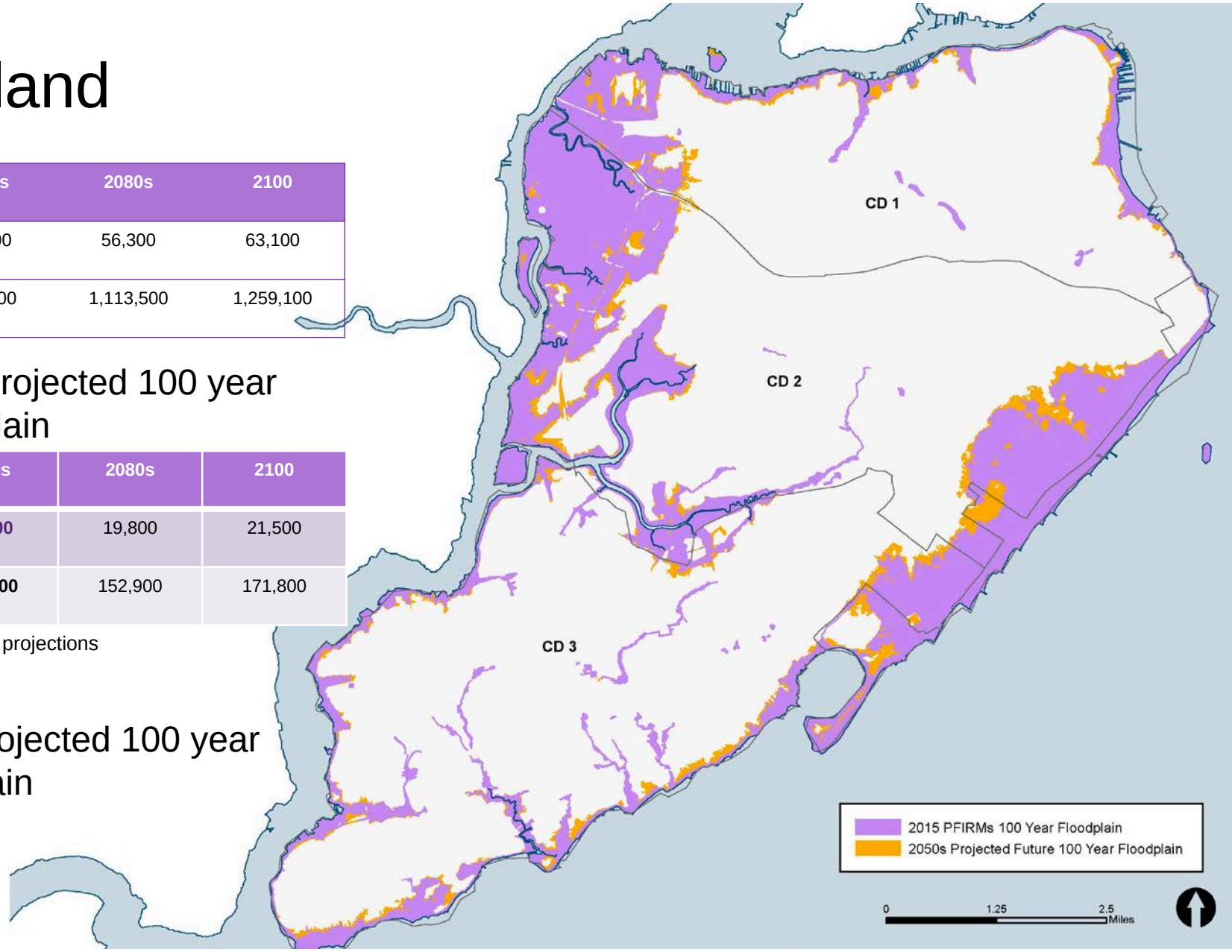
Population in Floodplain	2007	2013	2020s	2050s	2080s	2100
Staten Island	18,100	30,700	38,600	44,900	56,300	63,100
Citywide	218,000	400,000	605,300	808,900	1,113,500	1,259,100

2015 PFIRMs → **46% increase** → **100% increase** → 2050 Projected 100 year flood plain

Buildings in Floodplain	2007	2013	2020s	2050s	2080s	2100
Staten Island	8,000	**11,800**	14,200	**16,700**	19,800	21,500
Citywide	35,000	**71,500**	93,600	**118,000**	152,900	171,800

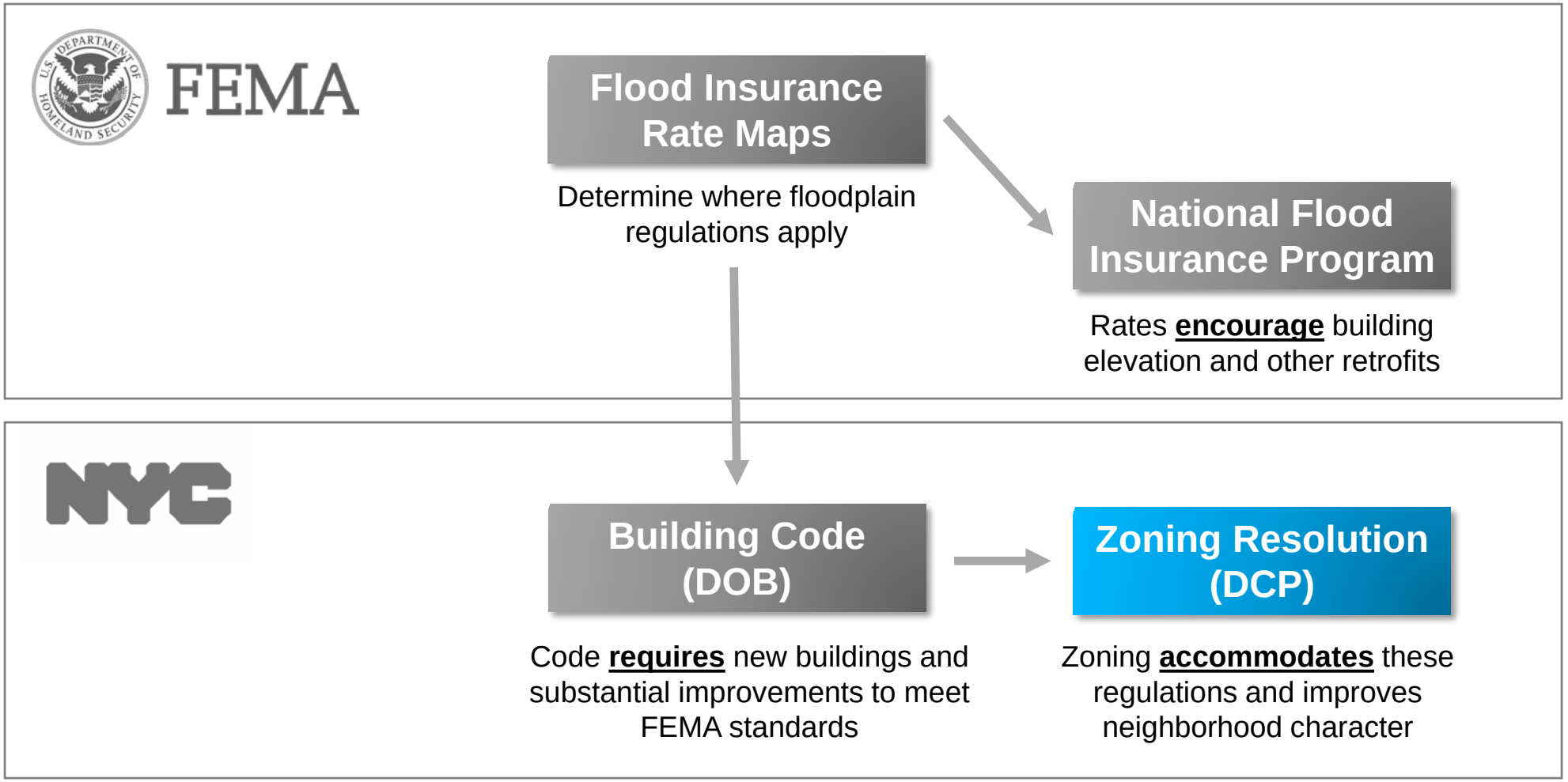
*Future flood zone impacts based on NPCC2 90th percentile sea level rise projections

2015 PFIRMs → **41.5% increase** → **59% increase** → 2050 Projected 100 year flood plain



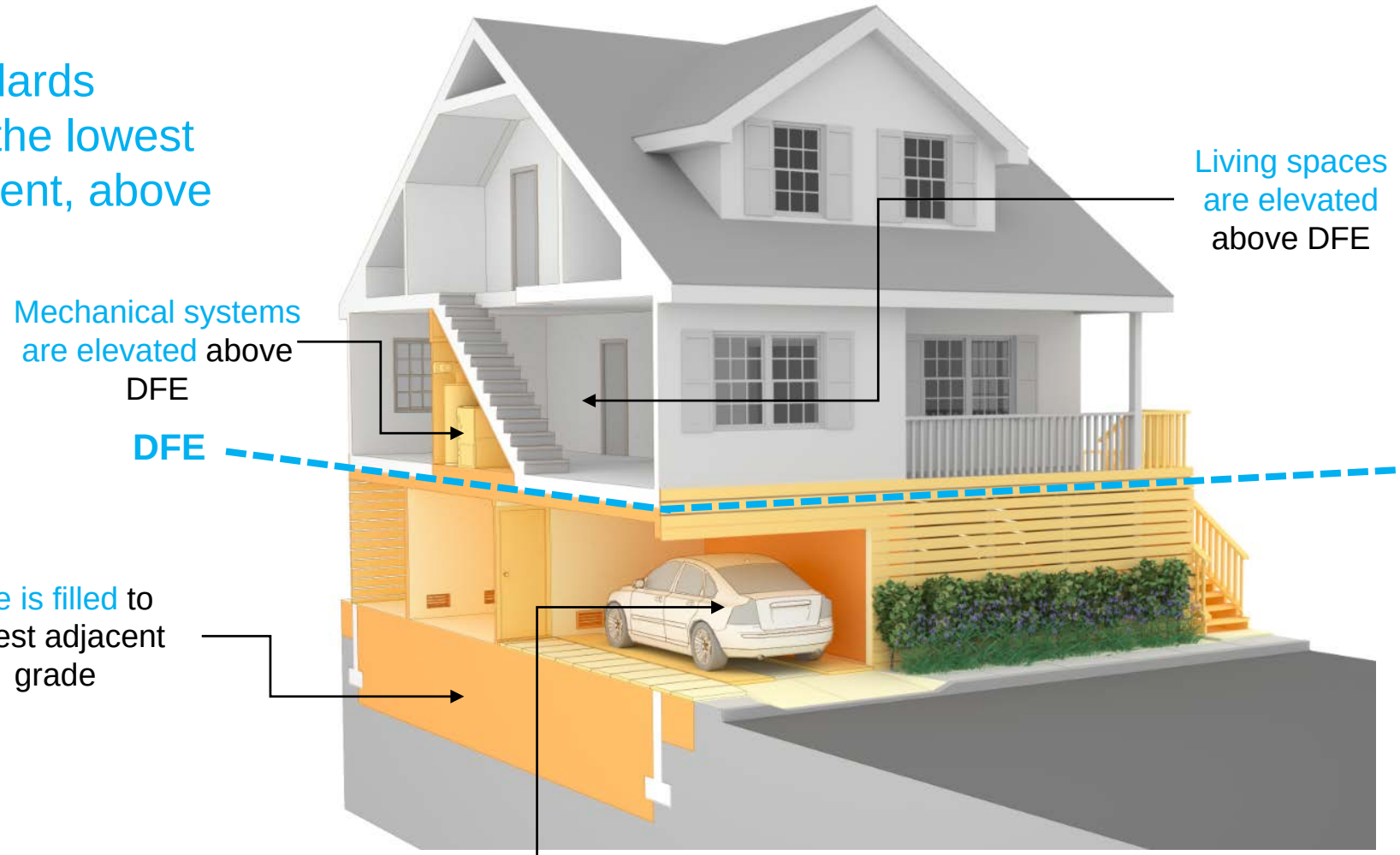
Common Building Typologies
Flood Risk in Staten Island

How are buildings in the floodplain regulated?



Flood-resistant construction
Required by DOB

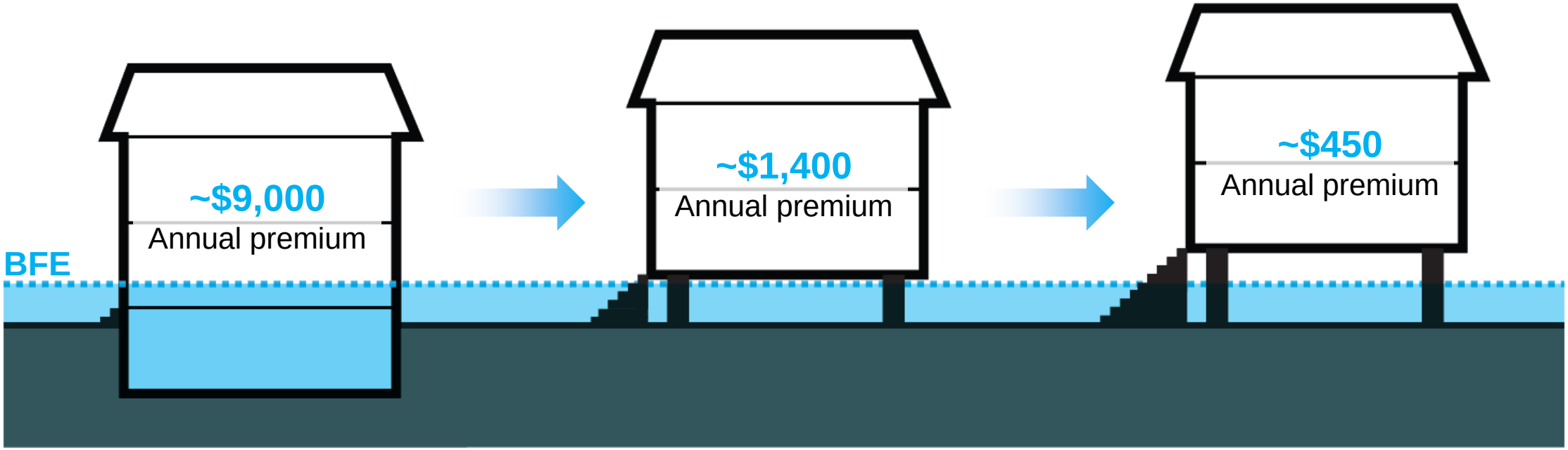
Flood resilient construction standards require certain buildings to elevate the lowest floor, as well as mechanical equipment, above the design flood elevation (DFE).



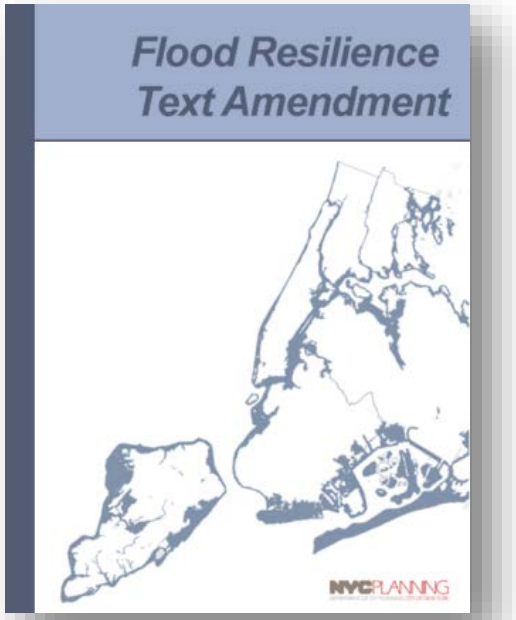
Flood insurance rates
Set by FEMA

Raising or retrofitting your 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).



Flood resilience zoning
Projects at DCP



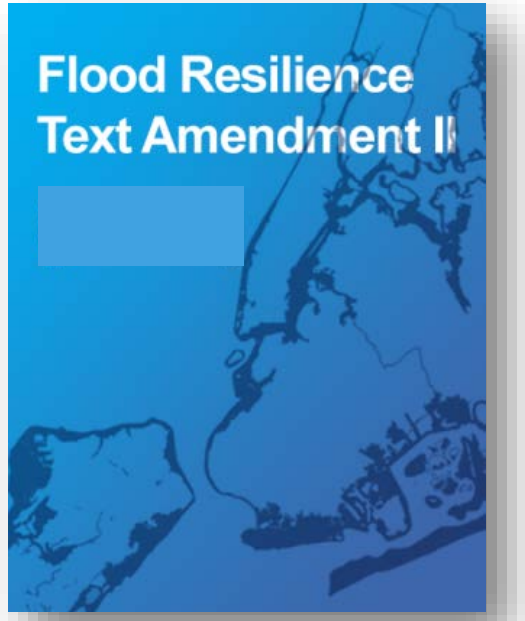
2013

“Flood Text”

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

2015 “SRNR”

additional zoning relief to expedite recovery



2018

“Flood Text II”

improve upon, and make permanent, the Flood Text

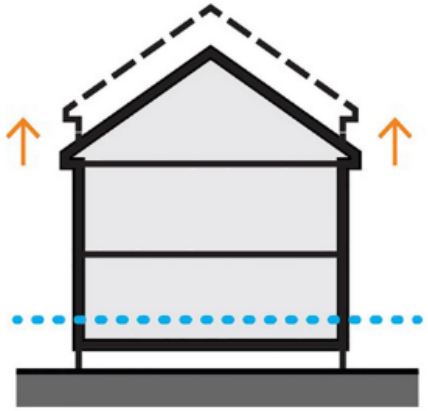
2013 Citywide Flood Text

Amended zoning in six key areas

1

Height

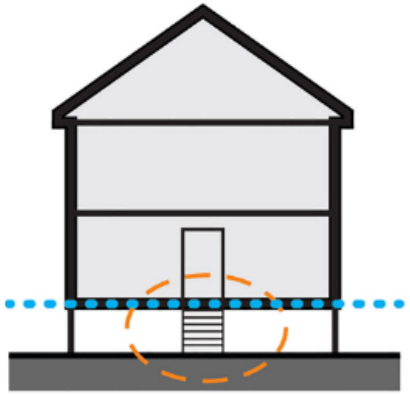
Measured from flood elevation



2

Access

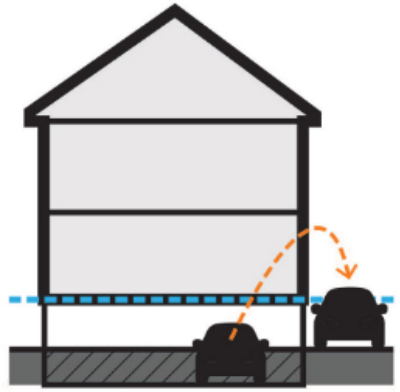
Flexibility for stairs, ramps, lifts



3

Parking

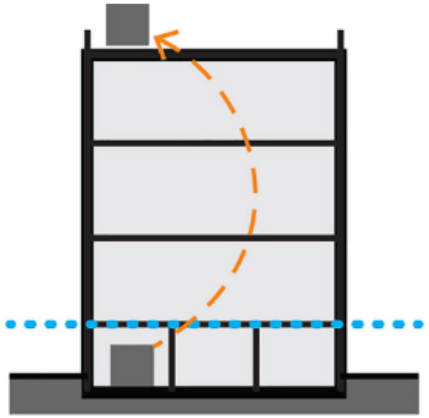
Flexibility to relocate parking



4

Systems

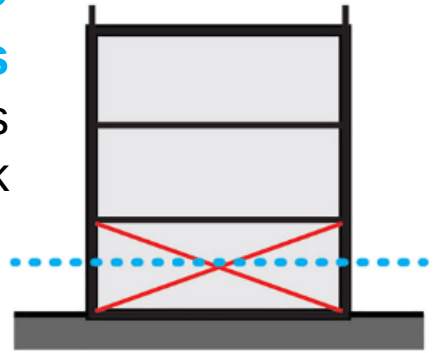
Flexibility to relocate/elevate



5

Ground Floors

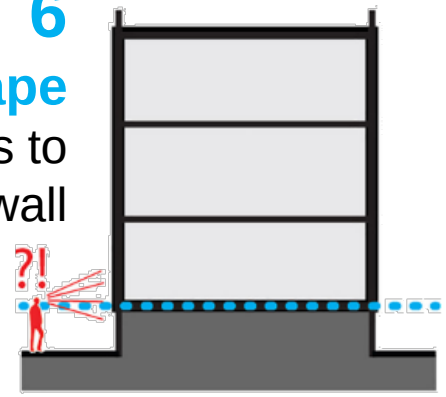
Account for costs of new flood risk



6

Streetscape

Require features to mitigate blank wall



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2015 Special Regulations

Accelerate recovery in Sandy-damaged neighborhoods

Temporary regulations, expiring in 2020, in limited areas of Brooklyn, Queens, and Staten Island

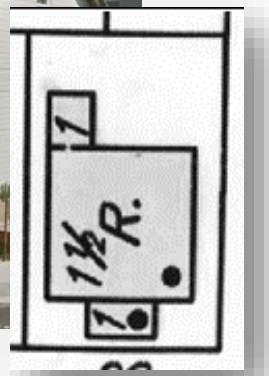
In Staten Island: Tottenville, Great Kills, Oakwood Beach, Cedar Grove, New Dorp Beach, Midland Beach, and South Beach

Simplified process

for documenting old homes

Home in Gerritsen Beach

© Google 2015

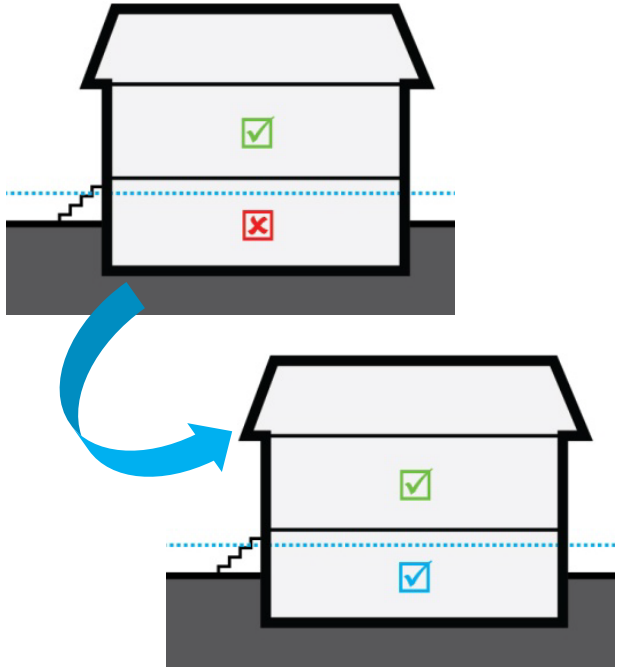


1931 Sanborn Map

Used with permission from The Sanborn Library, LLC

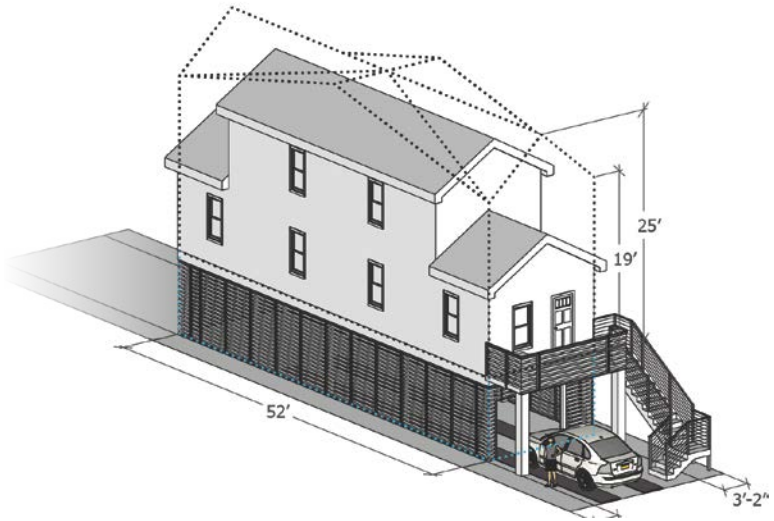
Removed disincentives

such as loss of basements



Established new envelope

for rebuilds on small existing lots



DCP Staten Island
Projects and outreach

2015				2016				2017		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3

SI East Shore Community Outreach

Worked with CAC and SI stakeholders to develop recommendations for Resilient Neighborhoods East Shore Study

ULURP for East Shore Buyout Areas

Release East Shore Report

DCP Staten Island
Projects and outreach

The **Resilient Neighborhoods East Shore Report** is scheduled for release this Spring.

The study's key recommendations include:

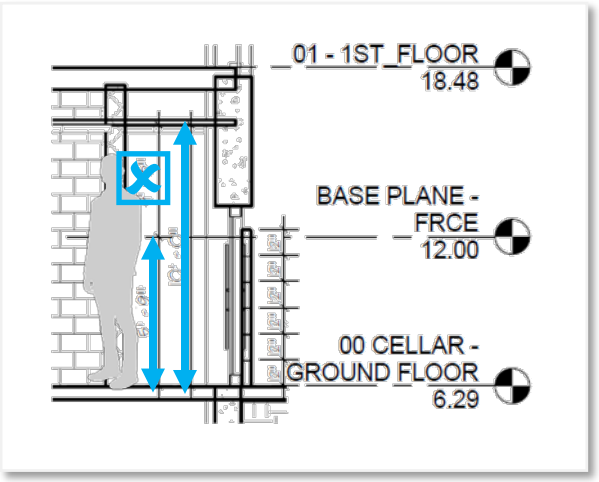
- Working to reduce flood risk by supporting the U.S. Army Corp's Line of Protection
- Advancing resilient building by creating a new zoning envelope for detached and semi-detached homes in the floodplain and reducing zoned density in New Dorp Beach
- Strengthening key waterfront destinations by exploring rezoning options for Midland Avenue and Sand Lane to encourage attractive mixed-use development
- Preserving ecologically sensitive natural environments and open spaces by limiting density and ensuring review of development near wetlands and in other hazardous areas

Flood Text II

Need for a new citywide text amendment:

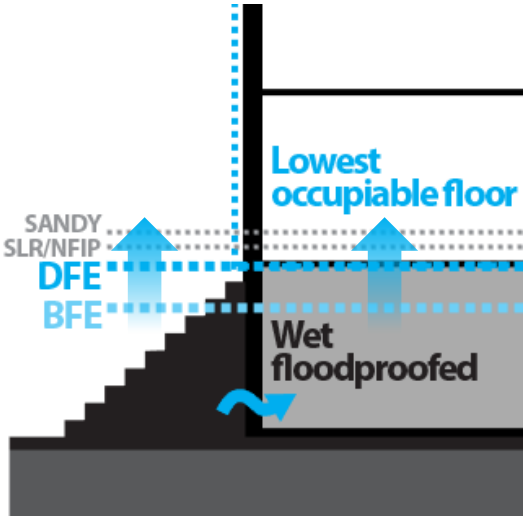
1

Make the provisions of the current, temporary 2013 Flood Text **permanent**



2

Fix and **improve** provisions based on studies and lessons learned in six key areas



3

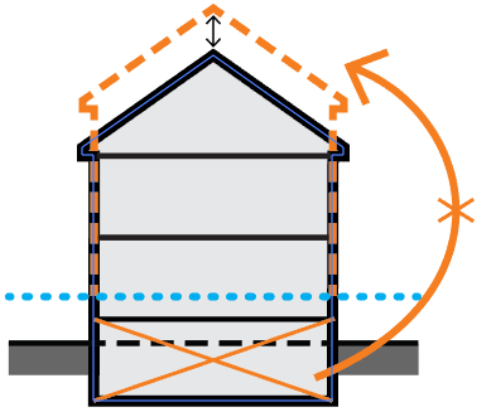
Begin to **promote** new development + proactive retrofitting to high resiliency standards

Flood Text II

Fix and improve provisions based on lessons learned

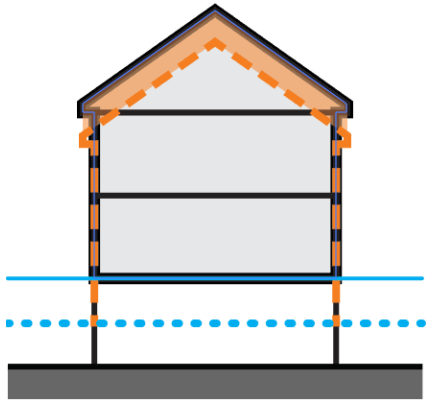
1 Height

Homeowners may face the loss of subgrade spaces when retrofitting



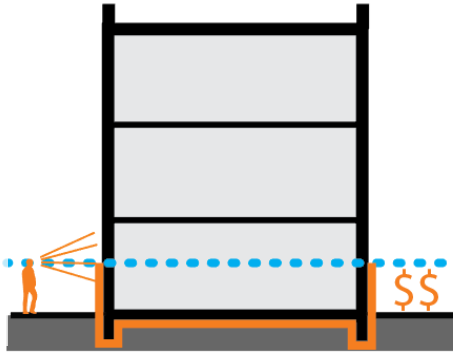
2 Height

Properties owners may want to address future risk by over-elevating



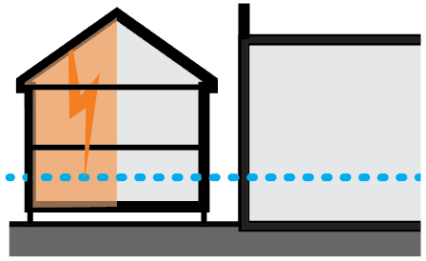
3 Ground Floors

Current incentives to keep active ground floors may not be enough



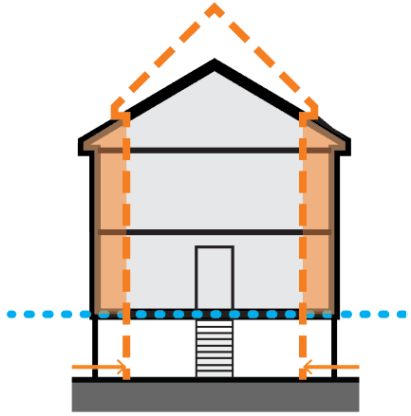
4 Homes in M Districts

Existing homes in M. Districts, if damaged, may not be able to rebuild



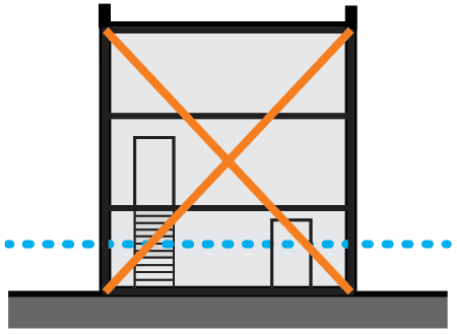
5 Old Homes in Small Lots

Old bungalow homes on small lots may need more flexibility to rebuild in the future



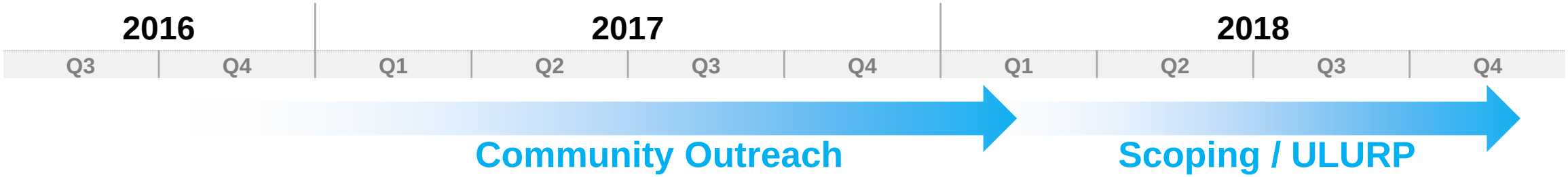
6 Highly Vulnerable Areas

Density may need to be limited in highly vulnerable areas



Flood Text II
Outreach

DCP plans a robust public engagement process:



As part of this outreach process, DCP will:

- **Partner 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

*** Schedule is tentative and 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 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.

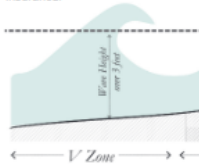
Flood Risks

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 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 buil 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 c spaces, are available to all buildings the floodplain, even if not fully compl Appendix G.

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

*Per the more restrictive of the 2007 FIRMs PFIRMs.

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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.

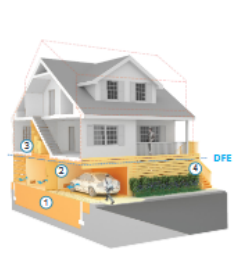
Overview

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

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Thank you!

For more information, and to stay involved, email

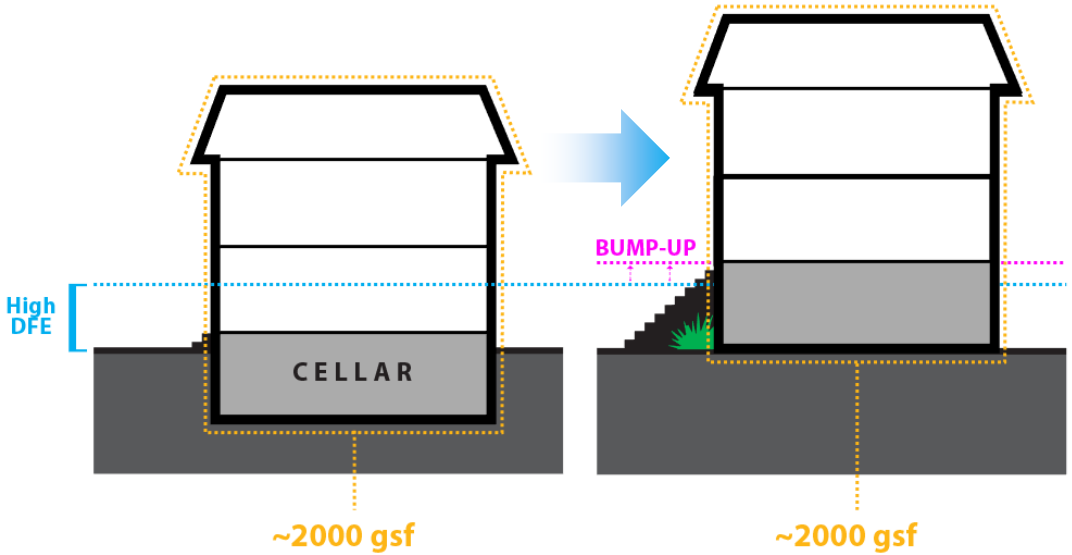
resilientneighborhoods@planning.nyc.gov

Flood Text II
Lesson learned: Cellar and Residential living space lost

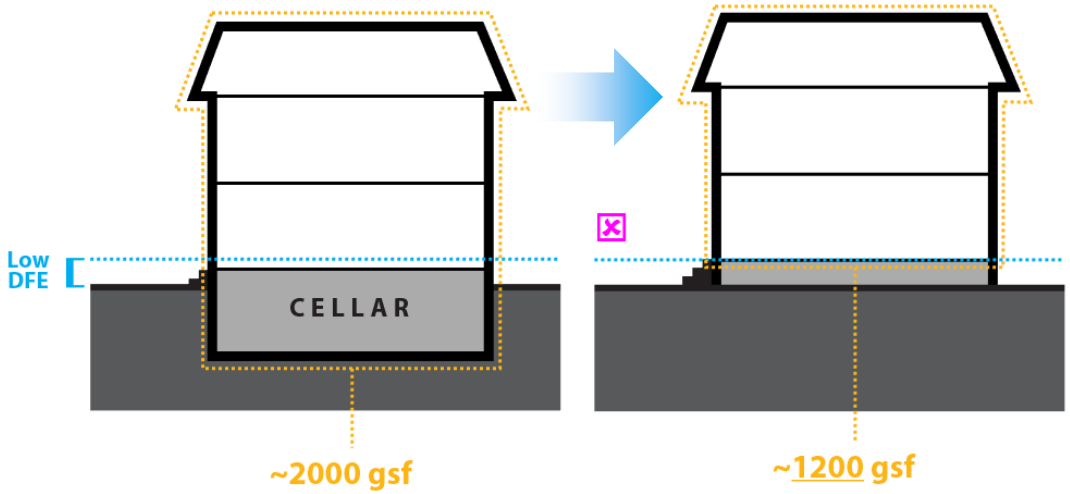
EXAMPLE ISSUE

The 2013 Flood Text allowed for adjustment of “zoning envelopes” to facilitate the retrofitting and replacement of living space above the DFE, out of harm’s way, but this flexibility applies unevenly:

Case study 1: Replacement of ‘cellar’ story in a high-DFE retrofit



Case study 2: Loss of living space in a low-DFE retrofit



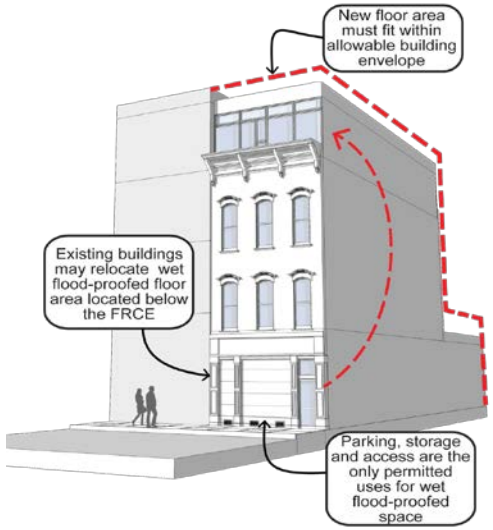
Flood Text II

Lesson learned: FAR incentive to retrofit buildings not effective

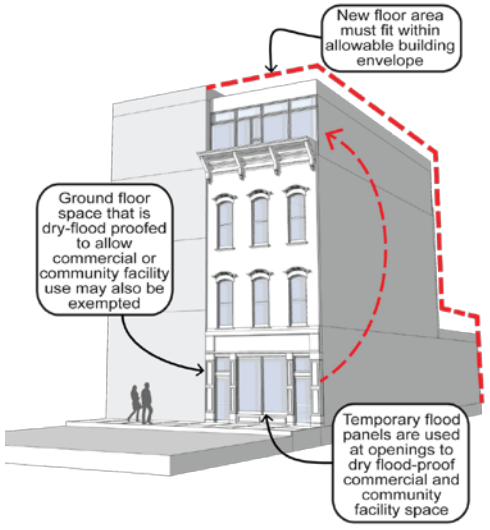
EXAMPLE ISSUE

The 2013 Flood Text allowed for floodproofed space to be exempted from floor area to incentivize the retrofitting of existing buildings but had the following issues:

- Analysis of DOB permitting indicates this incentive likely has not been used since it was introduced.
- Restrictions accompanying this flexibility (only applies in certain districts, up to 10,000 sq. ft., C space cannot be replaced atop R, prohibition against creating new units, requirement to provide new parking spaces) may be too onerous.
- Only applies to existing buildings – not new buildings.



Wet floodproofing



Dry floodproofing

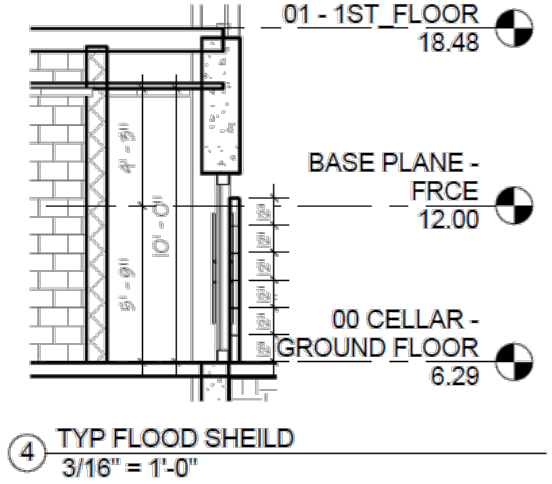
Flood Text II

Lesson learned: Desirable ground floor retail not being provided

EXAMPLE ISSUE

The 2013 Flood Text redefined “cellar” to exempt at-grade stories to incentivize the retrofitting of existing buildings but had the following issues:

- Bad urban design outcomes due to “squishing” – dark, low-ceilinged establishments.
- Causes lower-grade commercial stock, limits the types of retail tenants and services that can locate in the building, such as restaurants.
- Doesn’t apply to [at least half] of the floodzone.
- Doesn’t create a zoning incentive to prefer **dry floodproofing** implementations over wet floodproofing (active over passive).



Example of ‘squished’ retail
(1809 Emmons Ave., BK)

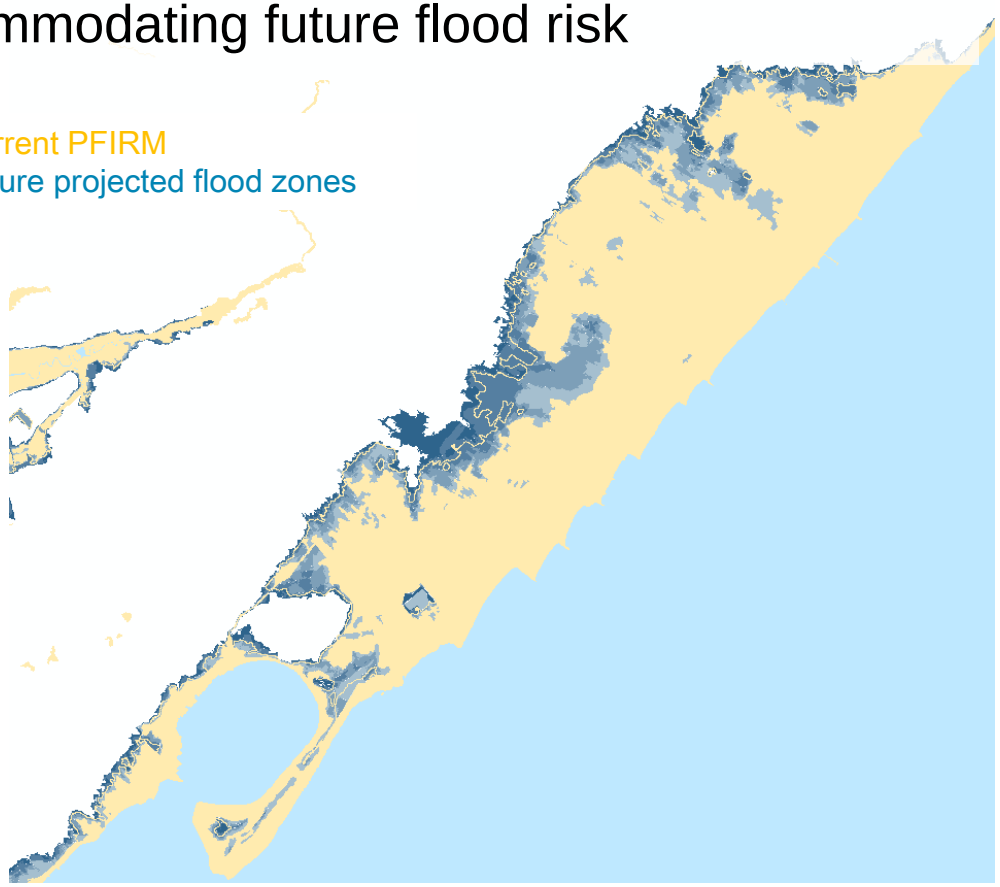
Flood Text II

Lesson learned: Additional height not permitted for future flood projections

EXAMPLE ISSUE

The 2013 Flood Text doesn't provide zoning relief for accommodating future flood risk

- Zoning relief is "minimum necessary" to elevate only to the DFE – nothing higher.
- Some building owners may want to take sea level rise, future flood heights, or more powerful storms (e.g., Hurricane Sandy) into account when building. No incentives.
- Close coordination is necessary to align zoning with FEMA "Climate Smart" maps.

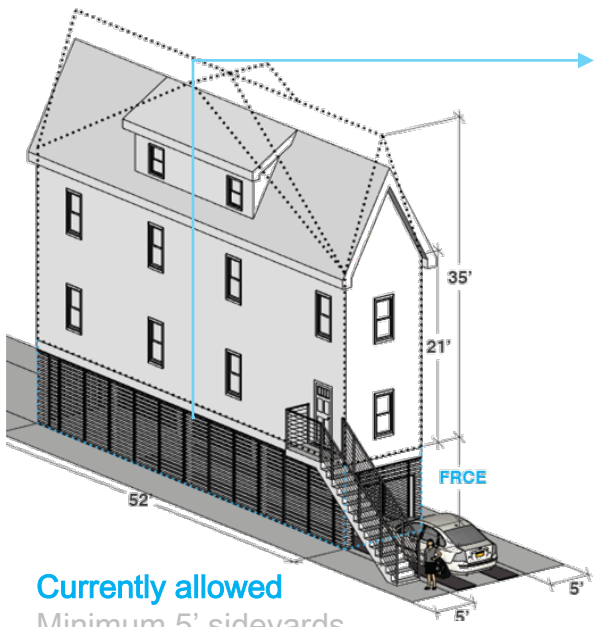


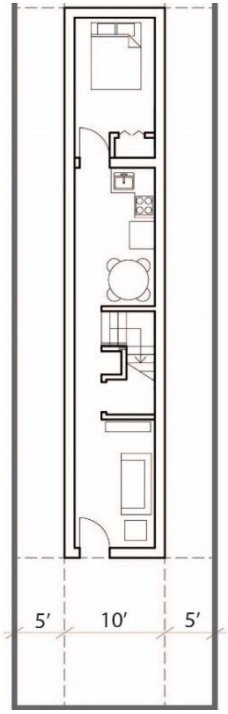
Flood Text II
Lesson learned: Cottage envelope is not permanent

EXAMPLE ISSUE

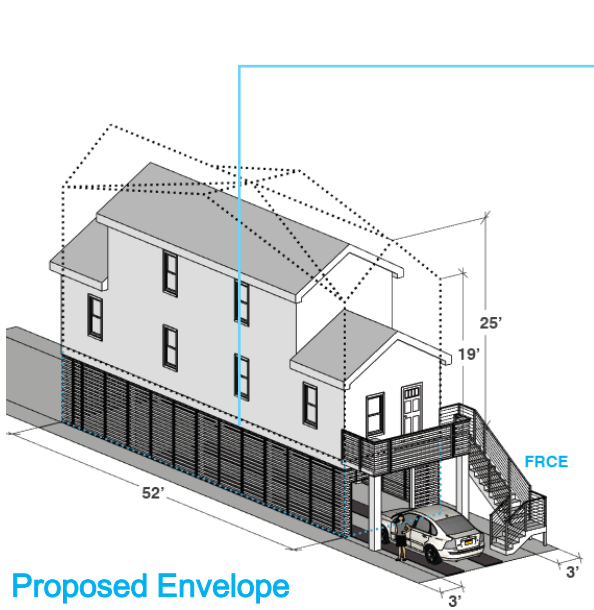
The 2015 SRNR created a new contextual envelope to facilitate the reconstruction of the very small homes on small lots, however these rules were temporary:

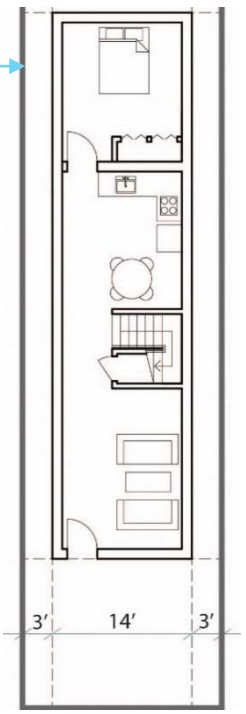
- Not available permanently (past 2022)
- Doesn't apply outside of "Neighborhood Recovery Areas"
- Doesn't prevent "candlesticks" on currently vacant lots





Currently allowed
Minimum 5' sideyards
21'/35' height
✓ Fits 0.6 FAR





Proposed Envelope
Minimum 3' sideyards
19'/25' height
✓ Fits 0.6 FAR

Flood Text II

Lesson learned: Not all existing buildings were grandfathered

EXAMPLE ISSUE

To facilitate the recovery of non-conforming and non-complying homes, the 2013 Flood Text gave greater relief to these homes, but 500+ residential buildings in C8/M Districts were left out.

- **Underlying Article V** rules always allow 1+2 family homes to be rebuilt, regardless of level of damage**, except R in C8/M**
- **FT I** allowed any non-conforming building damaged >50% by Hurricane Sandy to rebuild, **except R in C8/M**

100y Flood Zone - PFIRMS (2015)

Non-Conforming Single-Two Family Lots

Non-Conforming Multi-family Lots