

Building a Resilient NEW YORK CITY

Zoning for Coastal Flood Resiliency

COMMUNITY PREPAREDNESS

AND COMMUNITIES NEED PREPARED TOO. THE CITY IS WORKING TO MAKE SURE RESIDENTS AND BUSINESSES ARE PREPARED NOT JUST FOR THE NEXT SANDY, BUT FOR ANY EMERGENCY WE FACE.

BEING PREPARED TO EVACUATE IS IMPORTANT IN THE EVENT OF AN APPROACHING STORM.

INDUSTRIAL BUILDINGS SHOULD PRIORITIZE ELEVATING VALUABLE EQUIPMENTS ABOVE THE FLOOD LEVEL.

WETLANDS HELP TO SLOW DOWN FLOOD WATERS AND ACCELERATE RECOVERY BY ABSORBING FLOODS

ELEVATED MECHANICAL SYSTEMS
WET FLOODPROOFED GROUND-FLOOR
ELEVATED IMPORTANT EQUIPMENT
ELEVATED OFFICE SPACE
INDUSTRIAL RESILIENT BUILDING

INFRASTRUCTURE HARDENING

HARDENING INFRASTRUCTURE SYSTEMS FROM FLOODING HELP TO PREVENT THE LOSS OF POWER, COMMUNICATIONS, AND TRANSPORTATION NETWORKS WHEN STORMS OCCUR.

FILLED-IN SUBGRADE SPACE
LIVING SPACES LOCATED ABOVE FLOOD LEVEL
DRY FLOODPROOFED GROUND-FLOOR
COMMERCIAL GROUND FLOOR
DRY FLOODPROOFED MECHANICAL ROOM
RESILIENT BUILDING

LIVING SPACES LOCATED ABOVE FLOOD LEVEL

WET-FLOODPROOFED GROUND-FLOOR

ALL RESIDENTIAL BUILDINGS NEED TO ELEVATE UNITS ABOVE THE FLOOD LEVEL.

N210095ZRY

CPC Post-Hearing – Feb 16, 2021

Post-Hearing Agenda

Zoning and Non-Zoning Topics

Zoning Topics

- 1) Future Floodplain + Future Maps
- 2) Historic Districts & Special Districts
- 3) New vs. Existing Buildings (height and floor area regulations)
- 4) Permitted Obstructions (mechanical equip.)
- 5) Power systems
- 6) Vulnerable Populations

Non-Zoning Topics

- 7) Green Infrastructure

Item 1

Future Floodplain

The Municipal Arts Society suggested that the expansion area should reflect the 2080's projected 1% floodplain, to better reflect the usable lifespan of buildings.

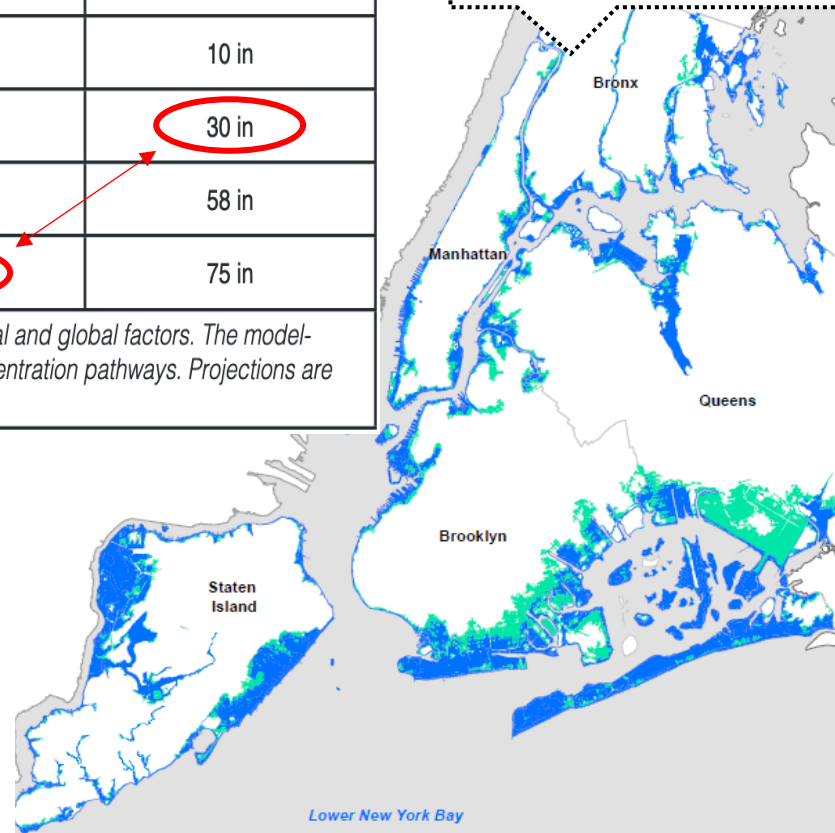
Table 8 – NYC sea level rise projections⁸⁹

| Baseline (2000-2004) 0 in | Low estimate (10 th percentile) | Middle range (25 th to 75 th percentile) | High estimate (90 th percentile) |
|---------------------------|--|--|---|
| 2020s | 2 in | 4-8 in | 10 in |
| 2050s | 8 in | 11-21 in | 30 in |
| 2080s | 13 in | 18-39 in | 58 in |
| 2100 | 15 in | 22-50 in | 75 in |

Note: Projections are based on six-component approach that incorporates both local and global factors. The model-based components are from 24 global climate models and two representative concentration pathways. Projections are relative to the 2000-2004 base period.

Where ZCFR's rules (ZR 64-00) are proposed to apply

NPCC's 2050 high-estimate projection for the future 1% annual chance floodplain (the likely scenario for the 2100)



1% annual chance floodplain (FEMA)* ■
 0.2% annual chance floodplain (FEMA)* ■

2050s 1% Annual Chance Floodplain (NPCC) ■

Item 1

Future Maps

One Board in the Bronx had a specific comment that suggested that FEMA's update to the FIRMs will occur in *less than one year* and therefore the proposal is premature.



The new maps are still several years ahead. Even though, ZCFR is built to always reflect the flood-risk map used at the time for Code purposes.



Item 2

Historic Districts and Special Districts

Concerns were raised regarding how ZCFR overrides the rules located within Special Districts and Historic Districts

Legend

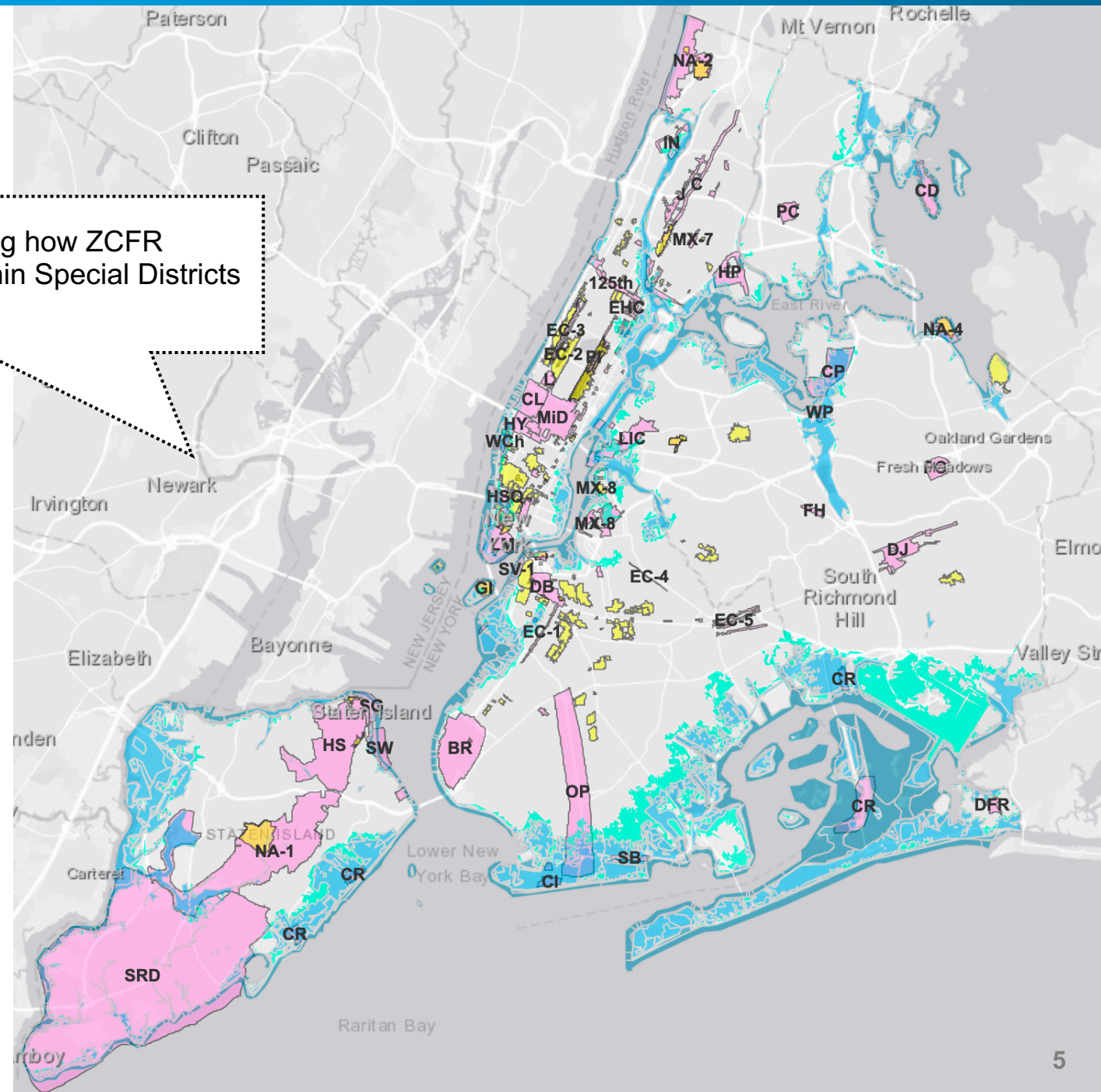
Preliminary Flood Insurance Rate Maps 2015

- V Zone
- A Zone
- Shaded X Zone

LPC Historic Districts



Special Districts

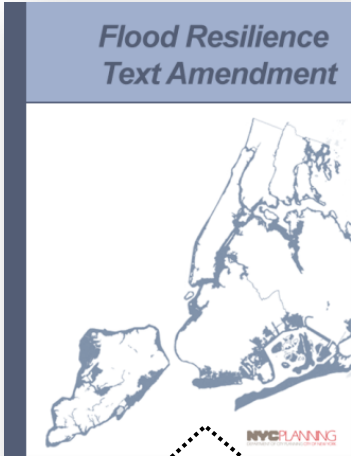


Item 2

Historic Districts

Manhattan CBs, the BPO and MAS, questioned the fact that ZCFR supersedes Historic District's regulations and suggested that building within these areas should be subject CPC's approval.

2013 Flood Text



Rules contained within Article VI of the Zoning Resolution already supersede Historic District regulations, therefore the proposal is consistent with how the ZR is structured.

LPC Regulatory Jurisdiction:

“Every designated structure, whether it is an individual landmark or a building in a historic district, is protected under the Landmarks Law and subject to the same review procedures.

Any minor work or alterations to a building [with the exception of ordinary repairs and some interior alterations], must obtain the Commission’s approval before beginning work. (...)

Alterations such as raising window and door openings, interior floors or entire buildings always requires LPC review, possibly at a Public Hearing.”

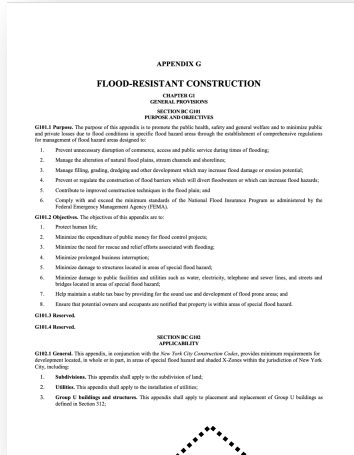
Source: West Chelsea Report, NYC Department of City Planning

Item 2

Historic Districts

Manhattan CBs, the BPO and MAS, questioned the fact that ZCFR supersedes Historic District's regulations and suggested that building within these areas should be subject CPC's approval.

Appendix G NYC Building Code



Appendix G already provides a discretionary pathway to buildings within Historic Districts.

NYC Building Code:

Projects that receive approval from the LPC and/or the NYS Historical Preservation Office that trigger Appendix G compliance can pursue a variance with the BSA in case the repair or rehabilitation poses a conflict with the preservation of the historic character and design of the structure

G107.1 General. The Board of Standards and Appeals shall hear and decide requests for variances from the requirements of this appendix. The Board of Standards and Appeals shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix.

G107.2 Conditions for variance.

G107.2.1 Historic structures. The Board of Standards and Appeals is authorized to issue a variance for the repair or rehabilitation of a historic structure provided that:

1. The application has received approval from the Landmark Preservation Commission and/or the New York State Historical Preservation Office, as applicable;
2. The proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure; and
3. The variance is the minimum necessary to preserve the historic character and design of the structure.

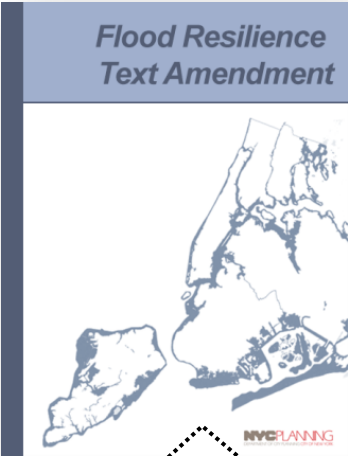
Item 2

Special Districts

Manhattan CBs, the BPO and MAS, as well as one Board in the Bronx, and the Riverdale N. Preservancy, questioned the fact that ZCFR supersedes Special District's regulations, with some suggestions that building within these areas should be subject CPC's approval.

Flood Resilience Text Amendment

2013 Flood Text



Rules contained within Article VI of the Zoning Resolution already supersede Special District regulations, therefore the proposal is consistent with how the ZR is structured.

The Bronx

- ✓ City Island
- ✓ Special Natural Area District (SNAD)
- ✓ Harlem River Waterfront
- ✓ Hunts Point

Brooklyn

- ✓ Bay Ridge
- ✓ Coney Island Mixed Use
- ✓ Coney Island
- ✓ Ocean Parkway
- ✓ Sheepshead Bay

Manhattan

- ✓ East Harlem Corridors
- ✓ Inwood
- ✓ Hudson River Park
- ✓ Battery Park City
- ✓ Governors Island
- ✓ Manhattanville Mixed Use
- ✓ Clinton
- ✓ Hudson Yards
- ✓ West Chelsea
- ✓ Tribeca Mixed Use
- ✓ Hudson Square
- ✓ Lower Manhattan

Queens

- ✓ Downtown Far Rockaway
- ✓ SNAD
- ✓ Long Island City Mixed Use
- ✓ Southern Hunters Point
- ✓ College Point
- ✓ Willets Point

Staten Island

- ✓ Bay Street
- ✓ SNAD
- ✓ South Richmond Development
- ✓ Stapleton Waterfront
- ✓ St. George

Included within the 2013 Flood Text
Being included within the ZCFR Text

Item 2

Special Districts: SWCD

98-02 General Provisions

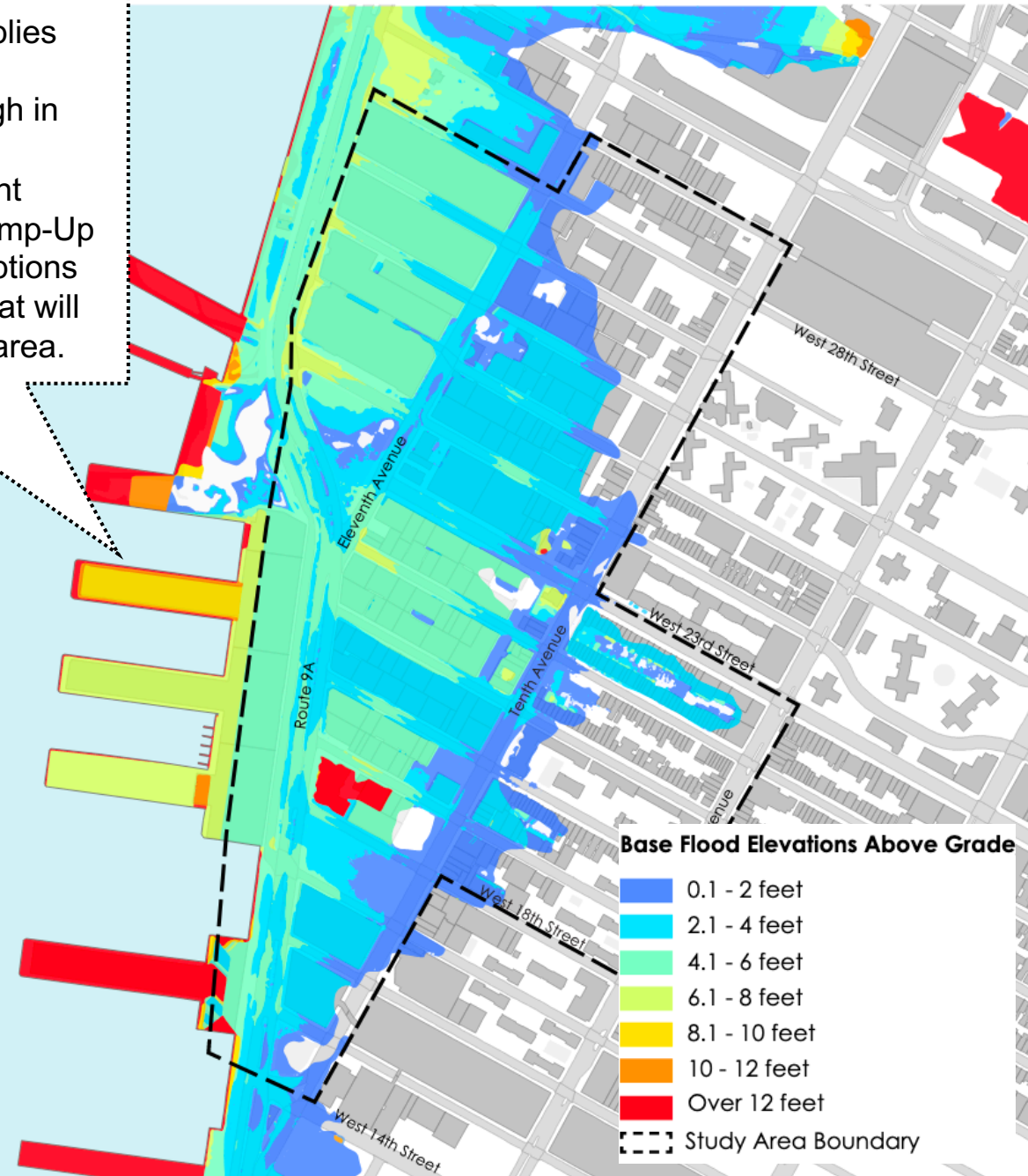
LAST AMENDED 10/10/2013

HISTORY



The provisions of this Chapter shall apply to any *zoning lot*, or portion thereof, within the *Special West Chelsea District*, except that the provisions of Sections **98-11** (Special Regulations for Developments and Enlargements Above, Beneath or Adjacent to the High Line) and **98-16** (Air Space Over a Railroad or Transit Right-of-way or Yard) shall also apply to any *zoning lot* south of the *Special West Chelsea District* over which the *High Line* passes. The regulations of all other Chapters of this Resolution are applicable, except as superseded, supplemented or modified by the provisions of this Chapter. In the event of a conflict between the provisions of this Chapter and other regulations of this Resolution, the provisions of this Chapter shall control. However, in *flood zones*, in the event of a conflict between the provisions of this Chapter and the provisions of Article VI, Chapter 4 (Special Regulations Applying in Flood Hazard Areas), the provisions of Article VI, Chapter 4, shall control.

The 2013 Flood Text already applies within the Special West Chelsea District. Since BFE levels are high in the neighborhoods, the current regulations already provide height allowances in the form of the Bump-Up regulations and floor area exemptions that are actually greater than what will be included within ZCFR in this area.



0 0.05 0.1 0.2 Miles



Base Flood Elevations Above Grade

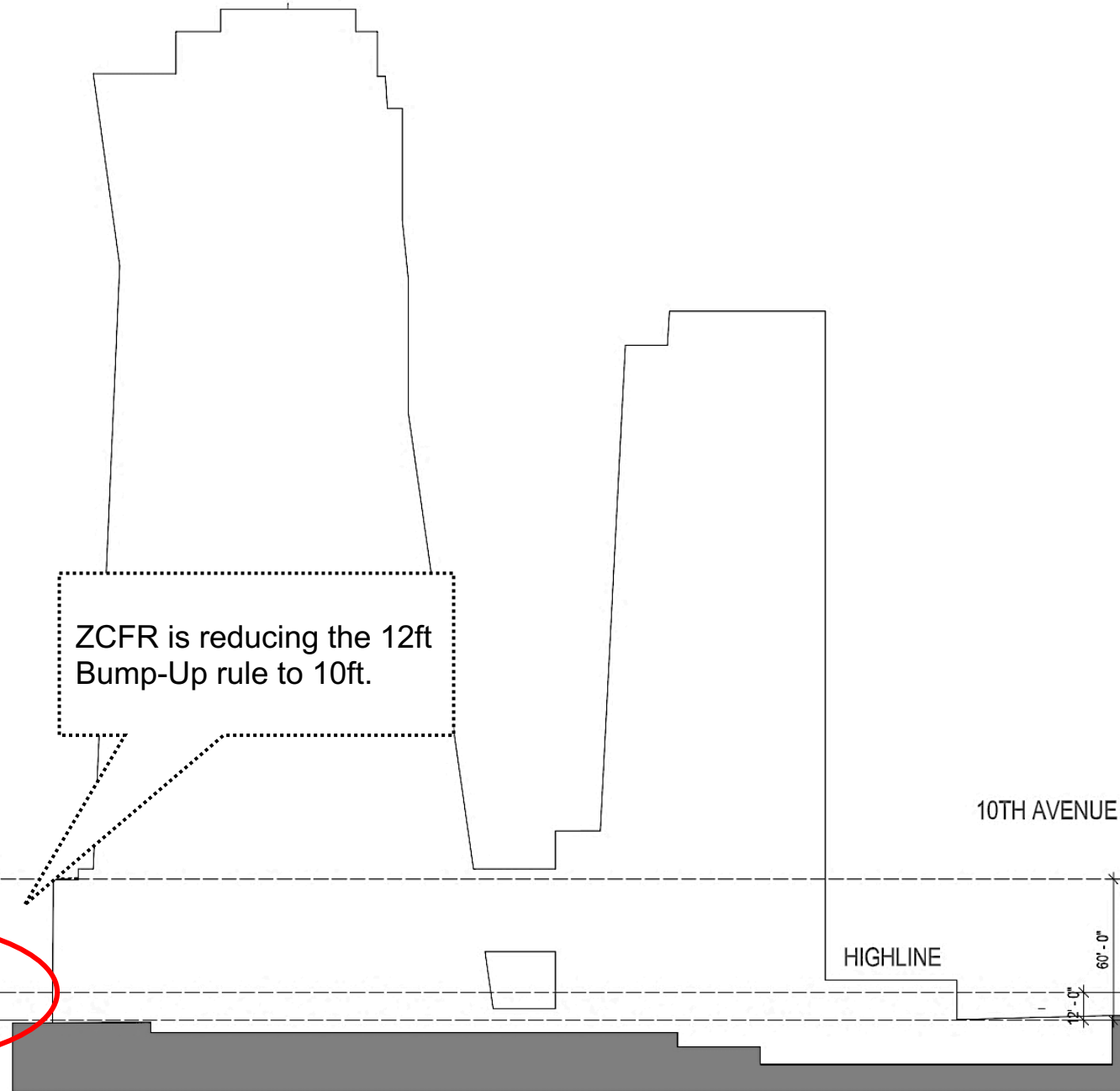
Item 2

Special Districts:
SWCD



Transparency at-grade built under the 2013 Flood Text, since the project had access to the bump-up rule and therefore could keep the floor at the sidewalk level

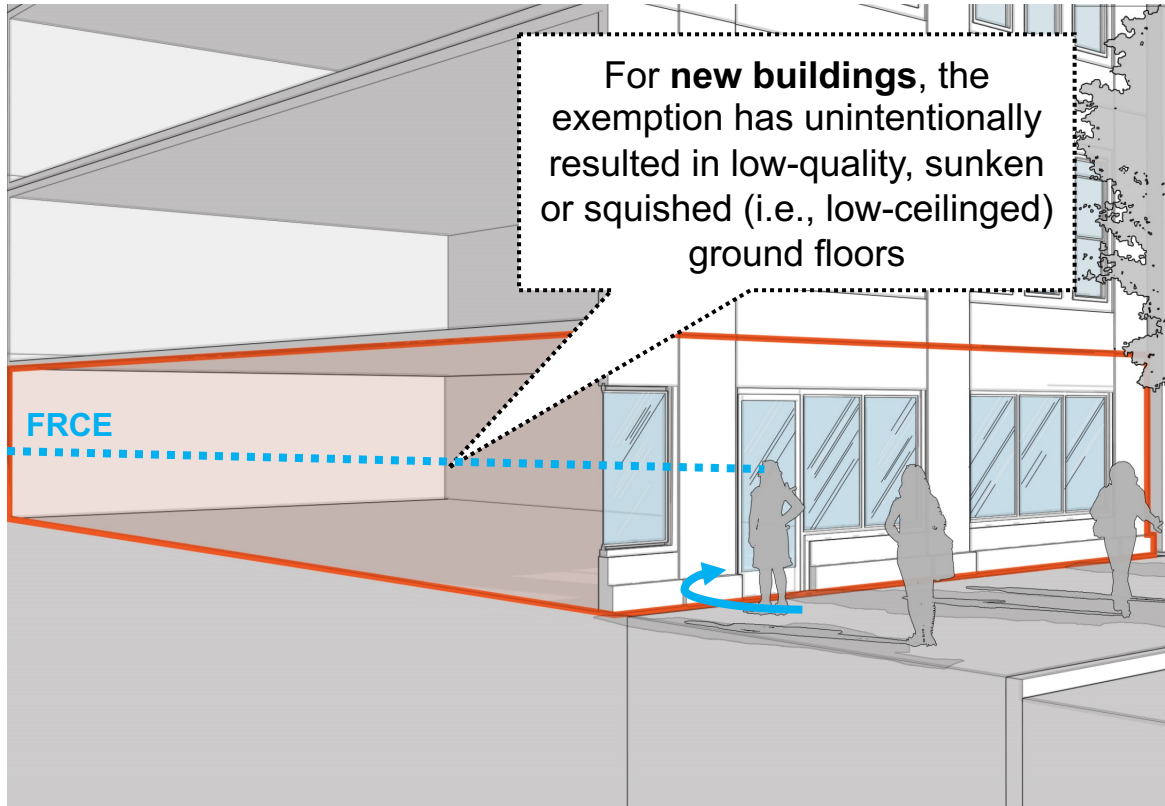
76 11th Avenue, West Chelsea



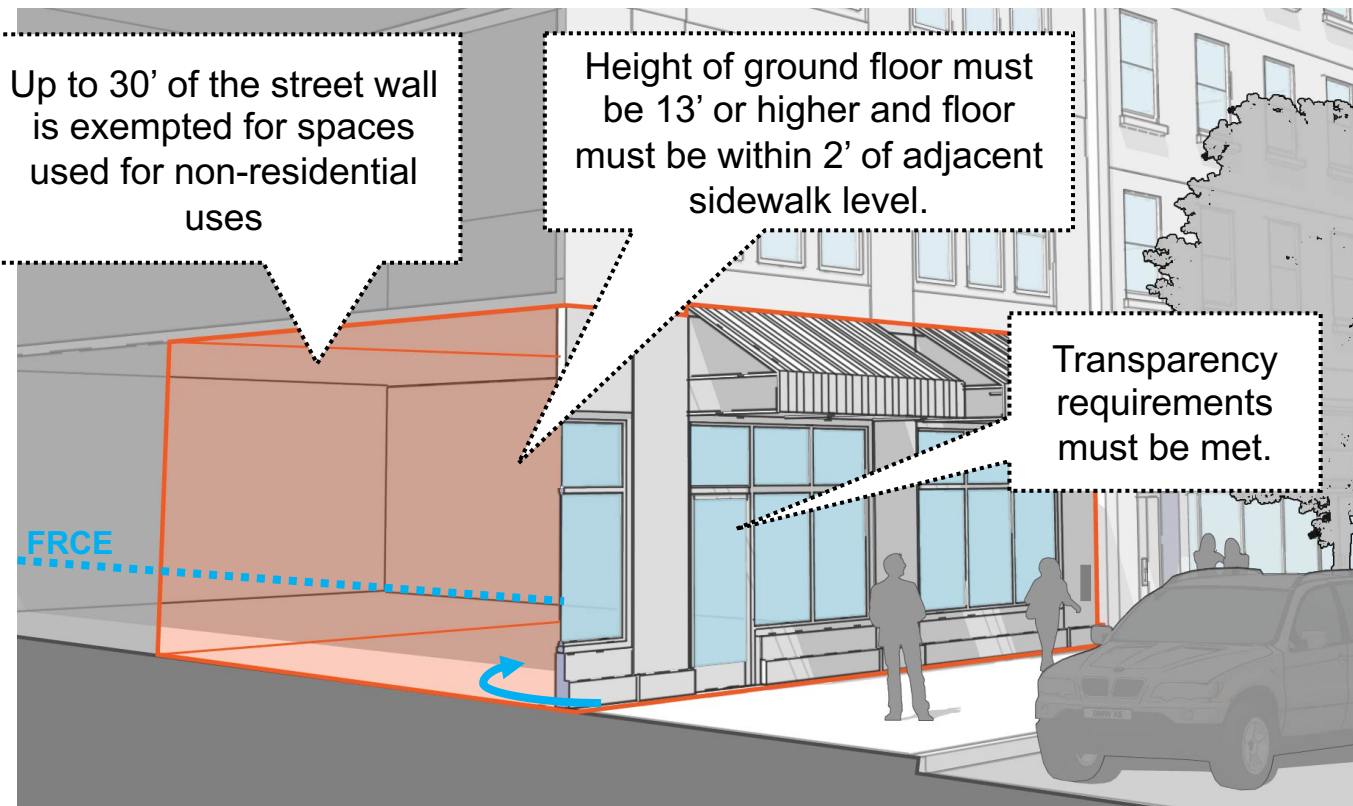
Ground Floors

Dry-floodproofed Spaces

A floor area exemption for dry-floodproofed spaces along the retail corridors would encourage active uses to be kept at the street level, promoting a safe and lively pedestrian environment.



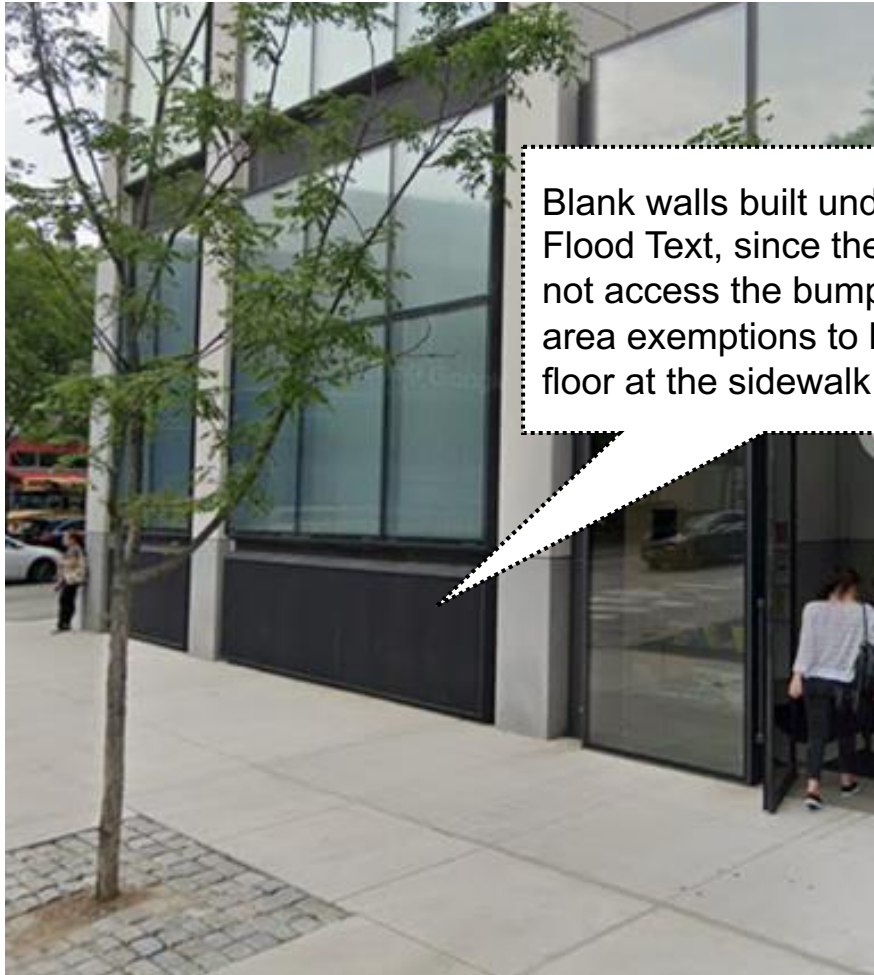
2013 Flood Text: allows the entire ground floor to be exempted if the space is considered a “cellar”



Proposed Rule: allows a **portion of the ground-floor** to be exempted without regard to the FRCE level for **new and existing buildings**, provided that certain design conditions are met (spaces will not be considered “cellars”)

Item 2

Special Districts:
SWCD

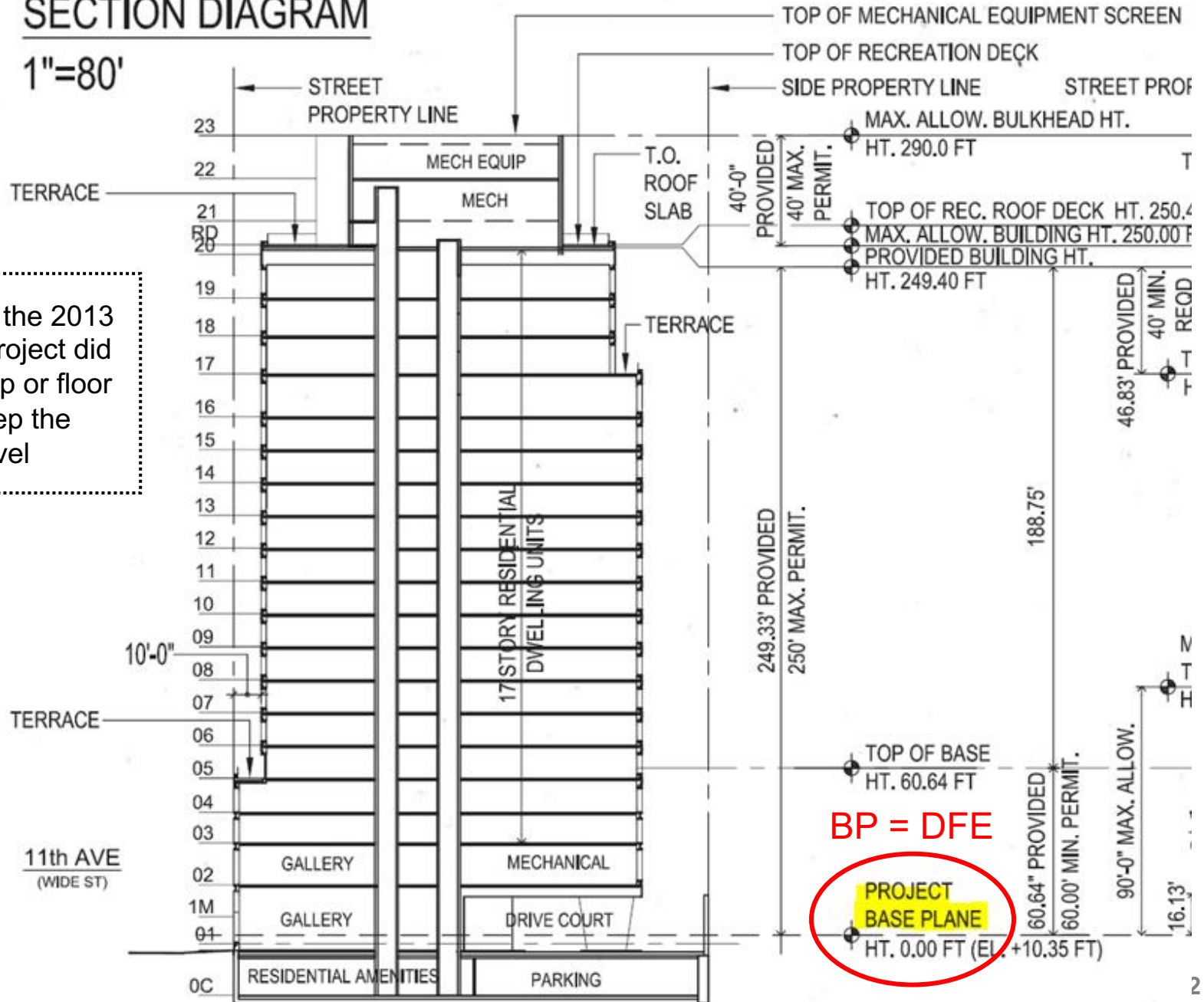


Blank walls built under the 2013 Flood Text, since the project did not access the bump-up or floor area exemptions to keep the floor at the sidewalk level

511 West 21st Street, West Chelsea

SECTION DIAGRAM

1"=80'



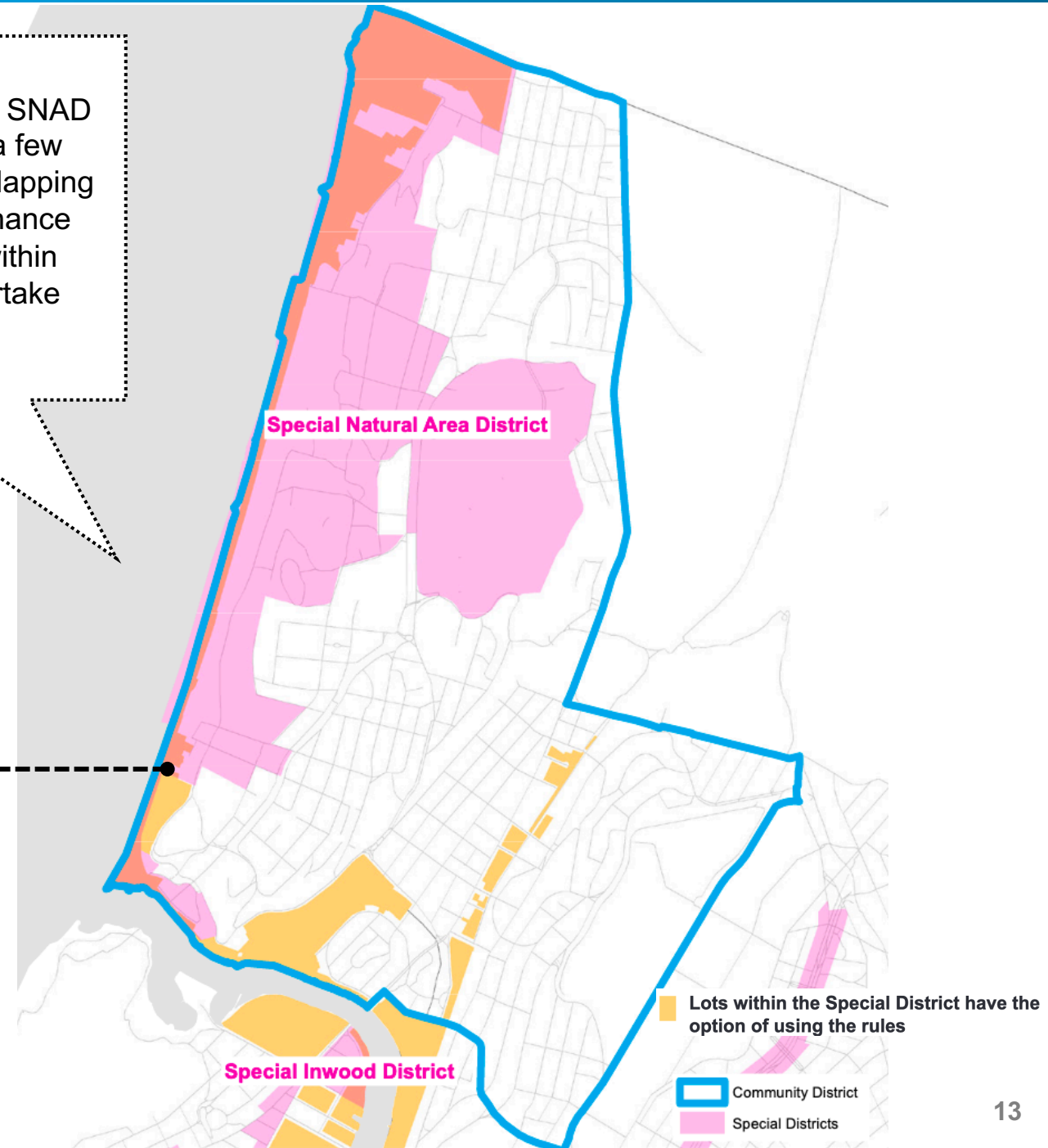
BP = DFE

PROJECT
BASE PLANE

Item 2

Special Districts: SNAD

The applicability of ZCFR within SNAD in the Bronx is minor, with only a few lots (highlighted in orange) overlapping with the 1% and 0.2% annual chance floodplains, allowing buildings within these areas to proactively undertake resiliency improvements.



Item 3

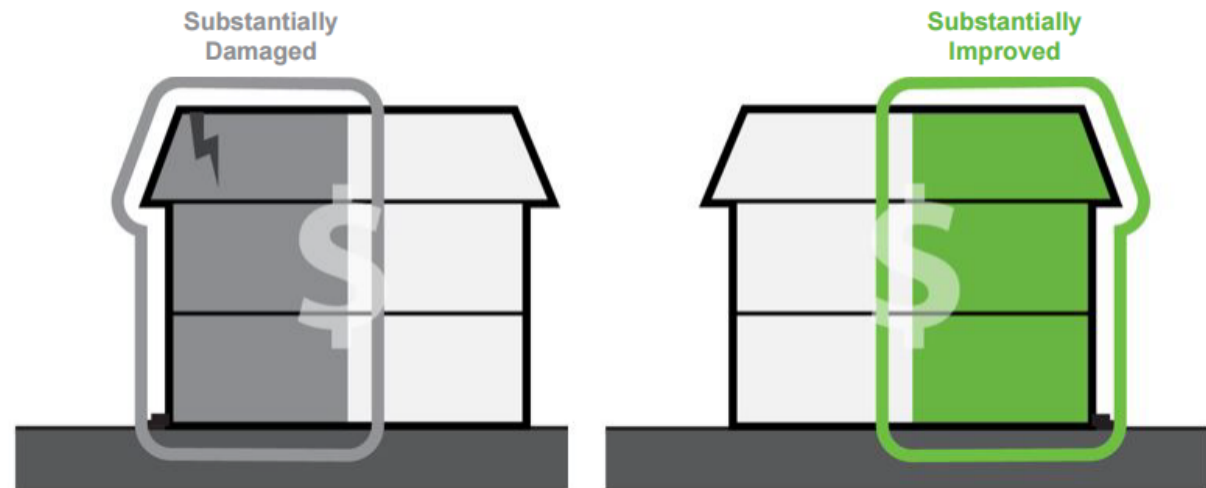
Existing vs. New Buildings

Manhattan CBs, the BB and BP had recommendations to provide a different treatment for new and existing buildings (modify height and floor area exemptions to ultimately reduce these allowances in new developments).

Required
for all new buildings



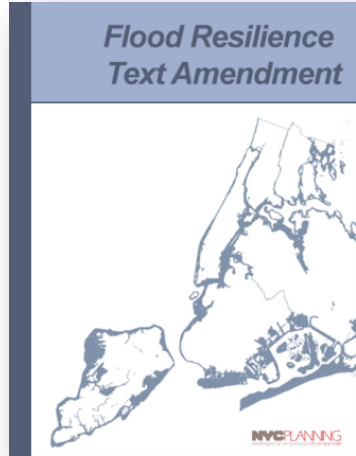
Generally not required
for existing buildings
(unless substantially damaged or improved)



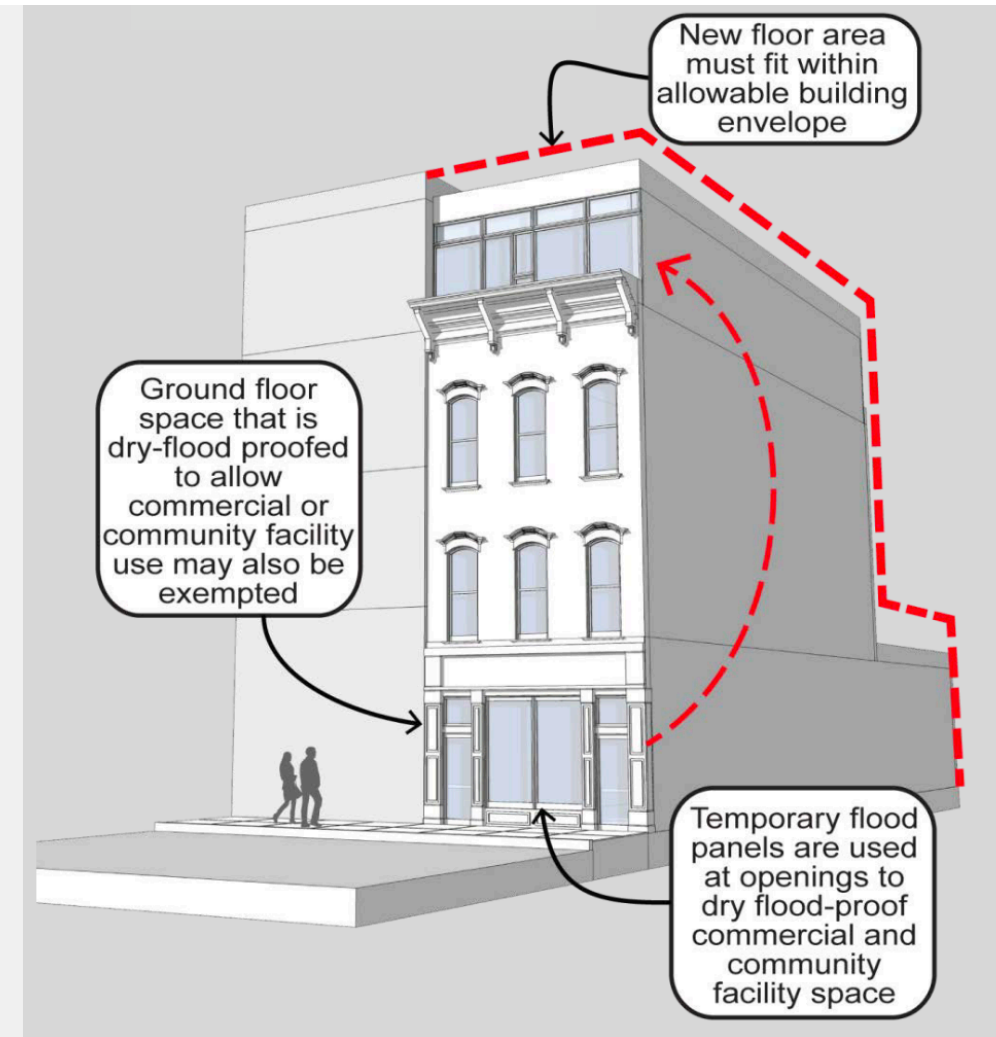
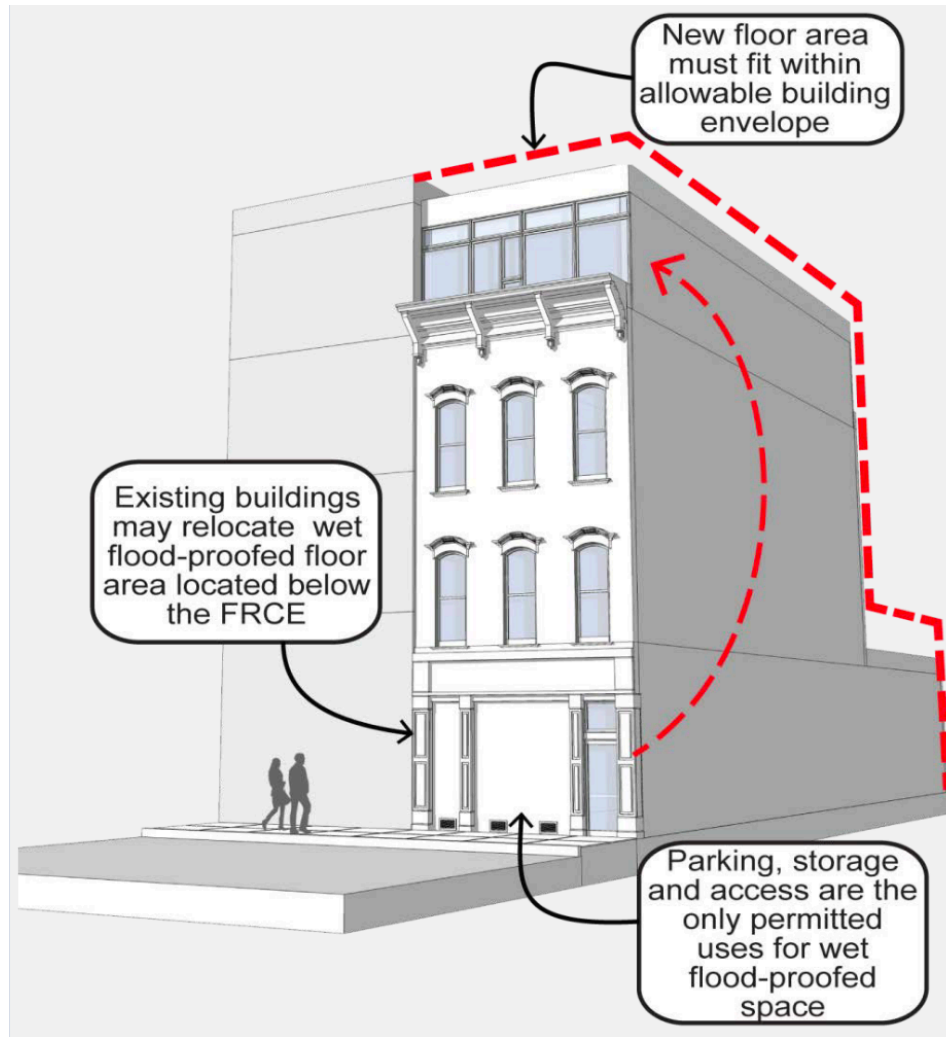
Building Code

Item 3

Existing vs. New Buildings

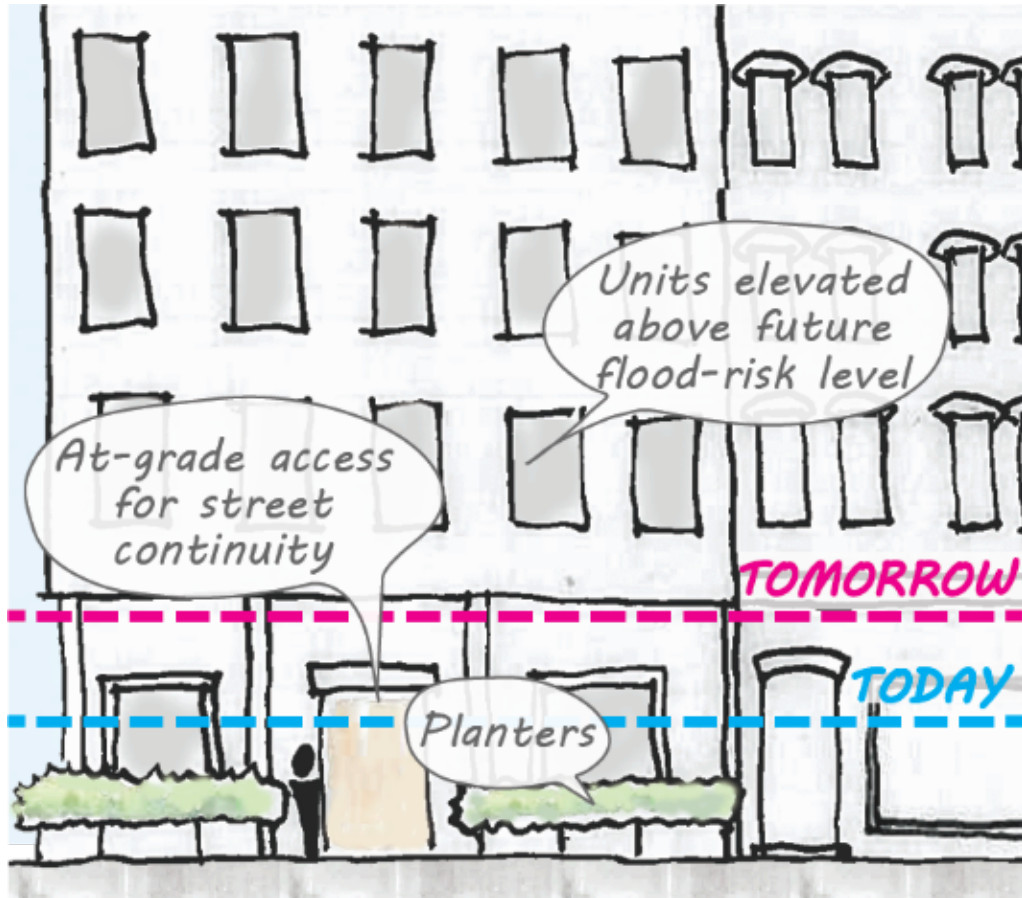


2013 Flood Text



Item 3

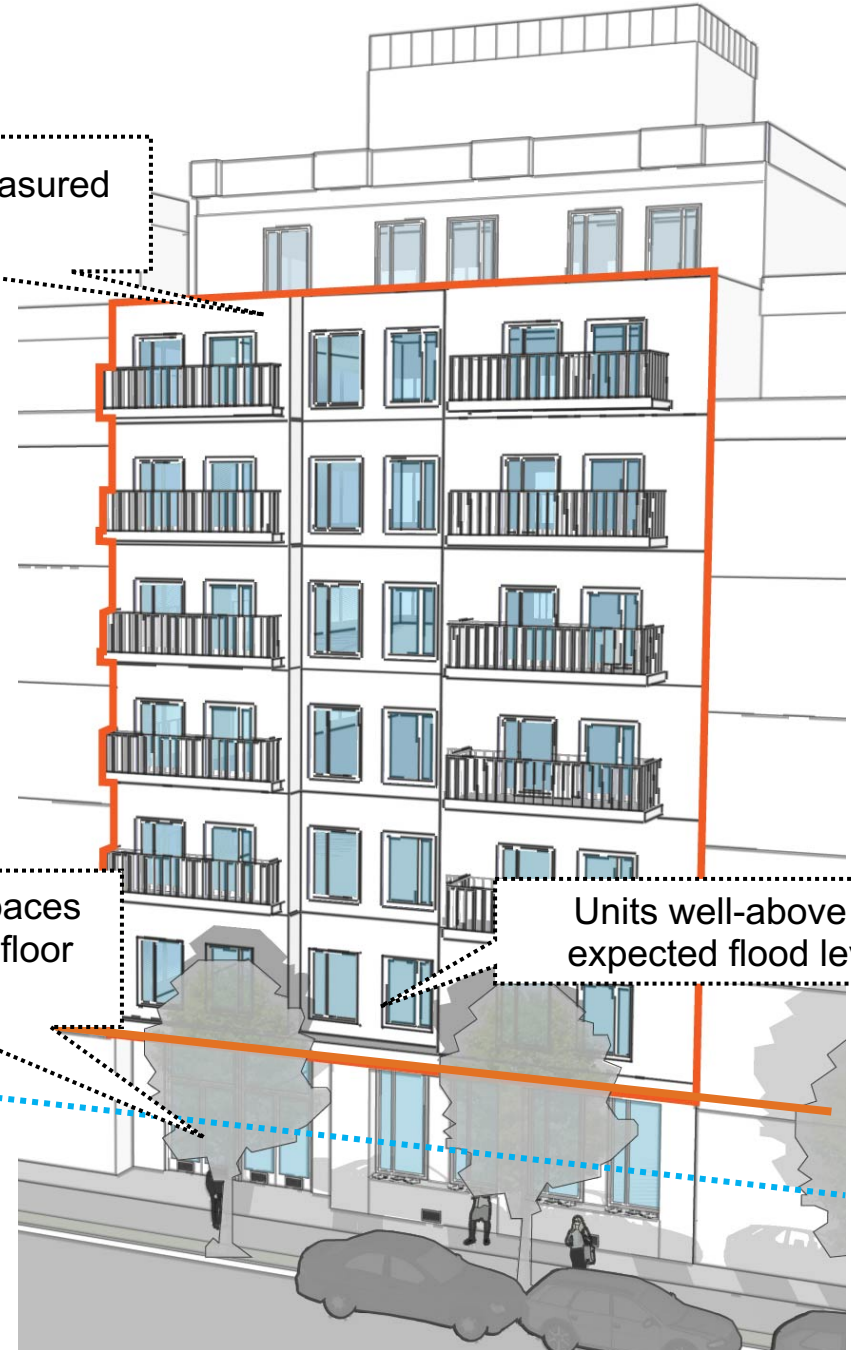
Existing vs. New Buildings



Overall height measured from RP

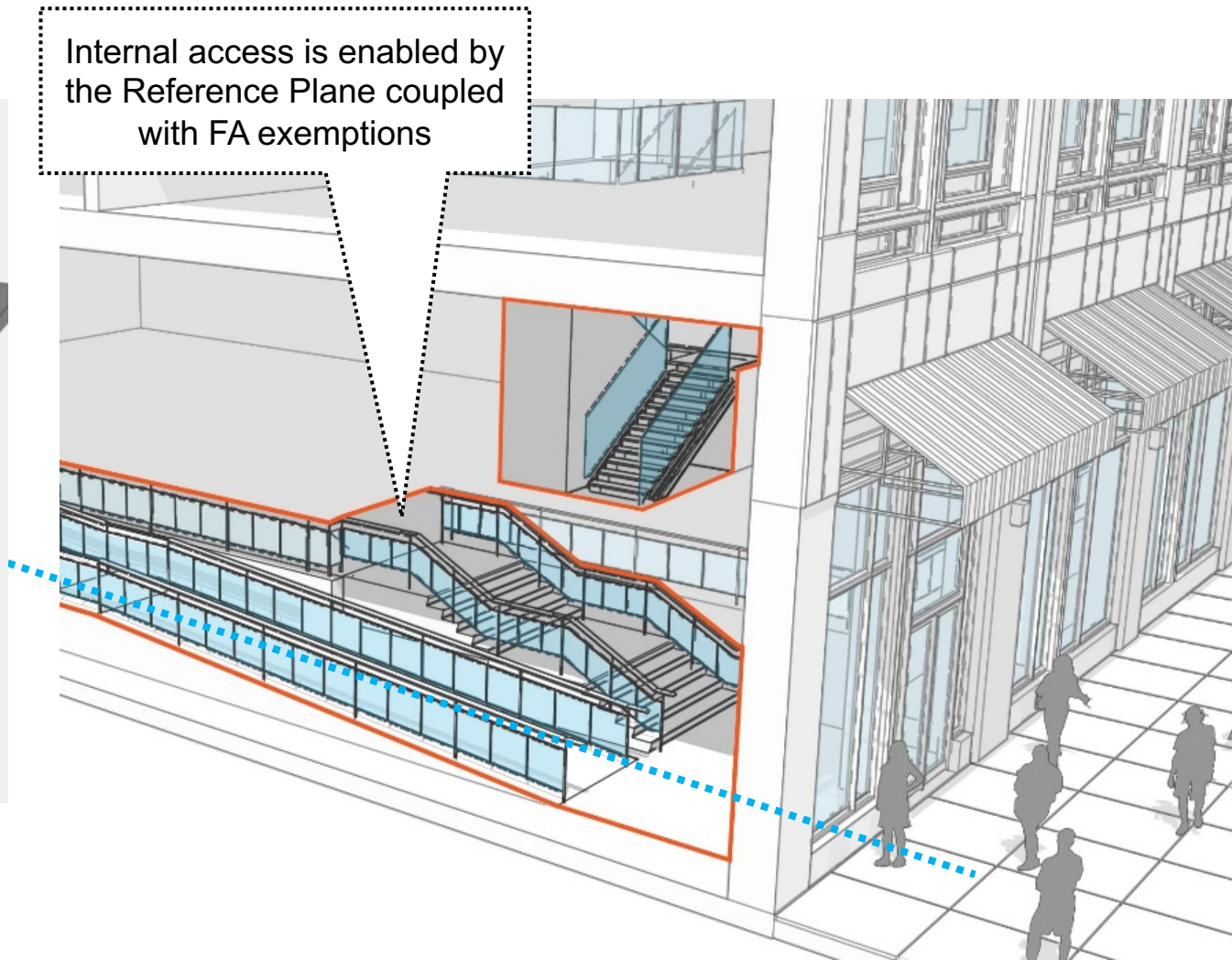
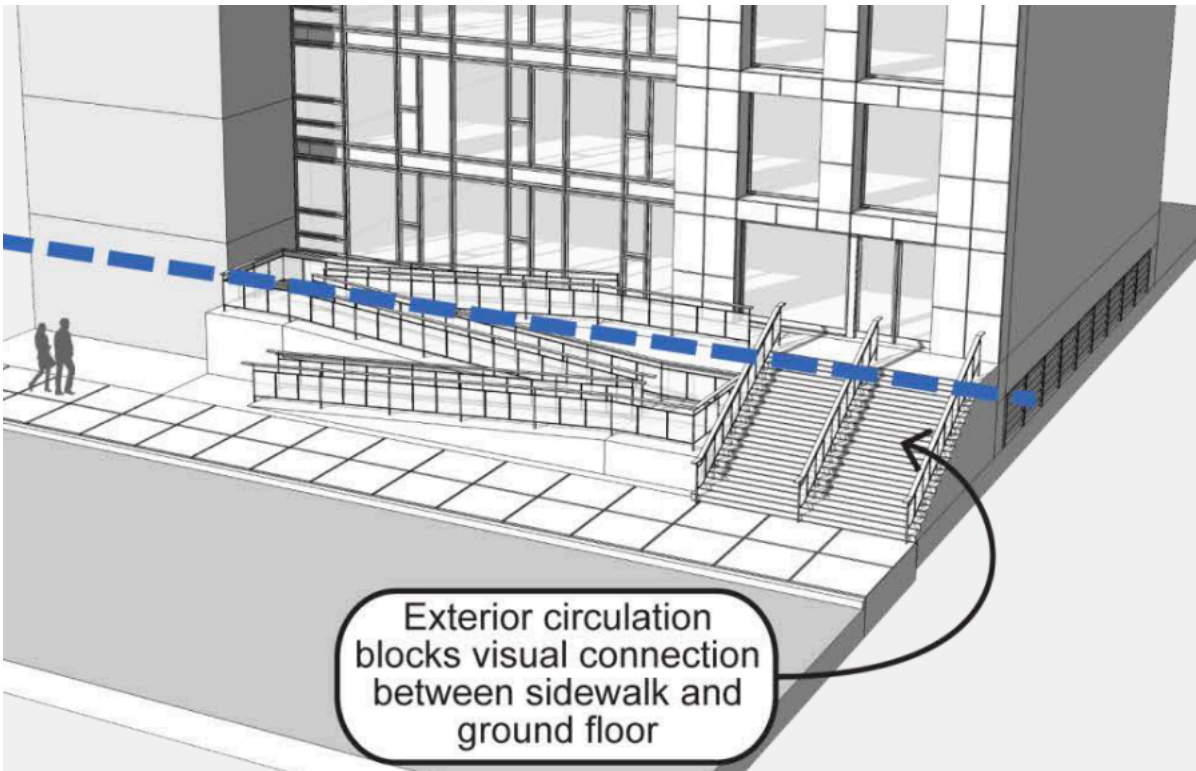
Floodproofed spaces exempted from floor area

Units well-above the expected flood levels



Item 3

Existing vs. New Buildings



Item 3

Existing vs. New Buildings



Additional height and floor area exemptions vary today by the flood level, leading to unintended outcomes, sometimes even along the same street

Item 3

Existing vs. New Buildings

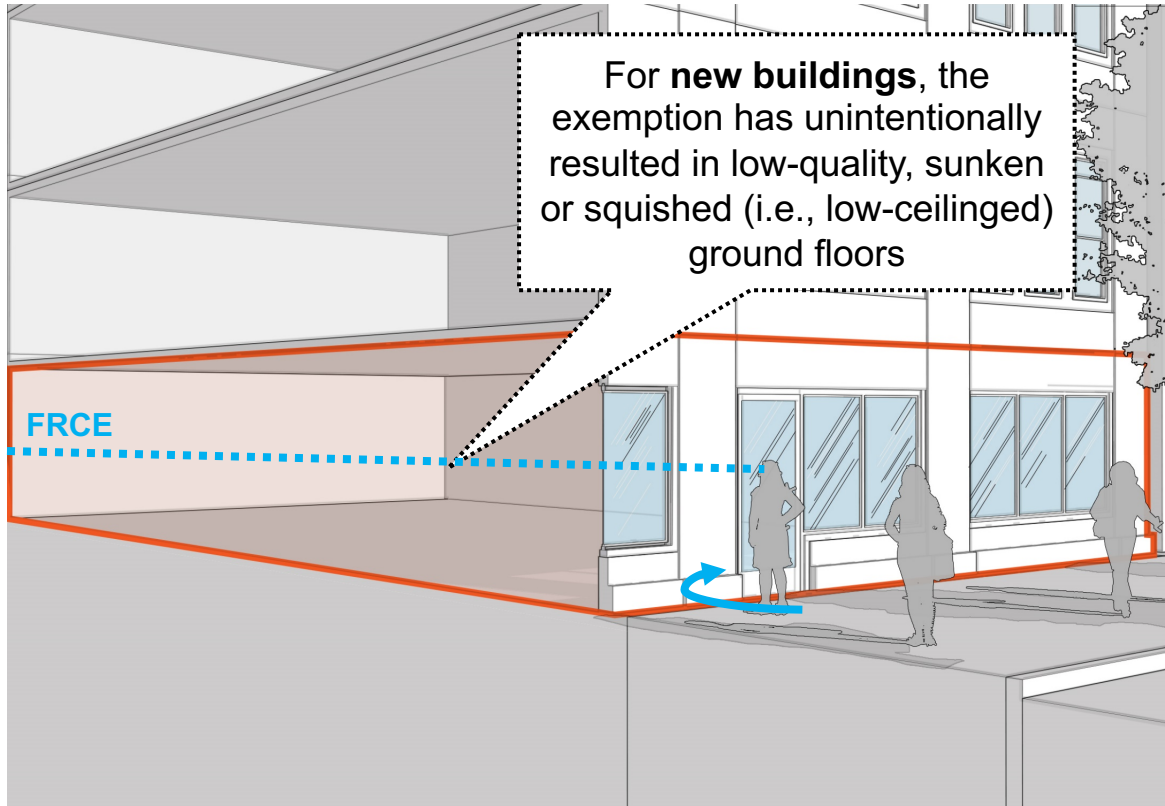
ZCFR's proposal is consistent with rules that have been in place in the past 3 decades for height and floor area

Flood Plain

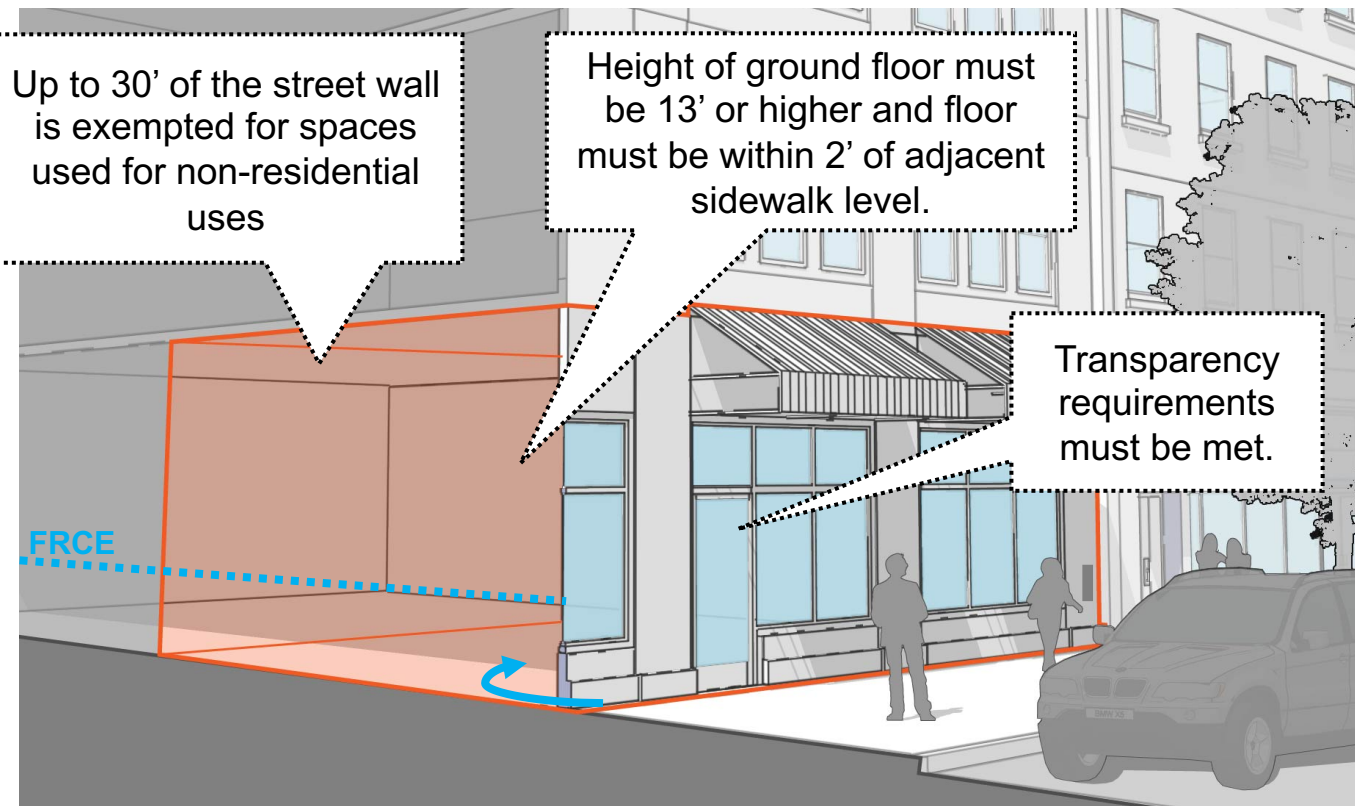
Several architects and residents of waterfront communities raised concerns about the impact of the proposed height and setback regulations in flood plain areas. As a result, for areas where a flood plain is above the finished adjoining grade, the amendment was revised to measure building perimeter wall, roof and cellar heights from the flood plain rather than the adjoining grade. The objective of this change was to remove an unintended restriction on achieving permitted floor area in areas prone to flooding.

Item 3

Existing vs. New Buildings



2013 Flood Text: allows the entire ground floor to be exempted if the space is considered a “cellar”



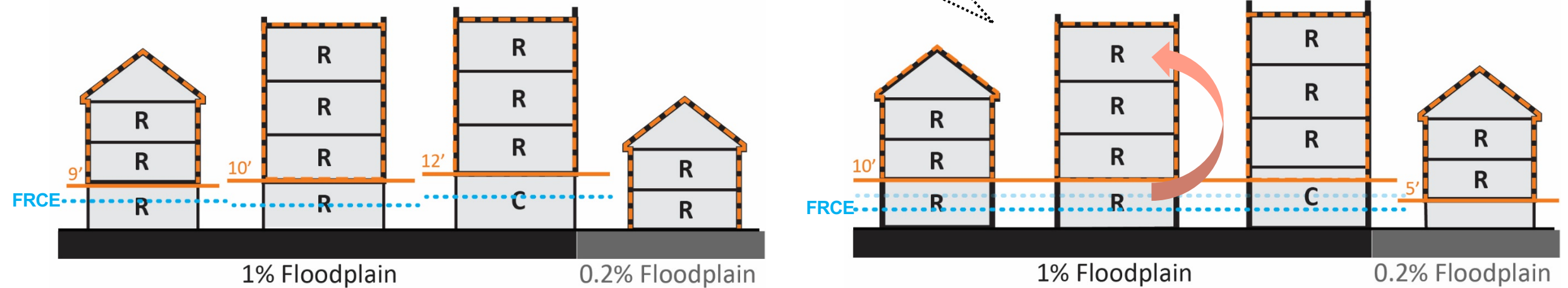
Proposed Rule: allows a **portion of the ground-floor** to be exempted without regard to the FRCE level for **new and existing buildings**, provided that certain design conditions are met (spaces will not be considered “cellars”)

Item 3

Existing vs. New Buildings

The Reference Plane will assist all new and existing buildings to incorporate SLR into their designs aside from also reducing low-quality crawl spaces which generate blank walls.

It would also enable greater flexibility for the relocation of floors from below the DFE to above

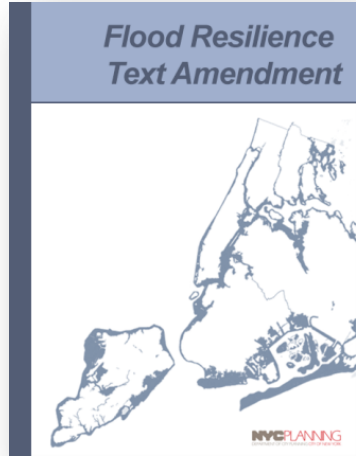


2013 Flood Text: allows building height to be measured from a reference plane located at 9', 10' or 12' depending on the building's use and zoning district

Proposed Rule: allows building height to be measured from a Reference Plane located at **max 10' or 5' above grade** (in the 1% and 0.2% floodplains, respectively)

Item 4

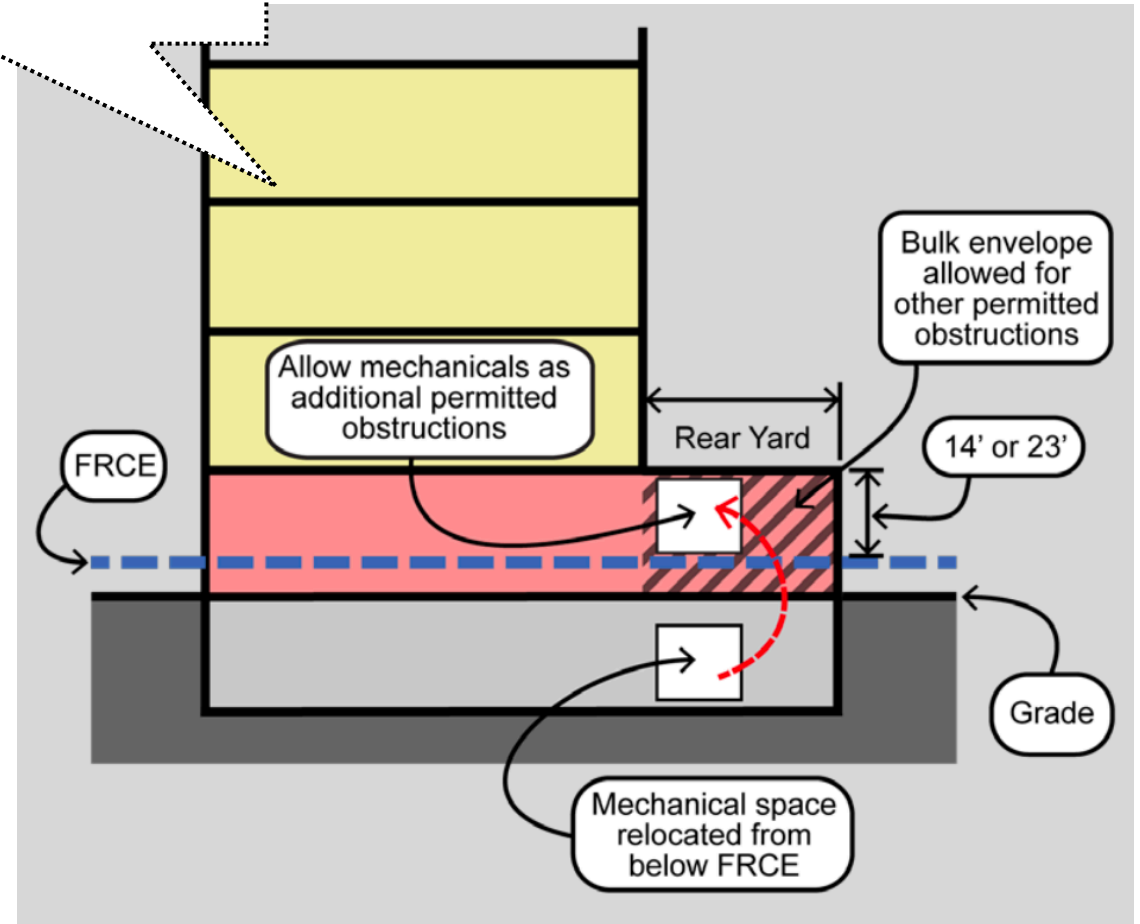
Permitted Obstructions (Mechanical Equip.)



2013 Flood Text

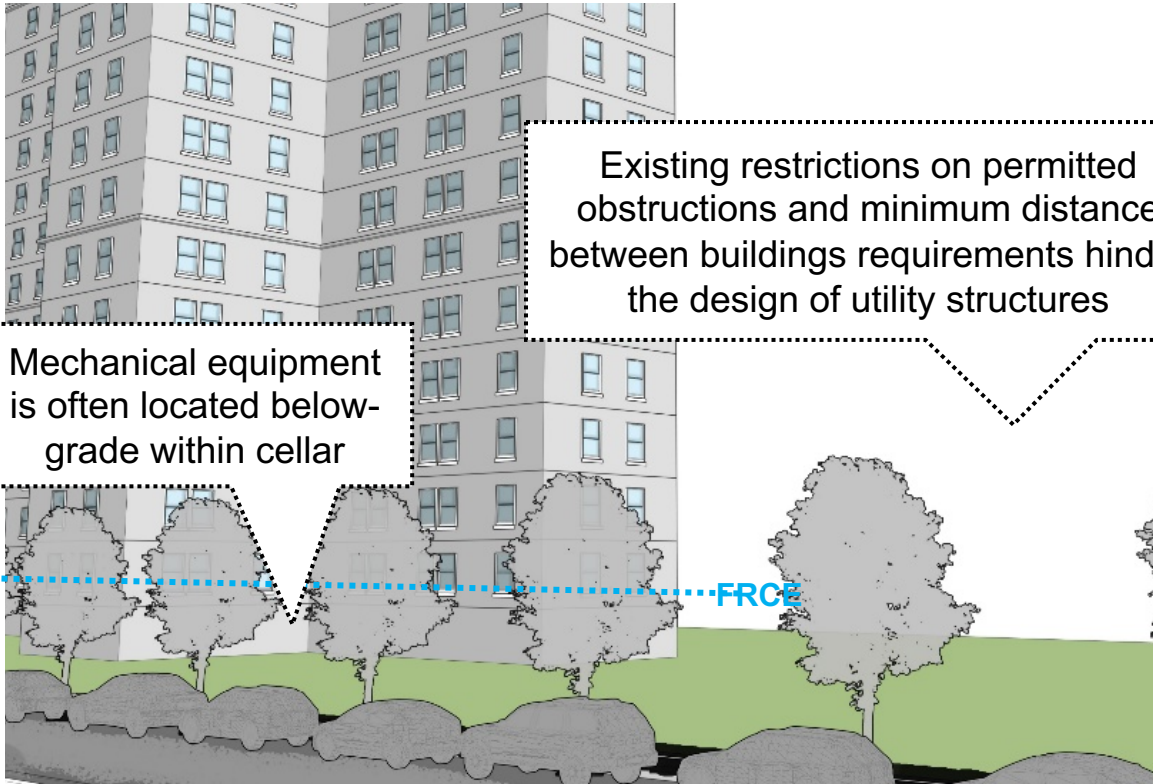
For all buildings, other than one-or two-family homes, allow mechanical systems within required rear yards, provided they are screened or enclosed, and within the same bulk envelope permitted for other rear yard obstructions (enclosed parking and commercial and community facility uses may extend into rear yards up to a height of 14 or 23 feet).

Many buildings place mechanical systems located below-grade. To be more resilient these mechanical systems may need to be relocated above the DFE



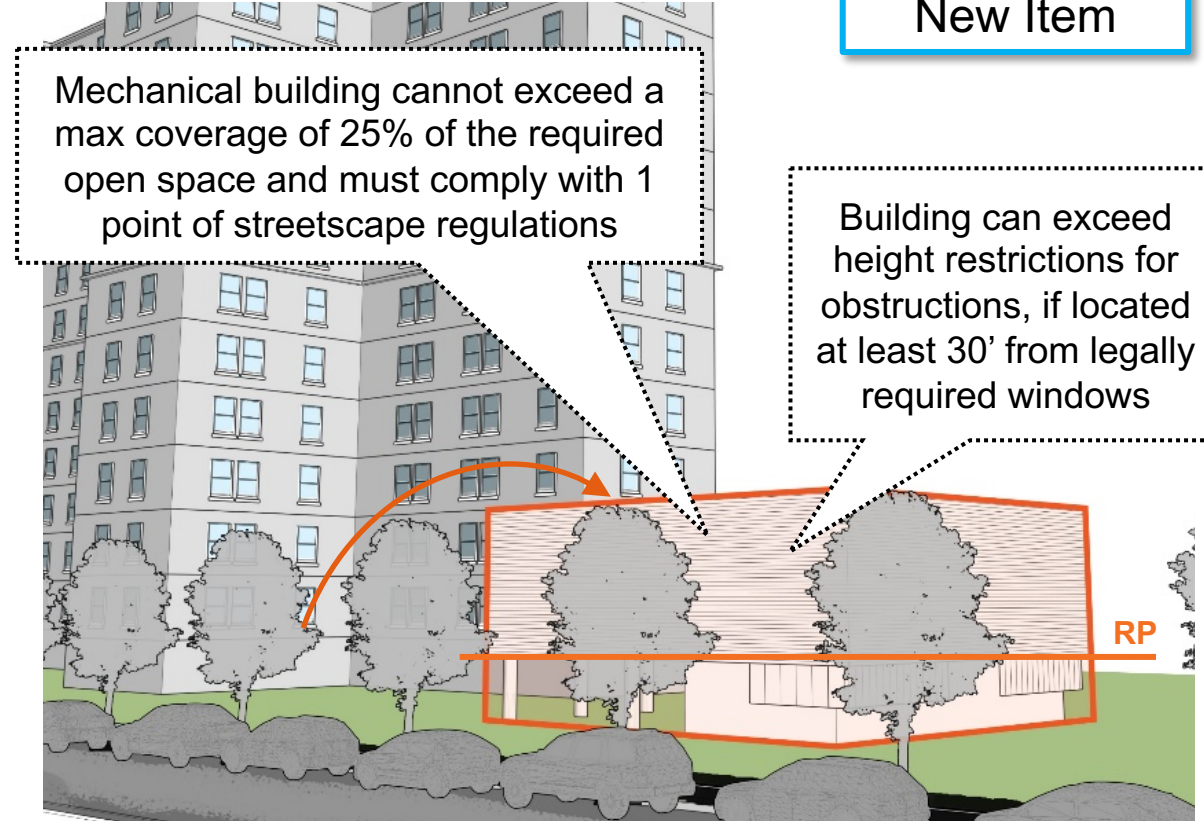
Item 4

Permitted Obstructions (Mechanical Equip.)



2013 Flood Text: does not provide additional relief for mechanical equipment in stand-alone buildings on campuses

New Item



Proposed Rule: will allow buildings used predominantly for mechanical equipment to be located in open areas in zoning lots larger than 1.5 acres

Item 5

Power Systems

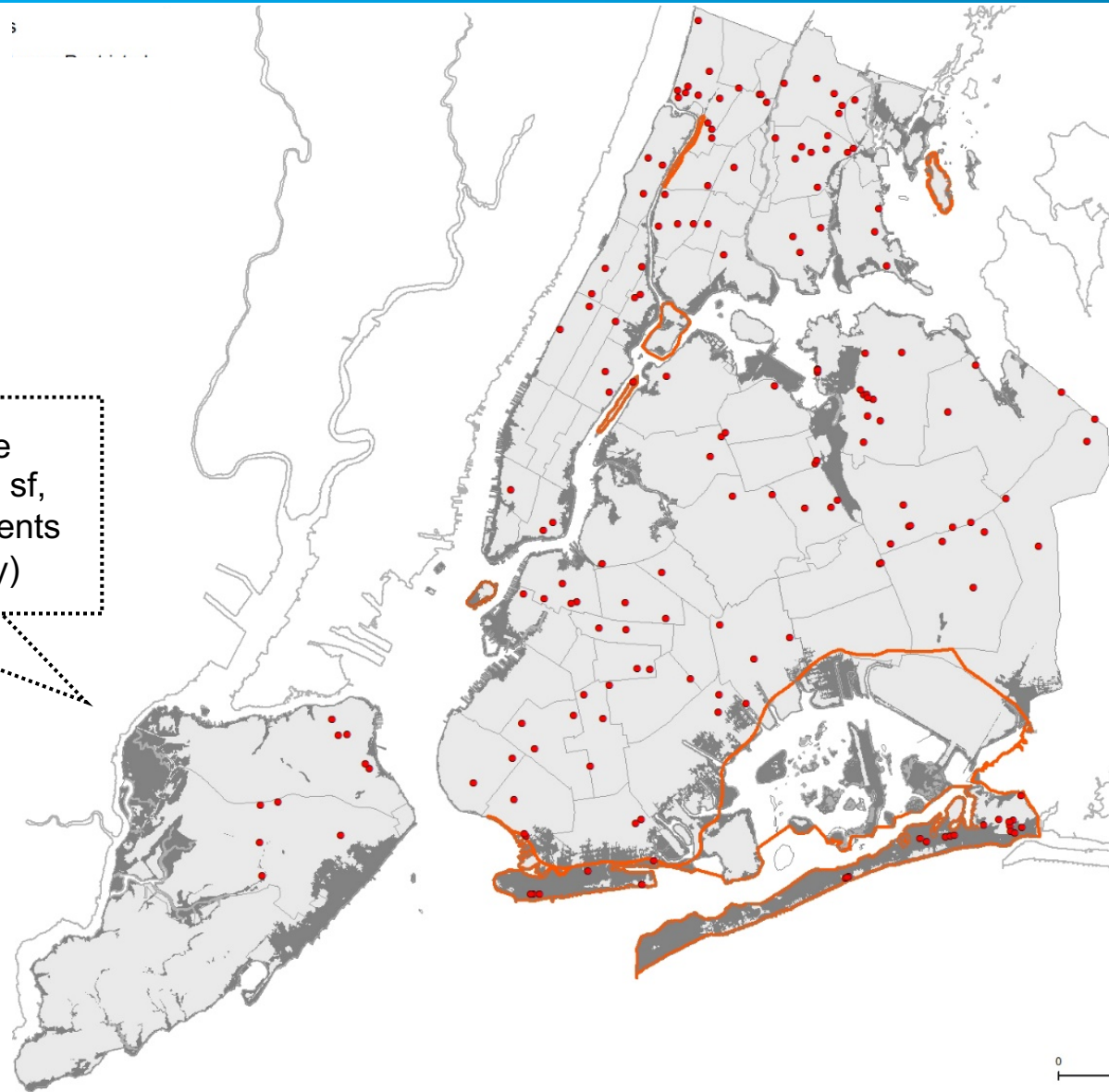


Proposed Rule: allows **all buildings throughout the city**, to place power systems, including emergency generators, as permitted obstructions on open areas, provided that size limitations are met

Item 6

Vulnerable Populations

Existing facilities can create enlargements of up to 15,000 sf, allowing for modest improvements (including building resiliency)



New Item

- Existing Nursing Homes
- 1% Floodplain (High-Risk Areas)
- Designated Geographies

Proposed Rule: prohibits new nursing homes and restrict the enlargement of existing facilities within the 1% annual chance floodplain and selected areas where vehicular access would likely become limited during a disaster.

Item 7

Green Infrastructure

Work of other City Agencies

Inland flooding mitigation and green infrastructure programs

1. DEP

- Sewer networks
- [Green Infrastructure Grant Program](#)

2. MOS

- Launched Study (2019) on precipitation-based flooding

3. Council

- Introduced bill #962

Post-Hearing Agenda

Zoning and Non-Zoning Topics

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- 4) Permitted Obstructions (mechanical equip.)
- 5) Power systems
- 6) Vulnerable Populations

Non-Zoning Topics

- 7) Green Infrastructure