

Zoning for Coastal Flood Resiliency

CEQR No. 19DCP192Y
ULURP No. PENDING

Lead Agency:
New York City Department of City Planning

May 10, 2019

Zoning for Coastal Flood Resiliency

Draft Scope of Work for an Environmental Impact Statement

CEQR No. 19DCP192Y

ULURP No. PENDING

Table of Contents

A. INTRODUCTION.....	1
B. REQUIRED APPROVALS & REVIEW PROCEDURES	2
C. BACKGROUND	3
1. The City’s Flood Risk	3
2. The City’s Regulatory Framework.....	4
3. Overview of Existing Zoning	6
D. PURPOSE & NEED	8
1. Lessons Learned since the 2013 Flood Text & 2015 Recovery Text	9
2. Goals of the Proposed Action.....	12
3. The City’s Land Use Strategy for the Floodplains.....	13
E. DESCRIPTION OF THE PROPOSED ACTION	13
1. Applicability	13
2. Zoning Allowances.....	14
3. Other Zoning Considerations	17
4. Related Actions	18
F. ANALYTIC FRAMEWORK.....	20
1. Prototypical Analysis	20

2. Selected Prototypical Analysis Sites	25
3. Conceptual Analysis – Analysis of Proposed, New Authorizations, and Special Permits	36
4. Analysis Year	36
G. ILLUSTRATIVE COMPARISON OF THE 2013 FLOOD TEXT AND THE PROPOSED ACTION.....	37
H. DRAFT EIS SCOPE OF WORK.....	37
1. Description of the Proposed Action and Analytical Framework	37
2. Land Use, Zoning, & Public Policy	38
3. Socioeconomic Conditions.....	38
4. Community Facilities	38
5. Open Space.....	39
6. Shadows.....	39
7. Historic & Cultural Resources	39
8. Urban Design & Visual Resources.....	39
9. Natural Resources.....	40
10. Hazardous Materials.....	40
11. Water & Sewer Infrastructure	40
12. Solid Waste & Sanitation Services.....	41
13. Energy	41
14. Transportation	41
15. Air Quality.....	42
16. Greenhouse Gas Emissions	42
17. Noise.....	42
18. Public Health.....	42
19. Neighborhood Character	43

20. Construction	43
21. Mitigation	43
22. Alternatives	43
23. Conceptual Development	44
24. Summary Chapters	44

ZONING FOR COASTAL FLOOD RESILIENCY

DRAFT

SCOPE OF WORK FOR AN ENVIRONMENTAL IMPACT STATEMENT

CEQR NO. 19DCP192Y

ULURP NO. Pending

May 10, 2019

A. INTRODUCTION

The New York City Department of City Planning (DCP) is proposing a zoning text amendment to update the Special Regulations Applying in Flood Hazard Areas (Article VI, Chapter 4) of the New York City Zoning Resolution (ZR), which includes the “[Flood Resilience Zoning Text](#)” (ULURP No. N130331(A)ZRY, CEQR No. 13DCP135Y) (the “2013 Flood Text”) and “[Special Regulations for Neighborhood Recovery](#)” (ULURP No. N150302ZRY, CEQR No. 15DCP133Y) (the “2015 Recovery Text”). These temporary zoning rules were adopted on an emergency basis to remove zoning barriers that were hindering the reconstruction and retrofitting of buildings during Hurricane Sandy. The 2013 Flood Text provisions are set to expire with the adoption of new and final Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), anticipated to occur in the next few years. The 2015 Recovery Text is set to expire in 2020. Therefore, DCP is proposing “[Zoning for Coastal Flood Resiliency](#)” (the “Proposed Action”) to improve upon and make permanent existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text.

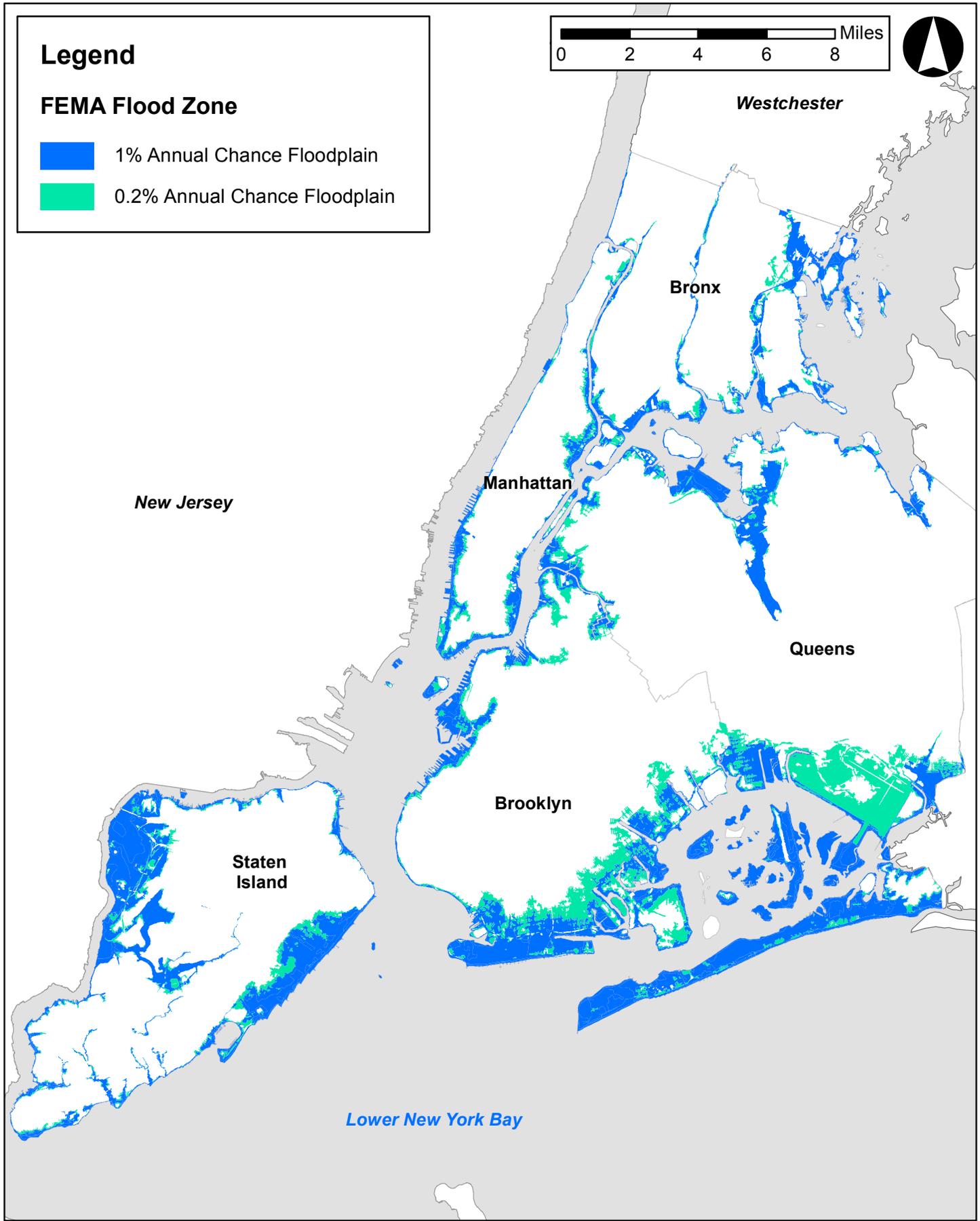
The Proposed Action would provide homeowners, business owners, and practitioners living and working in the city’s floodplain the option to design or otherwise retrofit buildings to: (a) reduce damage from future flood events, (b) be resilient in the long-term, and (c) potentially save on long-term flood insurance costs. Overall, implementation of the Proposed Action would improve the ability of the city’s many flood-prone neighborhoods to withstand and recover quickly from future storms.

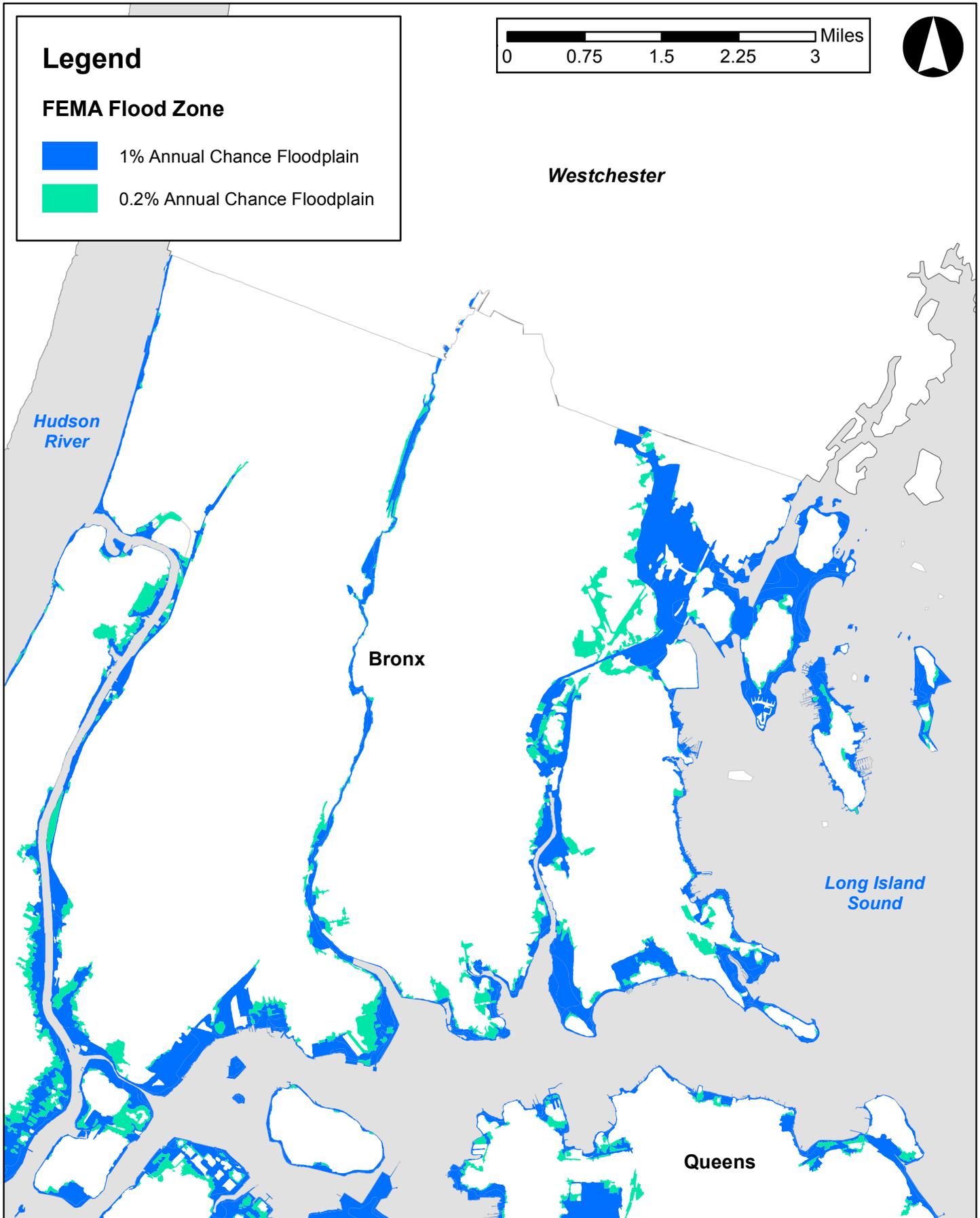
The Proposed Action would mostly affect New York City’s 1% annual and 0.2% annual floodplains (illustrated in **Figure 1**), in addition to selected provisions that would be applicable citywide (discussed in detail in Section E below), therefore affecting all five boroughs and the city’s 59 Community Districts.

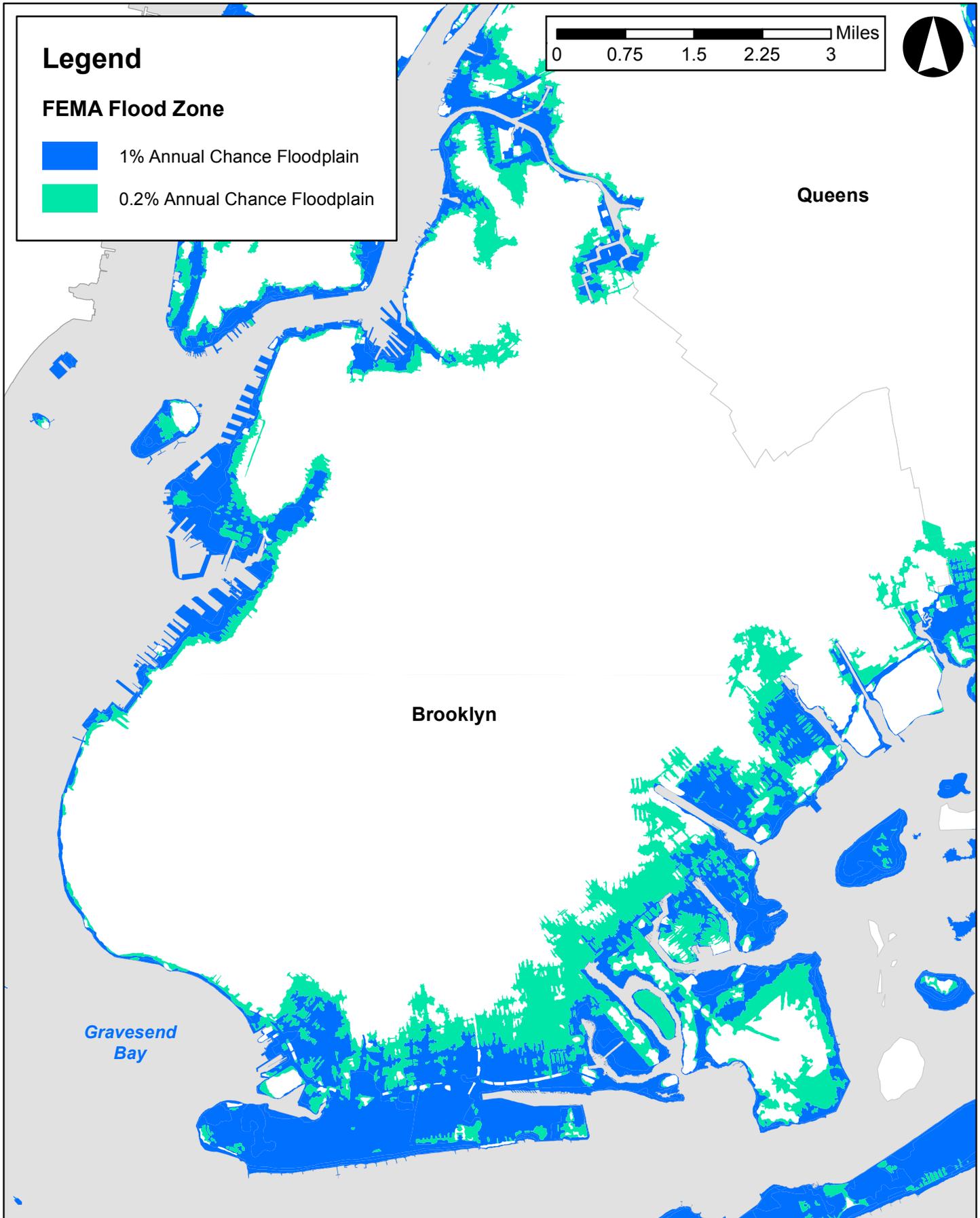
The Proposed Action was drawn from lessons learned and initiatives implemented through New York City’s recovery efforts after Hurricane Sandy and was developed based on analysis of resilient construction in the floodplain, through widespread coordination with partner City agencies, and community feedback received during an extensive public engagement process as laid out in [Zoning For Resiliency: Community Outreach Summary](#), released in 2018.

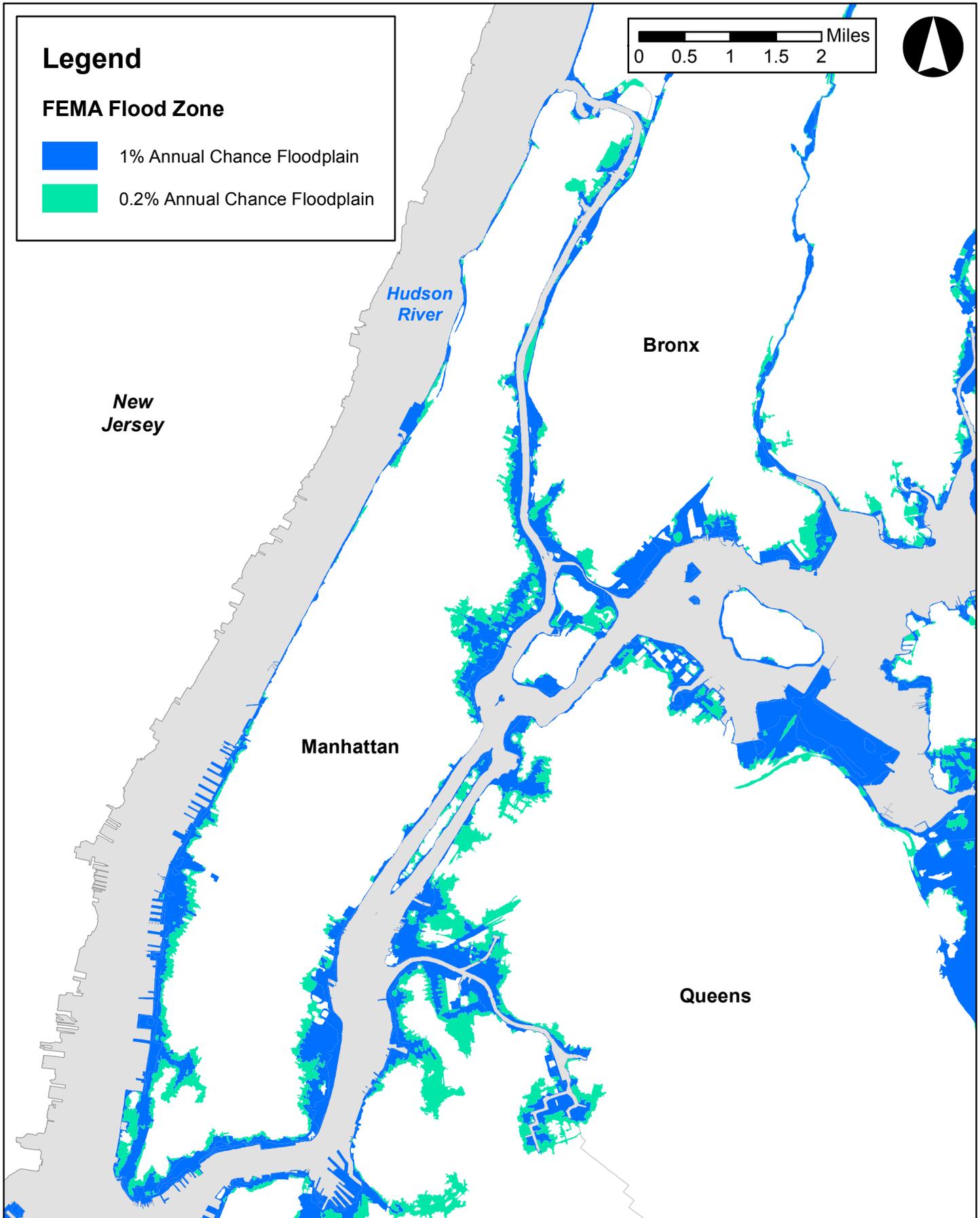
Features of the Proposed Action include:

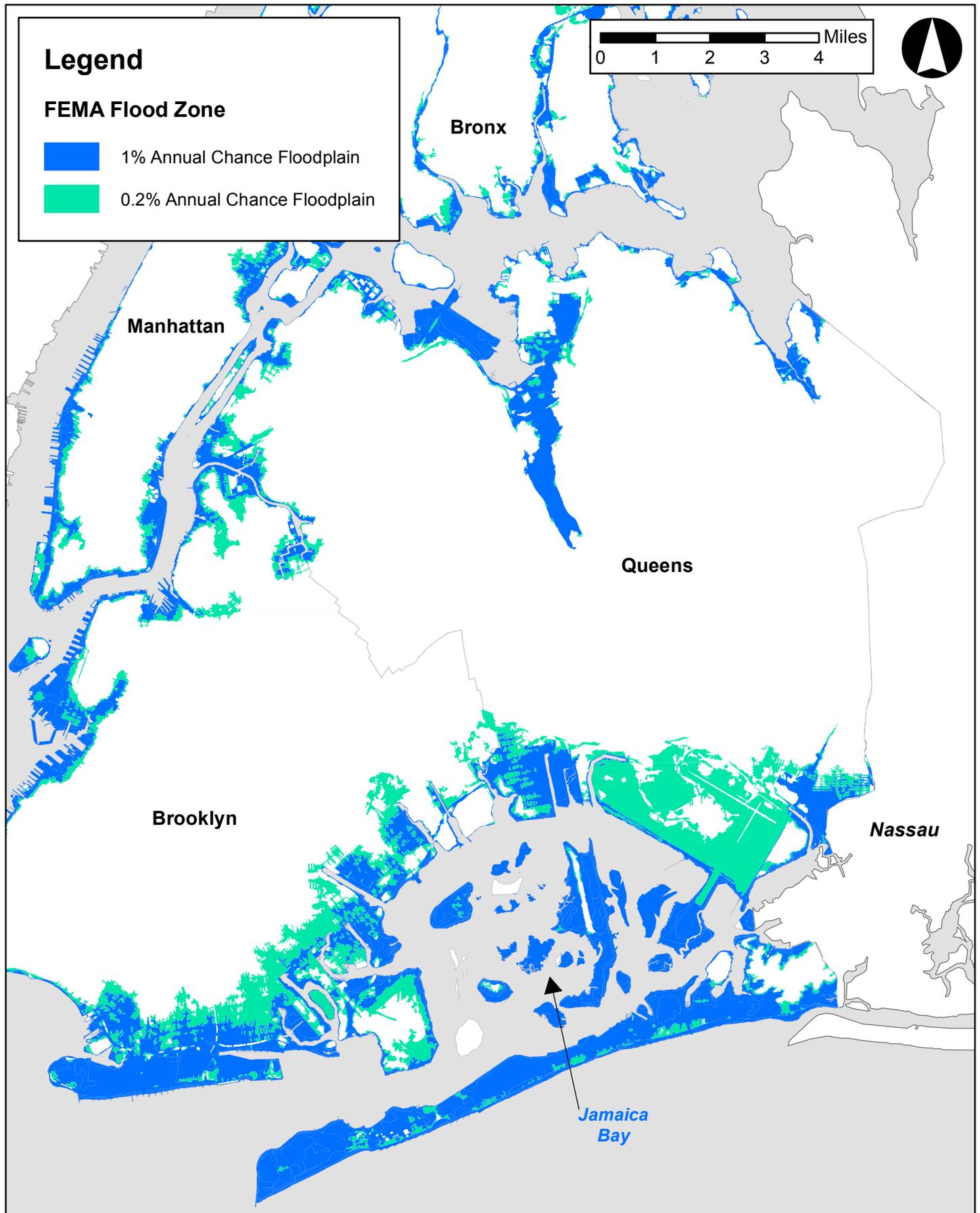
1. **An expanded geography:** Buildings in both the city’s 1% annual and 0.2% annual floodplains would have access to rules that allow building owners to invest in resiliency

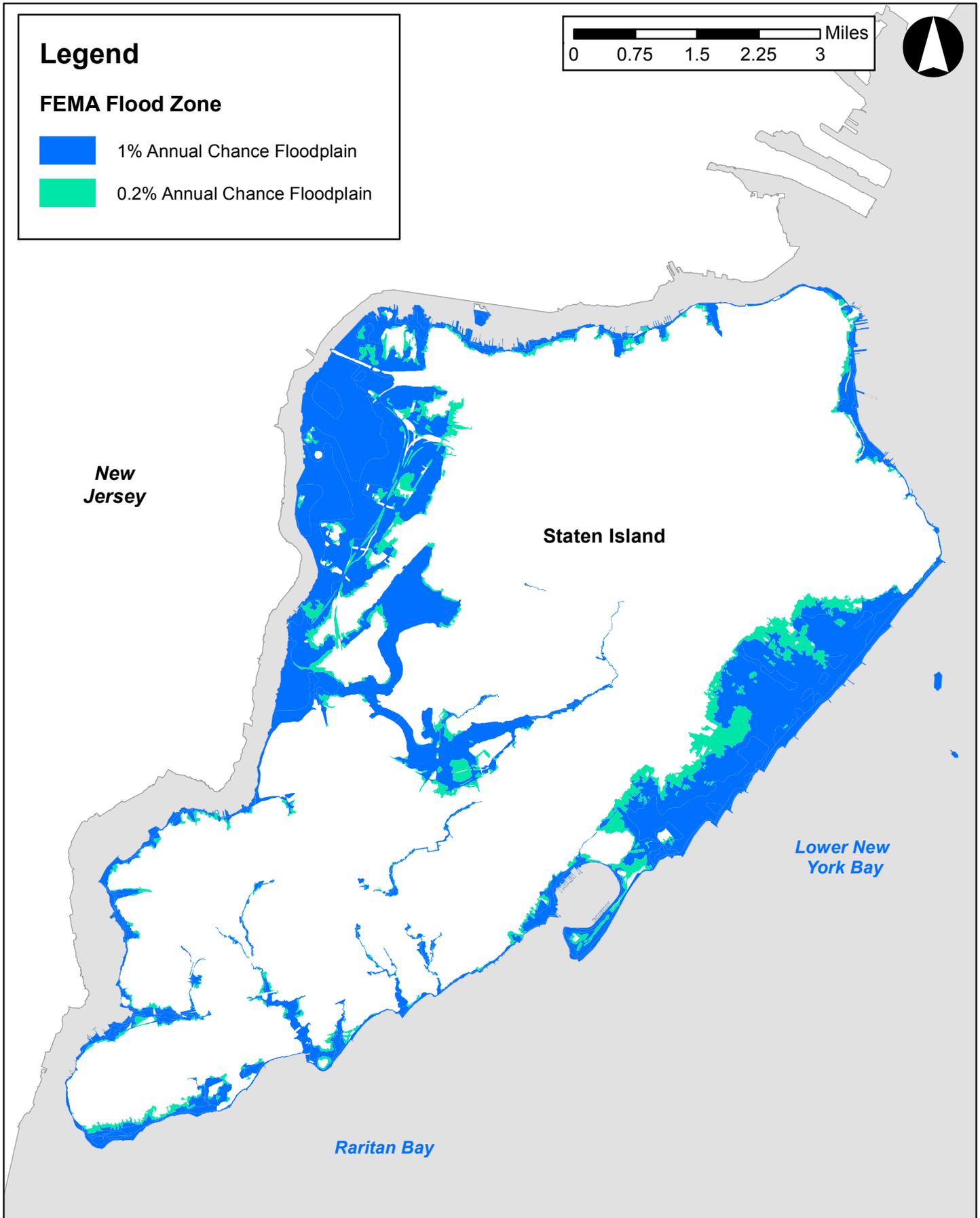












improvements to fully meet or exceed flood-resistant construction standards¹, even when these standards are not required by FEMA or Appendix G of the New York City's Building Code.

2. **An enhanced building envelope:** Zoning allowances coupled with enhanced design requirements would allow building owners to better accommodate sea level rise projections when designing new buildings or retrofitting existing ones, without creating incongruous and uninviting streetscapes. This would increase the building's and its content's safety and allow flood insurance costs to be reduced, while ensuring an accessible design that makes the streetscape more inviting.
3. **Alternatives for the relocation of equipment:** Building owners would have additional zoning flexibility to relocate mechanical, electrical, and plumbing (MEP) equipment or install backup systems such as generators above areas at risk of being flooded, including on roofs or in new, separate structures.
4. **A zoning framework that facilitates recovery from future disasters:** Rules that make it easier for damaged buildings to be reconstructed would be enabled in the event of a future disaster. This would allow residents and neighborhoods to recover faster and allow the City to more quickly offer disaster assistance to those who are impacted.

In the long-term, the Proposed Action, in conjunction with coastal protection strategies and infrastructure improvements that are being pursued by the City and other state and federal agencies,² would help to fully realize the vision of a more resilient NYC.

The Proposed Action also includes related local actions intended to address neighborhood-specific resiliency challenges (described in further detail below) that will be subject to separate land use applications but are moving in parallel with the citywide zoning text amendment. To address concerns raised about adding vulnerable populations (i.e. nursing home residents) to areas at high risk of flooding, the Proposed Action may examine measures to limit vulnerable populations in these areas.

As described in detail below, the Proposed Action is not expected to cause a significant change in the overall amount, type, or location of development. The Proposed Action is not expected to induce development where it would not have occurred absent the Proposed Action.

B. REQUIRED APPROVALS & REVIEW PROCEDURES

The New York City Planning Commission (CPC), as lead agency in the environmental review, has determined that the Proposed Action has the potential to result in significant environmental impacts. Therefore, pursuant to CEQR procedures, CPC has issued a positive declaration requiring preparation of an Environmental Impact Statement (EIS) in conformance with all applicable laws and regulations, including the New York State Environmental Quality Review Act (SEQRA), New York City's Executive Order No. 91, and the City's Environmental Quality Review (CEQR) regulations (August 24, 1977), as well as the relevant guidance in the 2014 *CEQR Technical Manual*. This *Draft Scope of Work* was prepared in accordance with those laws and regulations and the *CEQR Technical Manual*.

¹ Flood-resistant construction standards are building code standards for structures located in the 1% and 0.2% annual chance floodplains, set forth in Appendix G of the New York City Building Code.

² Coastal protection strategies and infrastructure improvements includes climate adaptation measures such as those identified in the City's [Lower Manhattan Climate Resiliency Study](#) issued in March 2019, the [East Side Coastal Resiliency Project](#) that is projected to be completed by 2023, and [South Shore of Staten Island Hurricane and Storm Damage Reduction Project](#) being initiated by the US Army Corps of Engineers. Examples of such measures include floodwalls and deployable flip-up barriers to protect upland areas from storm surges. For more information, refer to the Lower Manhattan Climate Resiliency Study.

In accordance with CEQR, this *Draft Scope of Work* is being distributed for public review. A public meeting will be held on June 13, 2019, at 3:30 PM at the New York City Department of City Planning, City Planning Commission Hearing Room, 120 Broadway, Concourse Level, New York, New York, 10271. The period for submitting written comments will remain open until Thursday, June 27, 2019. A *Final Scope of Work* will then be prepared, taking into consideration comments received during the public comment period, to direct the content and preparation of the EIS. As the next step in the process, once the lead agency has determined that the EIS is complete, it will be subject to additional public review, in accordance with CEQR with a public hearing and a period for public comment. A Final EIS (FEIS) will then be prepared to respond to and, as warranted, incorporate those comments. The lead agency will make CEQR findings based on the FEIS, before deciding on the Proposed Action.

C. BACKGROUND

The City's Flood Risk

With 520 miles of shoreline, there is no denying that NYC is a coastal city. Its large natural harbor, where the Hudson River meets the Atlantic Ocean, is one of the reasons that NYC became the center of commerce and culture that it is today. However, due to this extensive shoreline, NYC's waterfront neighborhoods face significant risk of flooding.

While there are many sources of flooding that pose issues in NYC, including flooding from severe rain storms or due to impaired infrastructure, coastal storms present the most significant flood risk in terms of compromising human safety, property damage, and business disruption. Therefore, in 1983, the City joined the National Flood Insurance Program (NFIP) allowing homeowners to purchase flood insurance and receive assistance following flood events. This program, which is administrated by FEMA, is a voluntary program based on an agreement between the federal government and local communities. FEMA identifies areas at risk of flooding through the development of flood-risk maps. Local authorities adopt these maps to implement and enforce floodplain management regulations. In exchange, local communities get access to federally-backed flood insurance, which is made available to property owners and renters throughout the floodplain.

Areas at risk of a 1% or 0.2% annual chance of flood are commonly known as the floodplain, and are currently designated on FEMA's FIRMs and Preliminary FIRMs (PFIRMs). NYC's 1% annual chance floodplain, illustrated in **Figure 1**, covers approximately 15 percent of the city's land area, touching 50 out of 59 Community Boards and 45 out of 51 Council Districts. This vast geography contains over 80,900 buildings that are currently at a high-risk of being flooded by coastal storms. It houses 434,500 residents. In commercial areas, it contains roughly 14,500 private businesses that employ approximately 270,000 people.³ In industrial areas, it contains roughly 3,600 private businesses that employ approximately 87,000 people.⁴ NYC's 0.2% annual chance floodplain, shown in **Figure 1**, encompasses an additional four percent of the city's land area compared to the 1% annual chance floodplain, which includes approximately 44,600 buildings that are at moderate risk of being flooded today, totaling 125,500 buildings in the city's floodplain (see **Table 1**). This area houses an additional 348,300 residents, totaling 782,800 residents in the floodplain.

³ NYC Planning, *Resilient Retail* (2016). New York City, NY. Source: www.nyc.gov/resilientretail

⁴ NYC Planning, *Resilient Industry* (2018). New York City, NY. Source: www.nyc.gov/resilientindustry

Table 1: Number of Lots and Buildings in the Floodplain

	1% Annual Chance (FIRM + PFIRM¹)	0.2% Annual Chance (FIRM + PFIRM¹)	TOTAL
Total # of Lots (without Parks)	65,582	36,718	102,300
# Built	58,927	35,435	94,362
# Vacant	6,655	1,283	7,938
% Built	90%	97%	92%
% Vacant	10%	3%	8%
Total # of Buildings	80,907	44,632	125,539

Source: NYC DCP

Note: ¹ Utilizing 2007 FIRM and 2015 PFIRM numbers, the most recently available data from FEMA.

No single flood event has made NYC's vulnerability clearer than Hurricane Sandy in 2012. This event created a historic storm surge that flooded neighborhoods well beyond the 1% annual chance floodplain, inundating approximately half of the lots in the 0.2% annual chance floodplain (see **Table 2** and **Figure 2**). This illustrates how this area is at risk today, and will continue to be at risk in the future.

Table 2: Buildings Damaged by Hurricane Sandy Based on Post-Sandy NFIP Claims

Land Use	# of Buildings
01: One & Two Family Buildings	11,299
02: Multi-Family Walk-Up Buildings	888
03: Multi-Family Elevator Buildings	274
04: Mixed Residential & Commercial Buildings	318
05: Commercial & Office Buildings	229
06: Industrial & Manufacturing	123
07: Transportation & Utility	19
08: Public Facilities & Institutions	79
09: Open Space & Outdoor Recreation	13
10: Parking Facilities	26
11: Vacant Land	251

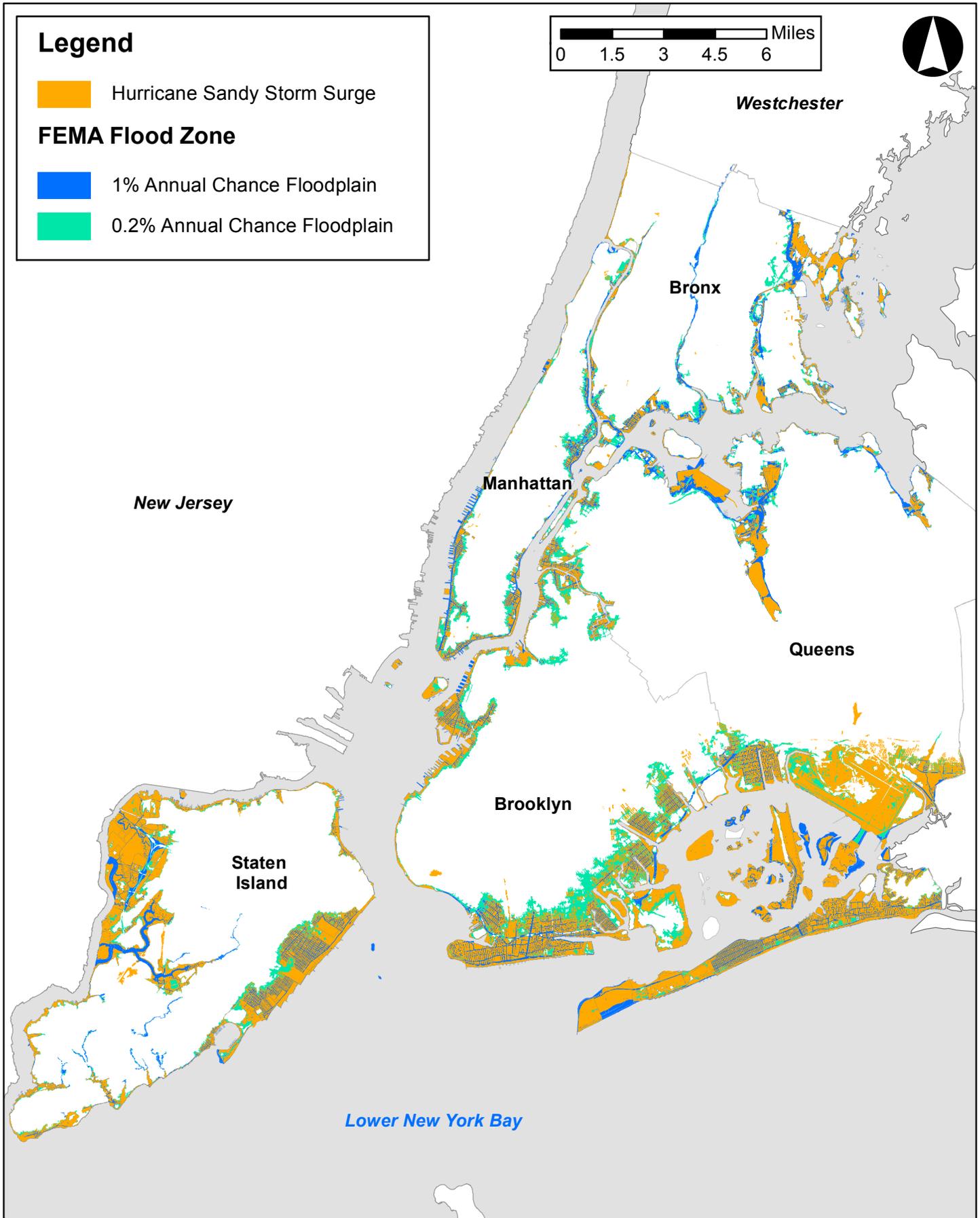
Source: NYC DCP

The City's Regulatory Framework

The need to quickly recover from Hurricane Sandy uncovered several regulatory conflicts between flood-resistant construction standards, which are overseen by the NYC Department of Buildings (DOB) as a requirement of the NFIP, and zoning regulations located within the NYC Zoning Resolution, which is administered by DCP. Flood-resistant construction standards (discussed in Footnote 1 above) currently require all habitable spaces of new construction or existing buildings located within the 1% annual chance floodplain that were substantially damaged, or are undertaking substantial improvements⁵ to be raised above the Design Flood Elevation (DFE).⁶ All spaces below the DFE must be either wet-floodproofed, if the building is used solely for residential use, or dry-floodproofed, if the building contains non-residential

⁵ Substantial damage is damage to a building for which the total cost of repair is 50 percent or more of the building's current market value before the disaster occurred, regardless of the cause of damage. Substantial improvement is any repair, reconstruction, rehabilitation, addition, or improvement with a cost equaling or exceeding 50 percent of the current market value of the building.

⁶ The DFE is the minimum elevation to which a structure must be elevated or floodproofed, determined by adding freeboard (additional height for safety, either one or two feet depending on the use occupancy type) to the Base Flood Elevation (BFE) as determined by flood-resistant construction standards.



uses.⁷ All spaces below the DFE must be wet-floodproofed, if the building is used solely for residential use, or dry-floodproofed, if the building contains non-residential uses. Spaces that are wet-floodproofed can only be used as crawl space, or for parking, storage and building access, and spaces that are dry-floodproofed, can be used for non-residential uses. Additionally, residential buildings are not allowed to provide spaces below grade, such as basements and cellars, and mechanical equipment must be located above the DFE.

These requirements have, at times, posed conflicts with certain zoning regulations, as they change the way that most buildings in NYC are structurally designed and internally configured. In NYC, aside from land use, zoning also establishes limits on the size and shape of buildings, with numerous zoning districts mapped in the city's diverse neighborhoods to reflect their varying density and character. These limits include height and floor area restrictions, which may hinder buildings from elevating their spaces to comply with flood-resistant construction standards.

Historically, the NYC Zoning Resolution generally did not take flood-resistant construction standards into consideration. The floodplain was first considered as part of the Lower Density Zoning (ULURP N 890552 ZRY) text amendments adopted in 1989 when architects and residents of waterfront communities raised concerns about achieving permitted height and floor area in the floodplain. As a result, underlying zoning regulations allow for buildings in the floodplain to measure building perimeter wall, roof and cellar heights from the Base Flood Elevation (BFE)⁸ rather than the adjoining grade.

After Hurricane Sandy in 2012, the Mayor signed Executive Order No. 230, suspending height and other restrictions to the extent necessary to allow buildings to be rebuilt to the latest flood-resistant construction standards. The Executive Order was by its nature an interim measure that needed to be codified by a zoning text amendment. As a result, the City had to adopt two zoning text amendments, the 2013 Flood Text (Article VI, Chapter 4) and the 2015 Recovery Text (Article VI, Chapter 4, Appendix A), on an emergency basis to remove regulatory barriers that would hinder or prevent the reconstruction of storm-damaged properties and to enable new and existing buildings to comply with new, higher flood elevations issued by FEMA, and to new requirements in the New York City Building Code.

The 2013 Flood Text removed obstacles from the NYC Zoning Resolution by, as an example, allowing height to be measured from the DFE (rather than from grade) to allow buildings to meet flood-resistant construction standards. The subsequent 2015 Recovery Text simplified the process for old buildings to document non-compliances,⁹ and established new rules to allow damaged homes located within narrow and small lots to be reconstructed. Both zoning changes were adopted on a temporary, emergency basis and as such were not subject to environmental review, determined to be Type II per NYCRR Part 617.5 (33), "*adoption of regulations, policies, procedures and local legislative decisions in connection with any action on this list.*" The zoning changes are set to expire in the next few years. The 2013 Flood Text expires within one year of the adoption of new FIRMs, which are expected to be revised by FEMA in the next few years, and the 2015 Recovery Text is set to expire in 2020.

As described in the analytic framework below, the environmental analysis assumes a future scenario in which the 2013 Flood Text and the 2015 Recovery Text have expired. However, illustrations of scenarios

⁷ Wet-floodproofing is a method designed to allow the passage of water within parts of the structure that are located below the flood elevation, while ensuring that the structure resists water loads. Dry-floodproofing is a method designed to seal a building's exterior walls to flood waters while ensuring that the building can resist water loads below the expected level of flooding.

⁸ The elevation to which floodwater is anticipated to rise during a 1% annual chance storm as shown on FEMA's FIRMs and PFIRMs, as measured from sea level.

⁹ A non-complying building is any structure that does not adhere to bulk regulations of the applicable zoning district. A non-conforming use is any land use that is not permitted under applicable zoning regulations.

with the 2013 Flood Text regulations are provided in Section G below to show a comparison of what exists today and what the Proposed Action is modifying and improving.

Overview of Existing Zoning

Before Hurricane Sandy

The following are underlying zoning regulations that are available for buildings in the floodplain prior to the 2013 Flood Text and 2015 Recovery Text:

Bulk

Reference Plane

Underlying height regulations allow certain buildings to achieve their fully permitted height within the 1% annual chance floodplain. Building envelopes¹⁰ can be measured from the BFE in zoning districts with height limits, or from at-grade in all other zoning districts.

Yard Regulations

Underlying yard regulations facilitate the construction of buildings located on pre-existing substandard lots by allowing required yards to be modified. Side yards can be reduced for single- and two-family detached homes on lots narrower than the minimum lot width as required by the zoning district (to a minimum of five feet). Rear yards can be reduced for buildings on lots shallower than 70 feet in selected low-density zoning districts and 90 feet in medium- and high-density zoning districts (to a minimum of 10 feet in either case).

Floor Area Exemptions

Underlying floor area regulations exempt floor area for buildings located within the 1% annual chance floodplain under limited conditions. Floor area can be exempted when more than half of the floor-to-ceiling height is located below the BFE in zoning districts with height limits.

Mechanical Equipment

Underlying permitted obstruction and floor area regulations facilitate the placement of mechanical equipment (i.e., mechanical and plumbing equipment, including gas fires, water heaters, boilers, generators, oil tanks, air conditioning condensers, etc.) within or outside of buildings. Space used to store mechanical equipment is not counted toward floor area calculations, with some exceptions in low-density residential zoning districts. Permitted obstruction allowances are offered for mechanical equipment to be placed on roofs.

Streetscapes

Underlying streetscape regulations promote walkability across the city's residential and commercial areas. Ground floor use, street wall, and planting rules apply with varying degrees of applicability for buildings with residential, commercial, and community facility uses.

Non-Complying and/or Non-Conforming Buildings

Underlying regulations allow existing non-complying and/or non-conforming buildings to continue but limit their reconstruction, enlargement, or alteration. Existing non-complying buildings often cannot be

¹⁰ The building envelope is a three-dimensional space shaped by height, setback, lot coverage, and yard controls that define the maximum volume within which a structure can be built on a zoning lot.

elevated, retrofitted, or reconstructed to meet flood-resistant construction standards, for they generally cannot create new non-compliances – be they to height and setback, yards or floor area. Existing non-conforming uses cannot be expanded or reconstructed, if demolished.

After Hurricane Sandy

The following are main provisions highlighting zoning modifications and allowances from the 2013 Flood Text and 2015 Recovery Text:

Use

Regulations that require non-residential uses at the ground floor level in certain districts are modified to allow these uses to be elevated above the DFE. Additionally, transparency requirements are also modified, to allow it to be measured from DFE.

Bulk

Reference Plane

Optional height regulations allow buildings to incorporate flood-resistant construction standards, while improving the utility of spaces below the DFE. If the BFE equals or exceeds four feet above grade and blank walls are addressed, building envelopes can be measured from the DFE in all zoning districts, or an alternative reference plane placed at 9, 10, or 12 feet, depending on the building type and zoning district.

Yard Regulations

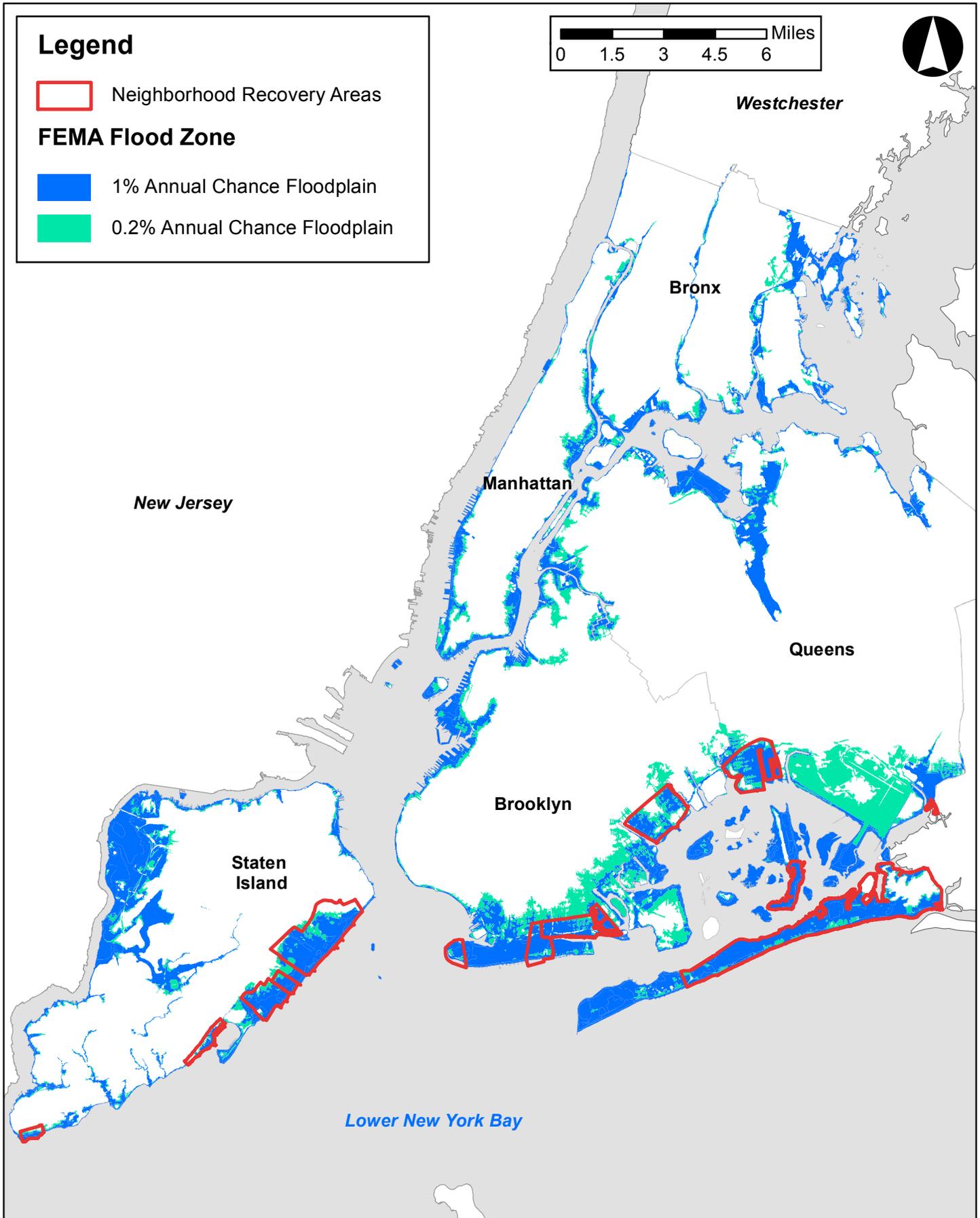
By allowing required yards to be modified in exchange for a lower-scaled height regime, homes located on pre-existing substandard lots in selected areas (referred to as “Neighborhood Recovery Areas” and illustrated in **Figure 3**), can more easily reconstruct and better reflect the scale of traditional cottage buildings. Through this alternative building envelope, informally referred to as the “Cottage Envelope,” side yards can be reduced for single- and two-family detached homes on lots narrower than the minimum lot width as required by the zoning district (to a minimum of three feet). Rear yards can be reduced for single- and two-family detached homes on lots shallower than 95 feet (to a minimum of 10 feet). However, yard flexibility comes with a lower height limit than required by the underlying zoning district.

Floor Area Exemptions

Regulations exempt floor area to encourage new and existing buildings to meet flood-resistant construction standards. Floor area can be exempted when more than one-half of the floor-to-ceiling height is located below the DFE in all zoning districts, the ground floor of existing buildings is wet-floodproofed, and the ground floor of existing buildings in selected commercial zoning districts is dry-floodproofed.

Mechanical Equipment

Modified permitted obstruction and floor area regulations facilitate the placement of mechanical equipment above the DFE, including emergency generators within or outside of buildings. Floor space used to store mechanical equipment is not counted towards floor area calculations within all zoning districts. Extra permitted obstruction allowances are offered for mechanical equipment to be placed on roofs or within rear yards. Emergency generators can be installed as permitted obstructions on yards and open space on lots with single- or two-family homes.



Parking

Regulations were modified to allow existing below-grade parking to be relocated to front yard, side yard, or below the building. In addition, more flexibility with curb cut spacing is offered to facilitate the placement of parking below elevated buildings.

Streetscapes

Streetscape regulations promote walkability across the city's 1% annual chance floodplain by helping alleviate potential blank walls and negative effects of ground floors primarily used for access, storage, and parking. Additional streetscape regulations are required for residential buildings and community facilities if the level of the first occupiable floor equals or exceeds five feet, or the DFE equals or exceeds 10 feet, and other non-residential buildings in areas where the DFE equals or exceeds 10 feet.

Non-Complying and/or Non-Conforming Buildings

Regulations allow the reconstruction, enlargement, or alteration of certain existing non-complying and/or non-conforming buildings to meet flood-resistant construction standards. Existing non-complying buildings can be elevated or reconstructed to the DFE. Existing non-conforming single- and two-family homes, except homes in manufacturing or heavy-commercial zoning districts, can be rebuilt to DFE. The 2015 Recovery Text allows homes in manufacturing districts in Neighborhood Recovery Areas to be rebuilt.

Recovery Rules

Regulations allow the reconstruction of existing non-conforming and/or non-complying buildings damaged by Hurricane Sandy. In Neighborhood Recovery Areas, regulations also help expedite the Hurricane Sandy recovery process through a simplified documentation process which is available to single- and two-family homes that need to obtain permits from DOB for the reconstruction of storm-damaged buildings.

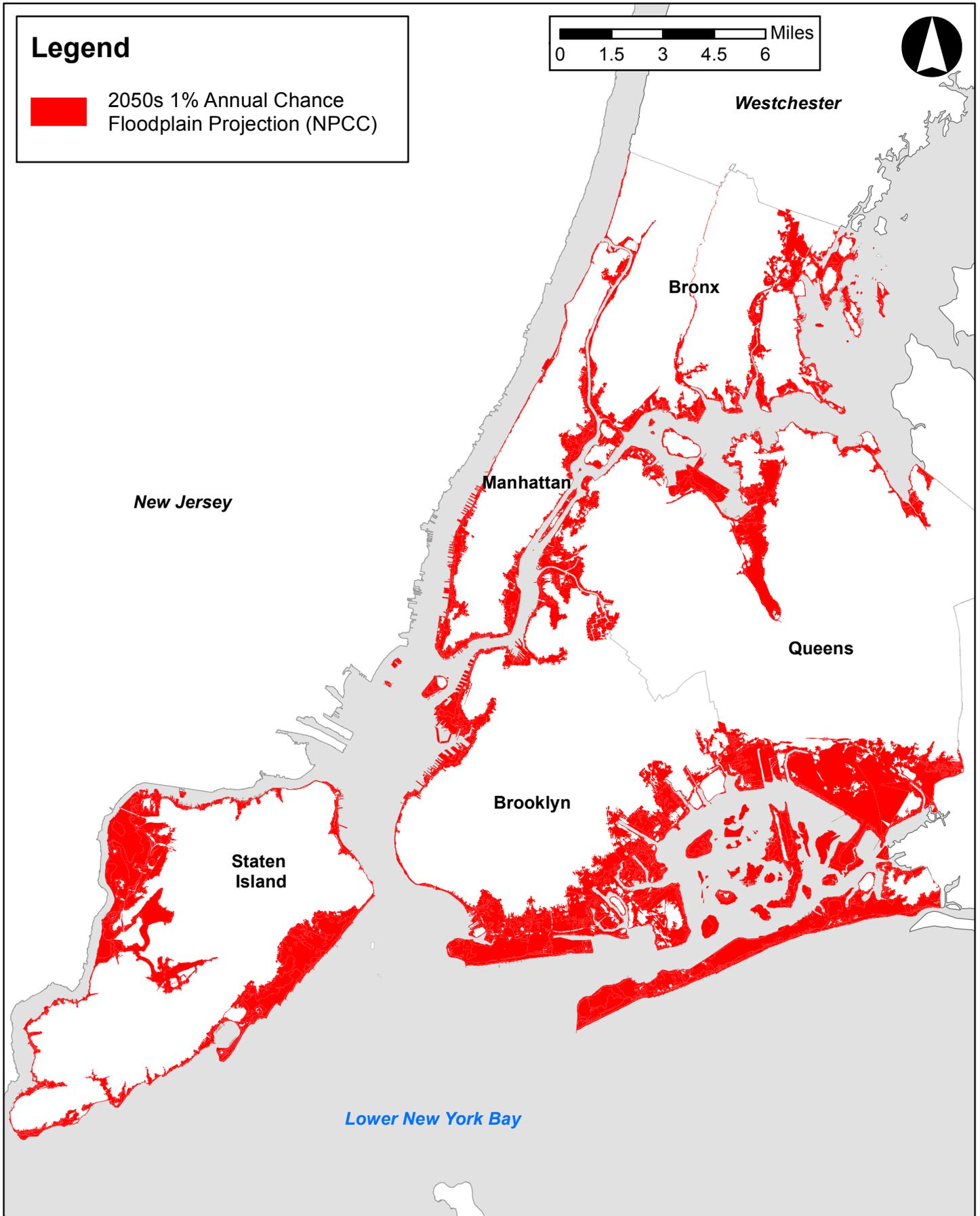
D. PURPOSE & NEED

Aside from making the 2013 Flood Text and the 2015 Recovery Text permanent to continue to allow buildings to incorporate resiliency improvements and recover from potential future storms, DCP identified many ways in which the existing temporary rules should be updated. The 2013 Flood Text and the 2015 Recovery Text focused on encouraging buildings to meet minimum requirements set forth in the flood-resistant construction standards. However, the city's flood risk will continue to increase with climate change, since sea level rise will increase the potential height of storm surges. For that reason, current building code standards that are tied to today's storm surge projections may not be sufficient to protect buildings from being damaged by future storms.

In addition to increasing the potential height of storm surges, sea level rise will also cause the floodplain to expand over time across its geography. Based on data provided by the NYC Mayor's Office of Resiliency (MOR) on behalf of The City University of New York (CUNY) Institute for Sustainable Cities (CISC) and the New York Panel on Climate Change (NPCC), by the 2050s, the 1% annual chance floodplain is projected to cover one-quarter of the city's total landmass (refer to **Figure 4**).¹¹ This area, which closely overlaps with today's 0.2% annual chance floodplain, currently contains double the number of residents compared to today's 1% annual chance floodplain: approximately 794,500 residents and 122,100 buildings.

¹¹ The 1% annual chance floodplain for the 2050s is based on FEMA's Preliminary FIRMs and the NPCC's 90th Percentile Projection for Sea Level Rise (30 inches).

NPCC's 2050s 1% Annual Chance Floodplain Projections



As a result, current zoning rules need to be modified to also take into consideration future flood risk, so that long term adaptation can be achieved across the city's current and future flood-risk areas.

Furthermore, even with the two temporary text amendments still in effect, there are various zoning issues that the city's residents and business owners are confronted with when seeking to make resiliency improvements in both the 1% annual chance and 0.2% annual chance floodplains. These barriers were identified through the analysis of the city's resiliency-related work, including DCP's citywide and neighborhood-specific reports, and the feedback received from other agencies and communities across the floodplain.

I. Lessons Learned since the 2013 Flood Text and the 2015 Recovery Text

Bulk

Reference Plane

Regulations were amended to allow building envelopes across all zoning districts to be measured from the DFE. Additionally, in areas in which the BFE above grade equals or exceeds four feet, existing temporary rules allow height restrictions to be measured from an alternative reference plane located higher than the DFE – nine, 10 or 12 feet above grade depending on the building's use. This extra height allowance was developed to improve the utility of spaces subject to flooding for parking, storage and building access if wet-floodproofed, or active uses such as retail space if dry-floodproofed. Without this flexibility, buildings would have little room in the building envelope to elevate living spaces beyond the DFE, potentially leading to tall crawl spaces that are unused and therefore generate blank walls at the sidewalk level. These additional height allowances currently apply to buildings based on the flood elevation, the building type, and the zoning district in which the building is located. This approach creates a complex framework that unnecessarily benefits some buildings more than others leading to inconsistent outcomes, sometimes even along the same street.

Yard Regulations

With the Executive Order and 2013 Flood Text, there were concerns about the potential height of reconstructed buildings in neighborhoods with narrow lots. The underlying building envelope with side yard requirements created tall and narrow homes that did not match the cottage-type neighborhoods.

The yard flexibility for small lots was made available as part of the 2015 Recovery Text however, it was limited to specific Neighborhood Recovery Areas designated in the zoning text.

Permitted Obstructions

Although the 2013 Flood Text allowed several flood protection measures as permitted obstructions, including flood barriers, retaining walls and raised yards, some flood control measures—such as structured berms and floodgates, which are common flood control measures on large campus sites—are currently not listed.

Floor Area Exemptions

The 2013 Flood Text allows the ground floor of all buildings within the 1% annual chance floodplain to discount the ground floor from floor area calculations if more than half of the floor-to-ceiling height is placed below the DFE. While this allowance helps ensure buildings with moderate and high DFE levels (especially those that equals or exceeds four and a half feet above grade), achieve the fully permitted floor area, this provision has generally resulted in low-quality spaces, as buildings are encouraged to lower the ground-floor ceiling height to get the floor area discount. Additionally, the outcome can be out of scale with

the neighborhood context, since an entire floor can be discounted from floor area calculations, while being used for active uses such as a commercial space or a community facility space.

In addition to this floor area exemption, the 2013 Flood Text also included extra floor area incentives to encourage existing buildings to floodproof, independent of the DFE level. As an example, flood-resistant construction standards require the ground floor of residential buildings to be wet-floodproofed, which restricts their use to parking, storage and/or building access. While accessory parking is generally not counted towards zoning floor area throughout the city, spaces used for storage or building access are typically included. If these rules were not modified, they would penalize building owners and result in the reduction of available floor area. The amended provision allows all existing residential structures to exempt the ground floor from floor area calculations, if the space is wet-floodproofed. Additionally, the 2013 Flood Text allows existing non-residential uses that are dry-floodproofed to be exempted from floor area calculations (up to 10,000 square feet) to incentivize this costly measure. Indeed, one of the great benefits of dry-floodproofing ground floors is that it allows active uses to be kept at grade. However, this provision has not been utilized because of the high cost of dry-floodproofing, but also due to existing restrictions that limit the use of the relocated space, which could help offset the cost of the investment.

Mechanical Equipment

Underlying zoning rules generally allow the space used for mechanical equipment to be discounted from floor area calculations. However, this allowance is limited to the space that is physically occupied by the mechanical equipment itself, in addition to the space directly adjacent to the equipment as required by the manufacturer. If the room used to store this equipment requires extra space for access, that additional area would be counted towards floor area calculations. This poses challenges for buildings that do not have extra zoning floor area available.

Although the 2013 Flood Text already provided certain flexibility for buildings to incorporate partial resiliency measures, there are instances in which the existing temporary rules have been found to be insufficient. For example, current rules allow mechanical systems to be relocated as permitted obstructions from basements and cellars to either the bulkhead, required rear yards or open space, or other locations within the building. In some instances, existing residential campuses may need to construct an entirely new structure to house all the mechanical, electrical and plumbing (MEP) equipment. This option is often hindered by underlying zoning restrictions that require minimum distances between buildings, as well as floor area regulations in instances in which the property already meets its maximum floor area allowance. Additionally, this measure is currently complicated by extra regulations for properties located in waterfront blocks as defined in the NYC Zoning Resolution.

Lastly, back-up systems such as emergency generators are generally not considered permitted obstructions in yards and open space, since the 2013 Flood Text amendment only provided this allowance to single- and two-family homes.

Streetscapes

The 2013 Flood Text and 2015 Recovery Text set forth design regulations, in addition to those already required by underlying zoning rules. As an example, buildings that are elevated or that otherwise increase the height of the building's street wall must meet requirements that depend on the building's use and the level of the first occupiable floor. For instance, single- and two-family homes that elevate their first occupiable floor at or above five feet must either raise and plant the front yard, design a porch in front of the building, or design a stair turn and install planters to help alleviate blank walls. On the other hand, multi-family buildings with the lowest occupiable floor at or above five feet simply have to install planters. However, commercial uses that are elevated to the DFE currently do not have to comply with any extra design requirements (only if the DFE exceeds 10 feet above grade). The anomalous result is that existing

design requirements are somewhat extensive to single- and two-family homes, yet do not require the same level of design enhancements for multi-family buildings and commercial structures.

Non-Complying and/or Non-Conforming Buildings

A large portion of the existing building stock and the land uses within such buildings, do not meet current zoning rules, either because they were constructed before zoning existed, or because they were legally built under the provisions in effect at the time and the regulations have since changed. These non-complying buildings or buildings with non-conforming uses, can stay in place pursuant to underlying zoning. However, there are limitations on the reconstruction, enlargement or alteration of these structures. Generally, buildings that are non-compliant, cannot increase the degree of non-compliance that already exists when enlarging. Similarly, non-conforming uses cannot generally be expanded, or be reconstructed if demolished.

While rules were updated to allow non-complying buildings to elevate or reconstruct to the DFE, and non-conforming single- and two-family homes, and homes in Manufacturing Districts (M1, M2, M3) or heavy Commercial District (C8) in Neighborhood Recovery Areas, to rebuild, the work can only be achieved if the building is kept within the existing footprint and if the first occupiable floor is located at the DFE level. Consequently, this allowance does not provide enough flexibility for all buildings to place living spaces above the DFE, or for the entire building to be repositioned on the lot if needed. If these rules are not updated, they would inhibit most existing buildings in the floodplain from meeting resiliency standards.

Discretionary Action

While the 2013 Flood Text allowed buildings to pursue the NYC Board of Standards and Appeals (BSA) Resiliency Special Permit to be able to meet flood-resistant construction standards, these rules were found to be insufficient. For example, the BSA cannot currently modify height allowances beyond 10% or 10 feet (whichever is less) above what is permitted by the underlying zoning district. In districts with a height limit of 35 feet (common in most low-density residence districts), this rule allows only 3.5 feet of additional height for extenuating circumstances. Additionally, parking and floor area rules cannot be modified. These regulations hindered many buildings from meeting flood-resistant construction standards.

Recovery Rules

The need to adopt temporary zoning rules (the 2013 Flood Text and the 2015 Recovery Text) on an emergency-basis after Sandy demonstrated that a lengthy process to update zoning regulations can present obstacles to the reconstruction of buildings damaged in a disaster.

Overall, DCP's analysis found that existing zoning provisions, including those adopted in 2013 on an emergency basis, can affect building-scale resiliency in two primary ways. First, zoning still discourages residents and business owners from making resiliency investments by not providing enough flexibility in the building envelope. This, in addition to financial challenges, makes it less likely that neighborhoods will become resilient in the foreseeable future. Second, when investments in building-scale resiliency are made, blank walls can be created at the sidewalk level due to the elevation of active uses above the DFE. This results in an undesirable effect on the streetscape.

Building envelope limitations on height and floor area are the most common zoning issues faced by building owners in the floodplain. For example, existing zoning can produce buildings with inconsistent heights because height limits are currently based on the DFE level, which greatly varies across the city's floodplain, even on the same street. The 2013 Flood Text allows some building owners more height and floor area flexibility to build a wet-floodproofed ground floor and use it for parking, minor storage, and building access, while others may only be able to provide a crawl space under the first occupiable floor.

Another issue related to the building envelope is that most buildings in the 1% annual chance floodplain

can only meet minimum resiliency standards, which require the first occupiable floor to be placed at the DFE. This hinders a building owner's ability to achieve the maximum flood insurance premium reduction, which is generally achieved when the first occupiable floor is placed four feet above the BFE. It also does not allow building owners to incorporate sea level rise projections when determining the level of their building's first occupiable floor. Additionally, for buildings in the 0.2% annual chance floodplain, there is no flexibility in the building envelope for buildings to have an elevated first floor. While most uses in these areas are not required to comply with flood-resistant construction standards, with sea-level rise projections showing flood risk increasing over time, the current 0.2% annual chance floodplain will become more vulnerable to flooding in the future. Therefore, building owners should have the option to design or retrofit their buildings to meet resiliency standards on a proactive basis.

The second way that zoning has been affecting building-scale resiliency is with blank walls at the sidewalk level. Currently, buildings are often being designed with external access such as extensive stairs and ramps, which creates a disconnect between the use of the building and the sidewalk. A more flexible zoning framework that goes beyond the 2013 Flood Text provisions could encourage buildings to provide internal access, which would offer a better relationship with the streetscape. Additionally, while existing zoning includes design requirements that help soften the negative effect of blank walls, these requirements are mostly focused on low-density residential communities, or other areas with high DFEs (where the DFE is 10 feet or more above grade). An expansion of these regulations to higher density building types and to areas with lower DFEs would help address the issue of blank walls more broadly in the floodplain.

II. Goals of the Proposed Action

With a comprehensive understanding of issues currently facing New York City's coastal neighborhoods under the existing zoning framework, DCP has developed the following overarching goals to assist the city and its residents in the floodplain to be resilient over the long-term.

Goal 1. Encourage resiliency throughout the City's 1% and 0.2% annual chance floodplains.

All buildings located within areas at risk of being flooded should have the option to proactively incorporate resiliency standards, even when they are not required by FEMA and Appendix G of the New York City's Building Code.

Goal 2. Support long-term resilient design of all building types by offering flexibility in the zoning framework.

All buildings should have access to rules that facilitate protection from storm surge in the near and long-term future, independently of the building's typology or specific location within the city's floodplain.

Goal 3. Allow for adaptation over time through partial resiliency strategies.

All buildings should be able to incorporate some level of resiliency improvements, including existing structures that are not able to fully meet the flood-resistant construction standards.

Goal 4. Facilitate future storm recovery by removing regulatory obstacles.

Rules that assist with the reconstruction of damaged buildings after a future storm or other type of emergency should be readily accessible to expedite the City's response and recovery.

In summary, the Proposed Action would provide clear and simple rules that treat all buildings in the floodplain as similarly as possible, to guide long-term resilient design across New York City's 1% and 0.2% annual chance floodplains, and to prepare the city's neighborhoods to withstand future storms.

III. The City's Land Use Strategy for the Floodplains

With such a vast and populous area subject to varied risks of flooding, it is evident that the city cannot simply retreat from the entire shoreline. Therefore, the city's land use policies across the 1% and 0.2% annual chance floodplains vary based on the degree of flood risk that exists in different parts of the city.

In certain neighborhoods, zoning regulations may be amended to either limit density in areas where coastal risk is exceptional, or encourage density in areas otherwise equipped for it, where risk can be managed through coastal protection and infrastructure improvements. For example, the city believes it is wise to limit future growth in neighborhoods that already experience flooding from high tides, or are projected to experience daily tidal flooding due to sea-level rise in the near-term future. In some of these areas, depending on the shoreline conditions, it may be infeasible to invest in coastal protection that ensures a community's viability and safety on a regular basis. Conversely, in areas where flood risk can be properly managed, zoning can allow for more density to encourage the construction of a more resilient building stock. The decision as to whether it is appropriate to increase or decrease density can therefore best be answered at the local level, depending on specific shoreline conditions, development patterns, and the risk profile of each community.

On a citywide level, land use policies aim to support the planned density and uses located in the floodplain, by facilitating new and existing buildings to incorporate resiliency improvements. The 2013 Flood Text is an example of a citywide zoning framework that helped buildings and neighborhoods to become resilient. Moving forward, the Proposed Action would maintain prevailing land uses and the planned density across neighborhoods while encouraging buildings and neighborhoods of all types to be resilient in the long-term.

E. DESCRIPTION OF THE PROPOSED ACTION

Applicability

The Proposed Action would be applicable to all lots located wholly or partially within the 1% and 0.2% annual chance floodplains (the latter serving as a proxy for the projected 2050 1% annual chance floodplain). To address challenges beyond flood-related risk, select provisions in the Proposed Action would be applicable to all lots in the City. This is in contrast to the 2013 Flood Text and 2015 Recovery Text, which have a more limited geographical application as they only apply wholly or partly within the 1% annual chance floodplain and do not apply to the 0.2% annual chance floodplain properties.

1% Annual Chance Floodplain

As illustrated in **Figure 1**, the 1% annual chance floodplain encompasses a significant portion of land coverage in New York City, including approximately 65,500 lots across the city's five boroughs. The existing provisions are currently available to buildings located wholly or partially within the 1% annual chance floodplain. The Proposed Action would modify the way special zoning rules apply in the floodplain by extending the flexibility to any lot where at least a portion is located within this high-risk flood zone. Additionally, by allowing all buildings located within a lot in this area to use the Proposed Action rules, property owners would be able to more easily proactively comply with resiliency standards in the Building Code or otherwise undertake partial resiliency improvements. For example, a residential campus with multiple buildings would be able to apply the same zoning rules and flood protection standards to all buildings located on the property, even those structures that are not located within the 1% annual chance floodplain. This strategy would not only simplify the design process, but it would encourage more buildings to proactively meet flood-resistant construction standards.

0.2% Annual Chance Floodplain

As also shown in **Figure 1**, the 0.2% annual chance floodplain encompasses a large portion of land in New York City, including approximately 36,700 lots across the city's five boroughs. The existing provisions are currently not available to buildings located in the 0.2% annual chance floodplain. As a result, building owners in this area may be hindered by zoning when trying to proactively invest in resiliency measures. DCP intends to use the 0.2% annual chance floodplain geography as a proxy to the 2050s projected 1% annual chance floodplain (**Figure 4**), given that this area is already included within accepted regulatory maps. The Proposed Action would therefore apply to any lot where at least a portion is located within this moderate-risk flood zone. This would encourage property owners to proactively comply with resiliency standards in the Building Code or otherwise undertake partial resiliency improvements. For example, an owner of a home in the 0.2% annual chance floodplain across the street from a building in the 1% annual chance floodplain would also be able to proactively retrofit their home to be flood resilient. This expansion in applicability would be a sensible precautionary approach and it would ultimately allow the city to proactively adapt to increased future flood risk.

Citywide

The Proposed Action would allow power systems, such as emergency generators, as permitted obstructions in yards and open space, and would be applicable to all lots across the city's five boroughs. Additionally, in an event of a future disaster, discretionary emergency rules would be applicable within an unknown geography designated by the CPC.

Zoning Allowances

Use

The Proposed Action would modify use regulations for mixed-use buildings to provide more flexibility for the placement of commercial uses, such as storage space for businesses. Considering the high cost and technical difficulties in providing dry-floodproofed below-grade cellars in the floodplain, this flexibility would allow existing and new buildings to provide commercial uses on the second story, as a design option for mixed-use structures. However, the space within the second floor would still be counted towards floor area calculations and generate parking requirements.

Bulk

Reference Plane

The Proposed Action would continue to allow building envelopes across all zoning districts to be measured from the DFE to continue to facilitate all buildings in meeting flood-resistant construction standards. Additionally, it would streamline the height allowance by also offering the option to all building envelopes to be measured from an alternative reference plane that is placed higher than the DFE: up to 10 feet above grade (if located within the 1% annual chance floodplain), or up to five feet above grade (if located beyond the 1% annual chance floodplain and within the 0.2% annual chance floodplain). This allowance would assist buildings, including those that cannot be physically elevated, to have their living spaces raised beyond current flood projections and therefore be resilient in the long term. For instance, the average BFE in the city ranges from three to four feet above grade. This surge projection refers to today's 1% annual chance storm. However, by the 2050s, NPCC projects that the city will be subjected to approximately 28 inches (almost two and a half feet) of sea level rise. Therefore, in the next couple of decades, the expected flood elevation of a 1% annual chance storm will become roughly six to seven feet within most of the city's current high-risk zone. To address this, the reference plane would allow buildings in these areas to incorporate these projections, and design living spaces and other important uses at the second story, while floodproofing the ground-floor. However, this extra height allowance would not preclude areas located

within higher BFEs to also utilize the reference plane or the DFE, whichever is higher, since the first occupiable floor would still be able to be placed higher than 10 feet or DFE (within the 1% annual chance floodplain) or higher than five feet (beyond the 1% annual chance floodplain and within the 0.2% annual chance floodplain), if there is enough space within the building envelope. Additionally, by elevating a building's first occupiable floor well above the DFE, homeowners and business owners would be able to maximize long-term flood insurance premium reductions, which are achieved in the 1% annual chance floodplain, when the first occupiable floor is located four feet above the BFE. Lastly, aside from assisting building owners to be more resilient in the long-term and potentially save on flood insurance, additional height flexibility would also facilitate existing basements and cellars to be relocated above flood risk levels. These height allowances would come with extra conditions to ensure that buildings that take advantage of these rules are designed to be protected from flooding in the long-term and provide an inviting streetscape.

Yard Regulations

The Proposed Action would update existing provisions to allow all new and existing single- and two-family detached homes in the floodplain to: (a) reduce side yard requirements if the lot is narrower than 30 feet (to a minimum of three feet); (b) reduce rear yard requirements if the lot is shallower than 95 feet (to a minimum of 10 feet); and (c) meet front yards and setbacks of neighboring buildings, to best align to surrounding neighborhood context. All existing regulations related to fire-protection would still apply under the NYC Fire Code. In exchange for this flexibility, the building would be limited to a maximum height of 25 feet, as measured from the reference plane, instead of 35 feet (most common maximum height in low-density districts). This envelope results in a wider but lower building, which better reflects the existing neighborhood character of areas with a prevalence of small lots. This alternative building envelope, identified as Prototype 11 and informally referred to as the "Cottage Envelope," results in a wider but lower building, which better reflects the existing neighborhood character of areas with a prevalence of small lots.¹² It also provides a better design and interior layout for the homeowner, while allowing living spaces to be placed above the DFE.

Permitted Obstructions

The Proposed Action would update existing provisions to allow several flood protection measures as permitted obstructions, including flood barriers, retaining walls, raised yards, structured berms, and floodgates.

Floor Area Exemptions

The Proposed Action would recalibrate various floor area exemptions to: (a) continue to incentivize buildings to floodproof without giving away extensive amounts of extra floor area, (b) encourage uses to be kept at the street level, and (c) if uses are elevated, encourage buildings to provide internal access. To accomplish these three aims, spaces that are wet-floodproofed, in both new and existing buildings, would be exempted from floor area calculations, as these spaces would only be used for parking, storage and building access, as required by flood-resistant construction standards. This floor area allowance would be offered in all zoning districts, to help incentivize internal access at grade, while encouraging new and existing buildings to elevate living spaces well above the DFE. Furthermore, the project would allow a small floor area incentive for active uses to be kept at grade and dry-floodproofed. This would be achieved by exempting the first 30 feet of the floor space as measured from the street wall of the building, when facing primary streets as defined by zoning, since these are the areas in which retail continuity is key for

¹² For more information on the cottage envelope, see report outlining the City's proposal, [Zoning for Coastal Flood Resiliency: Planning for Resilient Neighborhoods](#), issued by the NYC Department of City Planning, page 20.

the success of the street. This allowance would continue to incentivize buildings to dry-floodproof, as opposed to elevating active uses. Also, to ensure quality ground floors, this flood-area exemption would come with design controls, such as transparency requirements that meet dry-floodproofing regulations, and the condition that the ground floor be at least 13-feet high. This incentive would encourage well-designed commercial and community facility uses to be kept at grade, helping enhance the streetscape experience and retail continuity. Spaces that are exempted from floor area would not count towards parking calculations, as many buildings would face difficulties in fitting the extra parking spots that would otherwise be required.

While the Proposed Action would provide floor area incentives for building owners to take future risk into account and to provide a more accessible design, others may still decide to simply elevate the first floor of the building to the DFE. To encourage access to be designed internally in those situations, The Proposed Action would allow areas used for internal ramps and stairs to be exempted from floor area calculations.

The Proposed Action would also allow up to 500 square feet of floor area to be added to existing heavy commercial and manufacturing buildings. This recommendation came from the *Resilient Industry* report, issued in 2018 (refer to the report's link in Footnote 4 above), which recognized the limitations of retrofitting existing industrial uses, especially those in districts with limited floor area allowances. Aside from facilitating the relocation of valuable equipment to above the DFE, this minor floor area allowance would also provide businesses the option of elevating important spaces, such as offices or storage rooms, above the flood elevation, within either a second story or a mezzanine.

Mechanical Equipment

The Proposed Action would improve upon existing provisions by allowing all MEP equipment to be in the building bulkhead, as a permitted obstruction on required rear yards and open space, or within the building. When placed outside of the building, design requirements would ensure that the equipment is screened from view. When placed within the building, floor area rules would also allow spaces used to access the MEP room and areas used for the storage of flood panels to be exempted from floor area calculations. In this way, the Proposed Action would not prevent existing buildings from relocating equipment that is often placed within cellars (and therefore not counted towards floor area) above the DFE. In addition, it would relax minimum distance between building requirements and minimum open space provisions to allow more flexibility for the construction of MEP buildings, facilitating new utility structures on larger campus-style housing sites. Lastly, it would introduce flexibility to power systems, such as emergency generators, allowing them to encroach on side and rear yards and open space on a citywide basis for all building types, considering that needs go beyond low-density homes, and can assist buildings beyond flood-related risk.

Parking

Proposed Action would continue to allow existing below-grade parking to be relocated to front yard, side yard, or below the building. In addition, more flexibility with curb cut spacing is offered to facilitate the placement of parking below elevated buildings.

Streetscapes

The Proposed Action would extend design requirements in the floodplain to all residential, commercial, mixed-use buildings as well as buildings containing community facilities. These improvements would help attenuate potential blank walls at the street level, and also alleviate the additional height caused by resiliency needs. The Proposed Action would provide a wider range of options to better accommodate different neighborhood contexts, lot conditions and ground-floor uses. For example, elevated commercial uses would be able to choose among several options that help mitigate blank walls, such as changes to the building's façade (fenestration and articulation), or elements that can be placed at the sidewalk level (planters or street furniture). As another example, row-houses would be able to provide elevated porches, balconies or bay

windows to help soften taller facades. Single-family homes on shallow lots would be able to provide stairs at the side yard as opposed to the front yard, to help reduce the number of obstructions close to the sidewalk. These design options would help activate the streetscape of residential and commercial streets in the floodplain. Moreover, these regulations would encourage buildings to set back top stories or provide lower ridge lines to assist in mitigating the additional height created by resiliency needs.

Non-Complying and/or Non-Conforming Buildings

To balance overall planning goals with communities' resiliency needs, The Proposed Action would enhance existing allowances to ensure that these buildings meet flood-resistant construction standards—or exceed them—if they fit within the modified building envelope. This updated framework would allow all properties with non-conforming uses and non-complying buildings to measure the underlying building envelope from the DFE when located within the 1% annual chance floodplain, while granting access to more flexible yard and setback rules for those that are located within either the 1% or the 0.2% annual chance floodplains. This framework would allow buildings to increase the degree of non-compliance due to the resiliency work. As an example, a non-conforming attached home with non-compliant yards located within a residence district that only allows detached structures, would be able to relocate floor space currently located below the DFE to the top of the structure, even if the enlargement work increases the degree of non-compliance with yard regulations. Another example would be a non-conforming residence in a manufacturing district, which would be able to be elevated or retrofitted to or above the DFE, or be reconstructed, if located within areas that are predominantly residential.

Other Zoning Considerations

Concerns have been raised recently about adding vulnerable populations, such as those living in nursing homes, to areas of high risk of flooding. Therefore, DCP is examining whether the Proposed Action should include measures to limit those uses that address these concerns.

Future Discretionary Actions

The Proposed Action would modify the existing special permits that can be granted by the BSA to facilitate resiliency investments in unique conditions, in addition to the creation of a new special permit that would provide a wider range of use alternatives for the ground floor design of residential buildings. The Proposed Action would also include a CPC Authorization to facilitate future recovery efforts.

BSA Resiliency Special Permit

The Proposed Action would allow the BSA to modify a wider range of zoning regulations to assist buildings in meeting flood-resistant construction standards. This includes changing the existing parameters to height (10% or 10 feet whichever is more) and expanding the modification to floor area, and parking, in addition to keeping modifications to yards and setbacks, permitted obstructions and design regulations. To use this special permit, the applicant would still need to demonstrate that there would be a practical difficulty in complying with the flood-resistant construction standards without such modifications.

BSA Ground Floor Use Special Permit

The Proposed Action would create a BSA special permit for buildings located within residence districts to be able to use the ground-floor level of the building for professional offices, if the space is dry-floodproofed according to flood-resistant construction standards, and if the BSA finds that the use is consistent with the surrounding neighborhood's character. This allowance would provide a greater range of floodproofing options to buildings that today are only used as residential structures, considering how some structures face difficulties to wet-floodproof the ground floor. This framework can also benefit the streetscape of

residential streets, as it allows for use options that go beyond parking, storage and building access, since these are currently the only uses that are allowed within wet-floodproofed ground floors.

Special Permit for Restaurants in Waterfront Recreation Districts

The Proposed Action would include modifications to the existing BSA special permit for eating or drinking establishments that are located within Waterfront Recreation Districts (C3, C3A). These areas are mapped along the city's waterfront in a limited number of places, generally allowing commercial uses related to boating and other waterfront recreational activities, in addition to the full range of residential and community facility uses. Restaurants are currently only allowed in these areas through a BSA special permit, which must be renewed every five years. To reduce the time and cost burden of getting repeated BSA approvals, the Proposed Action would extend the special permit term from five to ten years for new applicants. Additionally, for existing establishments that are pursuing renewals, the term would be established by the BSA. These changes would allow building owners to focus their investment in resiliency improvements and other partial resiliency strategies, helping decrease existing vulnerabilities, as most buildings are located at the waterfront and are therefore at high risk of being flooded.

CPC Authorization for Emergency Rules

To expedite future recovery processes, the Proposed Action would establish provisions that would be adopted as part of the text amendment, but would only be applicable when the State declares a state of emergency. Once declared, these rules could be triggered quickly through a CPC authorization, which would follow a review process with compressed time frame. Zoning provisions would then become applicable within "Recovery Areas" as designated by the CPC, in consultation with the MOR, DOB and other relevant agencies. This framework would assist the City and building owners to rebuild or retrofit damaged structures in a more expeditious manner. These provisions would be optional for building owners undertaking reconstruction or retrofit work, but when used would require the building to fully comply with all related provisions pursuant to the Building Code, including flood-resistant construction standards when applicable.

These provisions would include special regulations that were included in the temporary text amendments, such as reconstruction allowances for existing non-conforming uses and non-complying buildings, which were not permitted pursuant to the underlying zoning rules. In addition, the Proposed Action would include provisions that simplify the documentation process for obtaining DOB permits for the reconstruction or elevation of storm-damaged buildings. As an example, property owners would be able to provisionally consider their tax lot as their zoning lot to apply building envelope rules, so they could more quickly reconstruct damaged structures. These, and other emergency rules, would be available for a certain timeframe after the event so buildings could complete reconstruction.

Related Actions

In addition to the proposed citywide zoning recommendations, DCP would be proposing neighborhood-specific zoning text and map changes in four neighborhoods that were recommended as part of DCP's Resilient Neighborhoods Initiative. These related actions will be in public review concurrent with the Proposed Action and their effects are analyzed as part of separate environmental reviews. These specific actions are intended to address resiliency challenges that are specific to the conditions in these areas. These neighborhoods include:

Staten Island: New Dorp Beach

The New Dorp Beach bungalow colony is comprised of single- and two-family homes located narrow and shallow lots along one-way streets. The area has poor drainage with few viable options for storm sewer infrastructure within the neighborhood. To more closely reflect the area's built form

and reduce stress on the area's already strained infrastructure, a Special Coastal Risk District (SCRD) would be mapped to limit future density, by only allowing large lots to provide two-family homes. The SCRD would also limit building heights to 25 feet, as opposed to 35 feet currently allowed by the underlying zoning district. This height restriction would be measured above the reference plane in alignment with the cottage envelope in the Proposed Action. The lower height would best match the area's neighborhood character while enabling existing buildings to retrofit. Lastly, there are also small retail establishments along Cedar Grove Avenue and New Dorp Lane that are important to the economic vitality of the neighborhood, but that currently face zoning challenges when retrofitting to resiliency standards. The proposal would facilitate existing commercial uses to invest in resiliency improvements by requiring less stringent parking requirements that best align with the current conditions.

Brooklyn: Gerritsen Beach

Gerritsen Beach is a low-lying residential community originally developed as a neighborhood of summer bungalows. During Hurricane Sandy, the neighborhood was almost entirely inundated as the tidal surge rose up to seven feet above grade. Less severe but more frequent storms also cause flooding to Gerritsen Beach's constrained roadways, with some streets as narrow as 15 feet. This area is proposed to be designated as a Special Coastal Risk District (SCRD) to limit future density, by allowing only large lots to provide two-family homes. The SCRD would also limit building heights to 25 feet, as opposed to 35 feet currently allowed by the underlying zoning district. This height restriction would be measured above the reference plane in alignment with the cottage envelope in the Proposed Action. This lower height would best match the area's neighborhood character while enabling existing buildings to retrofit. In addition, Gerritsen Beach's residential and waterfront areas would be remapped to more contextual districts, to prevent the construction of attached buildings, as those districts do not reflect the existing character of the area and are more difficult to retrofit in the future. Additionally, the proposal would expand use options for commercial establishments at Gerritsen Avenue to allow for a wider range of local services, which are key in providing support year-round for the community.

Brooklyn: Sheepshead Bay

Sheepshead Bay is a mixed-use neighborhood with a working and recreational waterfront, commercial corridors, and residential areas that have a wide range of building types, from small bungalows to large apartment buildings. During Hurricane Sandy, small businesses in the area experienced flood levels as high as six feet above grade, resulting in their temporary closure. Within the Special Sheepshead Bay District (SSBD), businesses located in cellar spaces below grade experienced severe flooding and, in some cases, have been unable to return following Sandy. In consultation with the community, DCP proposes to update the existing SSBD so that regulations align with the Proposed Action to ensure that buildings are encouraged to floodproof in the long term. Additionally, public space regulations in the SSBD would also be updated to include requirements for resiliency, such as the prohibition of below-grade plazas, and to promote the creation of well-designed, inviting spaces that support the commercial vibrancy of Emmons Avenue.

Queens: Old Howard Beach

Old Howard Beach is a waterfront neighborhood with predominantly detached houses, an active commercial corridor, and a community that enjoys easy access to the waterfront. During Sandy, flooding inundated basements in residential buildings and ground floor commercial uses. Old Howard Beach is characterized by being within a low-lying area, with BFEs ranging from four to six feet above grade, and analysis suggesting that projected sea level rise will affect the neighborhood primarily through tidal inundation in low-lying streets. As sea levels rise, Old

Howard Beach is projected to see a gradual increase in vulnerability to flooding from daily and monthly spring high tides. Portions of Old Howard Beach are recommended to be rezoned to limit permitted residential uses to one- and two-family detached houses ensuring flexibility to retrofit existing buildings and, as may be necessary, elevate to the DFE. Building to these higher flood-resistant construction standards will reduce vulnerability to future floods.

F. ANALYTIC FRAMEWORK

Consistent with 2014 *CEQR Technical Manual* guidance, the Proposed Action is analyzed as a “generic action” because there are no known developments that are projected at this time. According to the *CEQR Technical Manual*, generic actions are programs and plans that have wide application or affect a range of future alternative policies, and for such actions, a site-specific description or analysis is not appropriate. As described in the *CEQR Technical Manual*, generic analyses are conducted using the following methodology:

- **Identify Typical Cases:** Provide several descriptions similar to those in a localized action for cases that can reasonably typify the conditions and impacts of the entire proposal.
- **Identify a Range of Conditions:** A discussion of the range of conditions or situations under which the action may take place, so that the full range of impacts can be identified. As detailed below, this includes existing conditions, a future scenario without the Proposed Action, and a future scenario with the Proposed Action.

Due to the broad applicability of the Proposed Action, it is difficult to predict the sites where development would be facilitated. In addition, the Proposed Action is not in-and-of-itself expected to induce development where it would not have occurred absent the Proposed Action. Although the Proposed Action may allow developments and existing buildings to retrofit to resilient standards, the overall amount, type, and location of development within the affected area is not anticipated to change. Owing to the generic nature of this action, there are no known or projected as-of-right development sites identified as part of the Proposed Action’s Reasonable Worst-Case Development Scenario (RWCDS). To produce a reasonable analysis of the likely effects of the Proposed Action, 13 representative prototypical sites containing either new developments, infill, or retrofits of existing buildings in the City’s 1% and 0.2% annual chance floodplains have been identified to demonstrate the wide range of proposed regulations for sites that would be able to develop as-of-right in the future with the Proposed Action.

Additionally, Conceptual Analysis sites were identified for those sites where development would require discretionary action in the future With-Action condition. This Conceptual Analysis will serve as a means of disclosing the potential impacts of the proposed discretionary actions.

Development affected by the Proposed Action is projected based on trends between 2012 and 2019. Although projections are typically modeled after trends of the previous decade, this analysis focuses on development data since Hurricane Sandy in 2012, during which there is more data available for resilient constructions. Accordingly, unless otherwise noted, development assumptions in the future without and with the Proposed Action mirrors recent historical development patterns. In the eight years from 2012 to 2019, there were approximately 1,324 residential buildings that were built within the 1% annual chance floodplain, and therefore now meet flood-resistant construction standards. Conversely, of the 662 buildings that filed for alterations with DOB since the storm, only a small fraction now meets flood-resistant construction standards, as many did not trigger substantial damage or improvement, and as a result, were not required to comply. Approximately 1,323 existing homes were elevated or rebuilt to meet flood-resistant construction standards through the City’s Build It Back Program – a program funded by the U.S. Department of Housing and Urban Development (HUD)’s Community Development Block Grant Disaster Recovery funds (CDBG-DR), dedicated to helping New Yorkers living in communities affected by Sandy.

In total, approximately 8,300 property owners of one-to four-unit buildings were assisted through either a reimbursement check, construction work, or acquisition. Through Build It Back's Multi-Family Program, 19,600 households in 143 developments were supported through repairs, resiliency upgrades, and reimbursement services.¹³ The Proposed Action is not expected to change the rate of construction in the floodplain, which is controlled primarily by the supply of developable land and by the local supply of skilled professionals in the construction industry.

Prototypical Analysis

To assess the possible effects of the Proposed Action, a RWCDs was developed for the future without the Proposed Action (No-Action condition) and the future with the Proposed Action (With-Action condition) for a 10-year period in both the 1% annual chance and 0.2% annual chance floodplains. Although the Proposed Action's provisions are similar for these two geographies, there is a difference in the height allowance. As discussed below, RWCDs developments in the 0.2% annual chance floodplain generally follow the development rationale for the 1% annual chance floodplain, unless the limited height flexibility in the 0.2% annual chance floodplain does not allow for it. In addition, as the city's building codes are applied differently in these two areas, the No-Action condition will vary. To capture the varying conditions, the incremental difference between the No-Action and With-Action conditions for both the 1% annual chance and 0.2% annual chance floodplains will serve as the basis for assessing the potential environmental impacts of the Proposed Action. Furthermore, the No-Action condition reflects a scenario where 2013 Flood Text and 2015 Recovery Text have expired. The incremental difference does not consider the effects of these two prior texts because they were adopted on a temporary basis with sunset (expiration) dates and given the urgent nature of these provisions, there was no environmental review conducted. However, scenarios with the 2013 Flood Text regulations are provided in Section G below for illustrative purposes. As illustrated in **Table 3**, 13 sites were selected as prototypes for environmental analysis for the No-Action and With-Action scenarios. For this *Draft Scope of Work*, five Prototypical Analysis Sites (Prototypes 3, 5, 6, 7, and 11) are illustrated in the "Selected Prototypical Analysis Sites" section below.

In addition, as discussed above, the Proposed Action would also have select provisions that would be applicable citywide: a text provision for permitted obstruction regulations that allow emergency generators, and a discretionary action to facilitate reconstruction of damaged buildings. The citywide emergency generators provision will be analyzed as part of Prototype 3 and 11, and the CPC authorization for emergency rules will be analyzed in the Conceptual Analysis.

To determine the No-Action and With-Action conditions, standard methodologies have been used pursuant to the *CEQR Technical Manual*. These methodologies have been used to identify the amount and location of future development, as discussed below.

¹³ NYC Housing Recovery. Accessed March 31, 2019. www1.nyc.gov/site/housingrecovery/index.page

Table 3: Prototypical Site Selection

ID	Zoning District	Building Typology	Construction Type	Lot Area (sf)	Width (feet)	Depth (feet)
1	R3-1	Single-family detached residence	Retrofit	4,000	40	100
2	R3-1	Single-family semi-detached residence	New Construction	2,500	25	100
3	R4 (Infill)	Two-family attached residence	Retrofit	2,000	20	100
4	R5 (Infill)	Low-rise multi-family building	Retrofit	2,500	25	100
5	R7A	High-rise multi-family building	New Construction	10,000	100	100
6	R6	Campus-style housing	Retrofit	50,000	500	100
7	C1-2/R5	Low-rise mixed-use building	New Construction	12,000	120	100
8	C1-2/R7A	High-rise mixed-use building	Retrofit	2,500	25	100
9	C1-2/R3-1	Commercial building	Retrofit	10,000	100	100
10	M1-1	Industrial building	Retrofit	10,000	100	100
11	R4	Single-family detached residence (non-compliant)	New Construction	2,500	25	100
12	R3A	Single-family detached residence (non-compliant)	Retrofit	2,500	25	100
13	R3X	Two-family detached (non-conforming/non-compliant)	Retrofit	2,000	20	100

Most provisions for the Proposed Action would affect the 1% annual chance and 0.2% annual chance floodplains, which include 13 building types in a total of 97 zoning districts, including 34 residential districts, 48 commercial districts, and 15 manufacturing districts. In this specific area, approximately 102,300 lots in New York City would be potentially affected by the Proposed Action. The characteristics listed below were analyzed to create the hypothetical sites where the effects of the Proposed Action could be assessed (i.e., Prototypical Analysis Sites). These sites are not necessarily representative of a specific lot, but rather reflect prevalent conditions as a basis for analysis. These Prototypical Analysis Sites were then analyzed for their respective recent development trends to determine the development scenario to be assessed. To assess the effect of the Proposed Action, the characteristics considered in identifying the Prototypical Analysis Sites are described below.

Range of Building Typologies

- The sites are representative of the building types located in the 1% annual chance and 0.2% annual chance floodplains. Although all building types are in the floodplain, the prototype list mirrors the data showing a prevalent of single- and two-family buildings;
- The sites are based on building types that can demonstrate specific provisions; and
- The sites reflect varied vulnerability and retrofit-ability of buildings, without repeating similar outcomes. Distinction was made between low-rise and high-rise buildings based on the number of floors, as they have different likelihoods of being fully retrofitted to meet flood-resistant construction standards. Low-rise buildings are four floors and below; High-rise buildings are five floors and above.

Range of Zoning Districts

- To determine the zoning districts the overall most prevalent zoning districts were considered in both the 1% annual chance and 0.2% annual chance floodplains;

- The top two most prevalent zoning districts by building typology were considered in both the 1% annual chance and 0.2% annual chance floodplains; and
- The zoning districts which permit a reasonable range of building typologies and development scenarios were selected to evenly distribute the actions across different densities and district types.

Lot Characteristics

- These were based on the median lot area, width, and depth of all lots within a selected prototype zoning district. Although there is a prevalence of small lots across all building types, some lot sizes for future developments reflect current trends of aggregate development.

Base Flood Elevation

- To determine the flood elevation, the average and median flood levels by building typology were considered in the 1% annual chance floodplain. The average flood level is moderate across the City with three to four feet of BFE, however, depending on the building typology, some averages were low with two feet of BFE and some averages were high with five feet of BFE. One of these two thresholds have been applied to each scenario based on the building type and data analysis.

Development Assumptions

Consideration of the development and retrofit typology, including size and location of buildings and the layout of required parking, was determined through:

- Analysis indicating the median lot coverage, floor area, and building height throughout various neighborhoods within the existing 1% annual chance and 0.2% annual chance floodplains;
- Analysis of recent construction in the floodplain through applications filed to DOB; and
- The use of aerial and street view photography.

Type of Construction

- The percentage of unbuilt lots within a given zoning district was used to approximate the areas where future development is most likely to occur. Generally, the percentage of unbuilt lots is low in the 1% and 0.2% annual chance floodplains with the low density context (R1 through R5) having the highest percentage, thus the analysis illustrates more new construction for one- and two-family homes; and
- The percentage of built lots within a given zoning district was used to approximate the areas where retrofit of existing buildings is most likely to occur.

Because the Proposed Action has implications for both new developments and existing buildings, assumptions are made for the Existing, No-Action, and With-Action conditions.

Existing Condition

Based on 2019 conditions, existing conditions for the Prototypical Analysis Sites do not meet flood-resistant construction standards, as only a small fraction of the city's floodplain now meet these standards, largely as a result of the post-Sandy recovery efforts. These existing buildings typically don't meet flood-resistant construction standards also because of the smaller floodplain geography that was designated by FEMA's FIRMs that were in effect when the city joined the NFIP program in 1983, until PFIRMs were issued in 2013.

For this analysis, it is assumed that the existing buildings would maximize their development under the permitted building envelope. This provides a baseline for analysis of the effect of the Proposed Action.

No-Action Condition

There will be two No-Action scenarios for each Prototypical Analysis Site to illustrate both the 1% annual chance floodplain and the 0.2% annual chance floodplain. The No-Action condition assumes that the 2013 Flood Text and 2015 Recovery Text have expired at some point during the 10-year analysis period, and new development has continued in the city's floodplain without the benefit of special zoning relief.

- New developments would be required to meet the minimum standards of Appendix G for buildings in the 1% annual chance floodplain, but not in the 0.2% annual chance floodplain
- Existing buildings, in general, only need to meet the requirements of Appendix G if they are substantially-damaged or substantially-improved, or if the building is conducting a horizontal enlargement. Although in certain instances these buildings could potentially pursue resilient improvements, to demonstrate a more conservative analysis, the No-Action scenario will assume that an existing building does not retrofit. Recent development trends also indicate that it is unlikely that the existing buildings will invest in resiliency, especially absent special zoning relief to assist buildings to comply with flood-resistant construction standards without needing to lose existing floor space.

For this analysis, it is assumed that each Prototypical Analysis Site would maximize their development under the permitted building envelope. This provides a baseline for analysis of the effect of the Proposed Action.

With-Action Condition

There will be two With-Action scenarios for each Prototypical Analysis Site to illustrate the impact of the Proposed Action in both the 1% annual chance floodplain and the 0.2% annual chance floodplain. The With-Action conditions assumes that the 2013 Flood Text and 2015 Recovery Text have been superseded by the Proposed Action, and most building owners have the flexibility of incorporating future flood risks when making resiliency investments.

- New developments would exceed the minimum flood-resistant construction standards of Appendix G for buildings in both the 1% annual chance and 0.2% annual chance floodplains.
- Existing buildings would retrofit to either meet the minimum flood-resistant construction standards of Appendix G or exceed it, depending on the cost and structural feasibility of construction for both the 1% annual chance floodplain and the 0.2% annual chance floodplains.
- Prototype scenarios that only show partial mitigations do not need to meet Appendix G.

For this analysis, it is assumed that the Prototypical Analysis Sites would maximize their development under the Proposed Action. Developments in the 0.2% annual chance floodplain generally follow the development rationale for the 1% annual chance floodplain, unless the limited height flexibility in the 0.2% annual chance floodplain does not allow for it.

Selected Prototypical Analysis Sites

Prototype 3 *R4 Infill Residence District, 20-foot x 100-foot interior lot Two-Family Attached Residence, Existing Building Retrofit*

The prototype utilizes a generic 20-foot by 100-foot interior lot in an R4 Infill Residence District. These assumptions were made because they represent typical lot conditions in the 1% annual chance floodplain and 0.2% annual chance floodplain. The prototype illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes for retrofits;
- Floor area exemption for wet-floodproofed ground floors;
- Permitted obstructions of MEP in the rear yard; and
- Streetscape impacts.

Existing Conditions

The existing condition illustrates a two-family attached residence with two stories and a basement where one residential unit is in the basement (see **Figure 5a**). The zoning lot is built with 2,700 sf of zoning floor area—the maximum permitted within an R4 Infill Residence District which allows for an FAR of 1.35 (ZR 23-142). The building's gross floor area is 2,760 sf. Spaces used for mechanical equipment (60 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

This existing building does not meet the minimum flood-resistant construction standards of Appendix G in the NYC Building Code, as it was constructed prior to the adoption of these regulations. The total building height is 22 feet above grade, with a perimeter wall of 22 feet—fitting within the permitted building envelope of an R4 Infill Residence District, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 25 feet (ZR 23-631). All residential floors have a floor-to-floor height of nine feet each. The mechanical equipment is located in the basement.

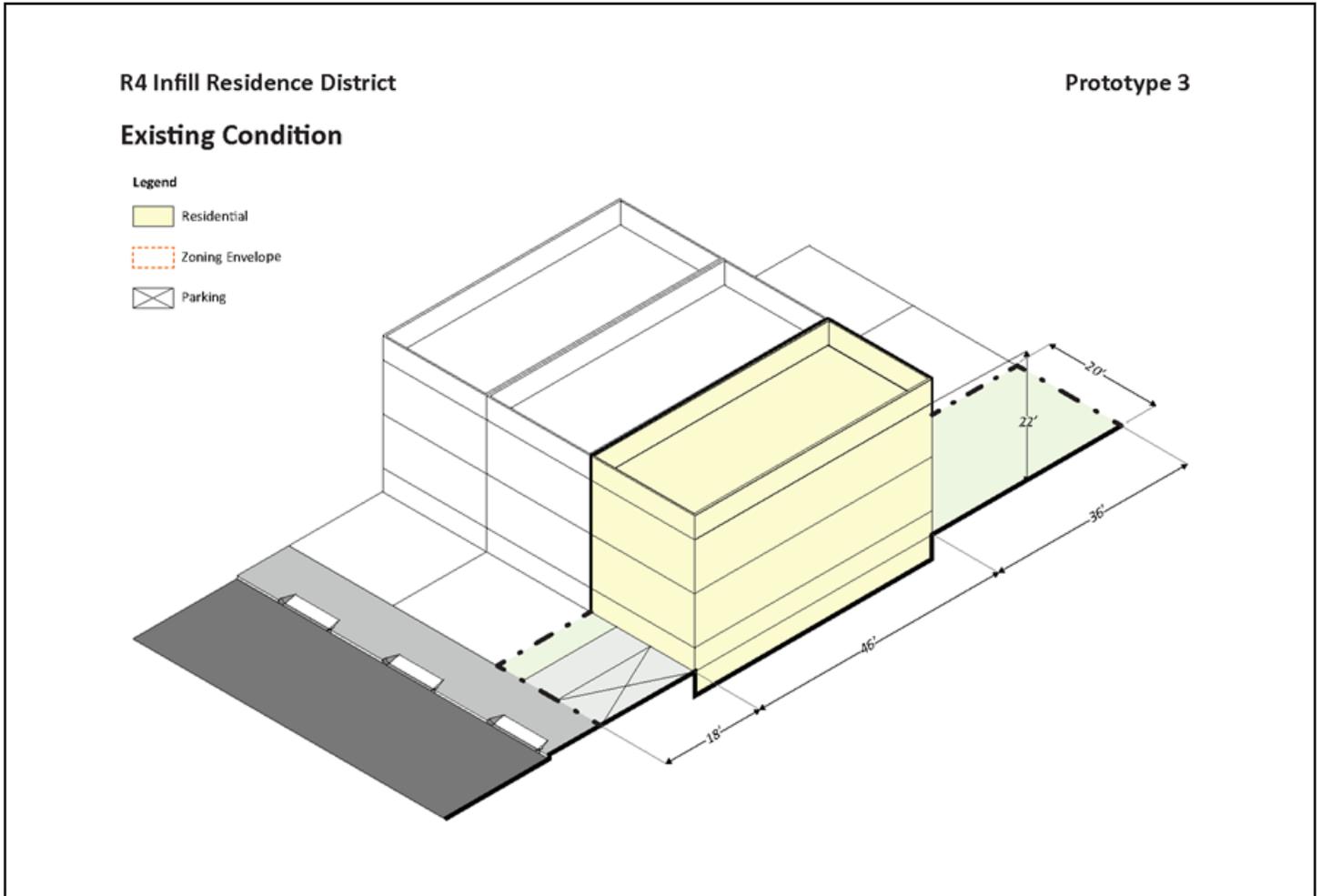
The existing scenario provides one parking space in an unenclosed space in the front yard. While the location of the parking space complies, it does not meet the two parking spaces as required in the underlying zoning (ZR 25-621 and ZR 25-23) as the two existing dwelling units were created prior to December 15, 1961 (ZR 25-21). The building complies with all other underlying zoning regulations.

1% annual chance floodplain No-Action Scenario

For a conservative analysis, the No-Action scenario does not change from the existing condition because it is less likely for buildings to retrofit when they are not required to comply with flood-resistant construction standards. The permitted building envelope of an R4 Infill Residence District is measured from the BFE (ZR 12-10 Definition of Base Plane), which allows for a maximum building height of 40 feet (35 feet plus five feet BFE) and a maximum perimeter wall height of 30 feet (25 feet plus five feet BFE) (ZR 23-631) (refer to **Figure 5b**).

1% annual chance floodplain With-Action Scenario

The With-Action scenario illustrates a retrofitted two-family attached residence with four stories and a garage (refer to **Figure 5c**). The basement is filled-in to comply with flood-resistant construction standard. The floor area lost due to the filled-in basement is added as a horizontal enlargement in the rear yard and as a partial story to the top of the building. The zoning lot is built with 2,700 sf of zoning floor area—the maximum permitted within an R4 Infill Residence District which allows for an FAR of 1.35 (ZR 23-142).



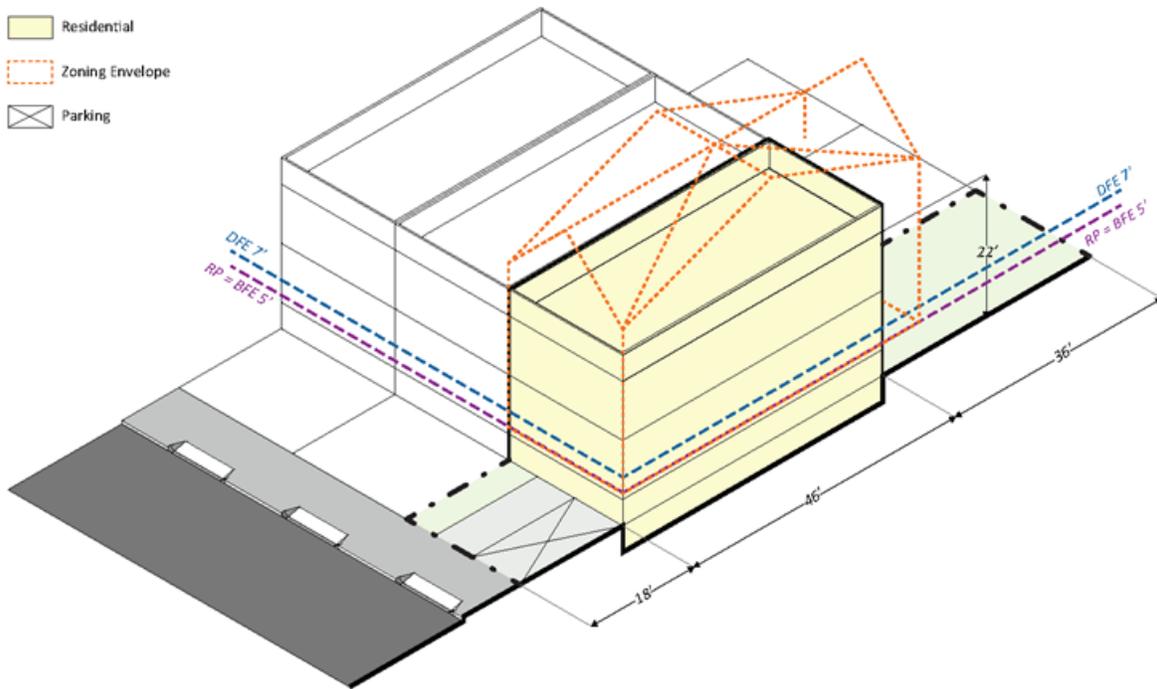
R4 Infill Residence District

Prototype 3

1% Annual Chance Floodplain - No Action

Legend

- Residential
- Zoning Envelope
- Parking



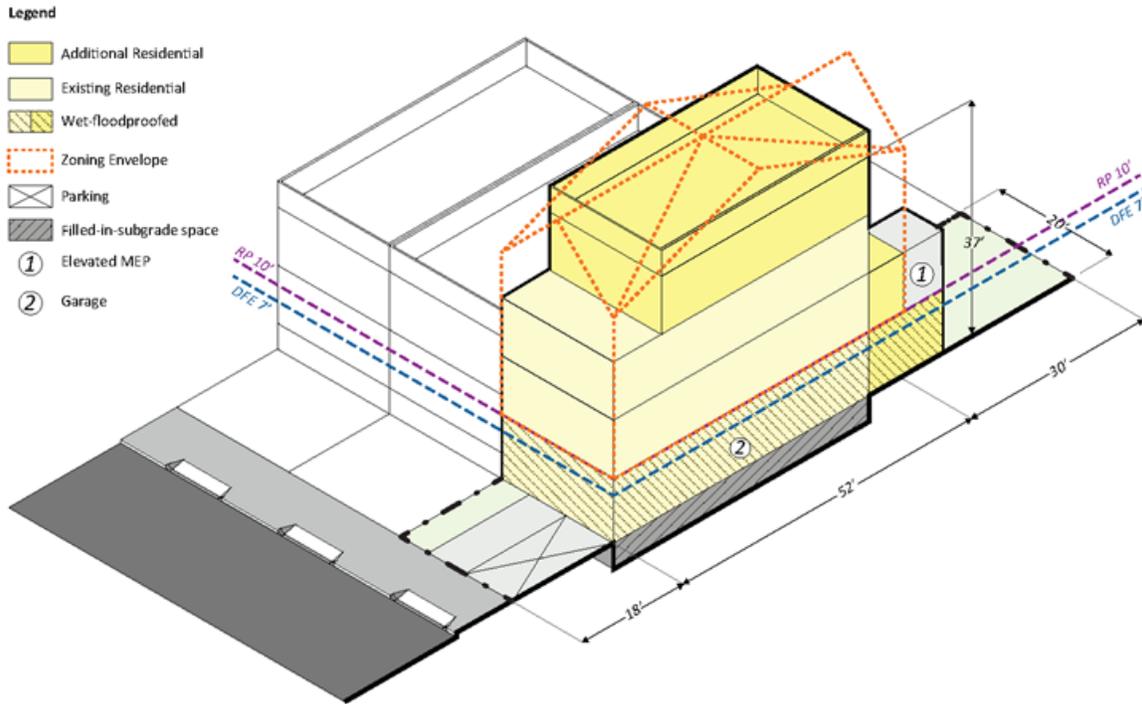
*BFE= Base Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,000 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	0 sf
Zoning Residential Floor Area	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,760 sf	3,800 sf	+ 1,040 sf
Gross Residential Floor Area	2,760 sf	3,800 sf	+ 1,040 sf
Exempted Floor Area	60 sf	1,100 sf	+ 1,040 sf
Provided Perimeter Wall/Baseheight	22 ft	28 ft	+ 6 ft
Provided Overall Height	22 ft	37 ft	+ 15 ft
Provided Number of Stories	2 (+ 1 Basement)	4 (No Basement)	+ 2
Lot Coverage / Open Space	46 % / 54 %	52 % / 48%	+ 6 % / -6%
Dwelling Units	2	2	0
Parking Spaces	1	2	+ 1

R4 Infill Residence District

Prototype 3

1% Annual Chance Floodplain - With Action



*RP = Reference Plane
 *DFE= Design Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,000 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	0 sf
Zoning Residential Floor Area	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,760 sf	3,800 sf	+1,040 sf
Gross Residential Floor Area	2,760 sf	3,800 sf	+1,040 sf
Exempted Floor Area	60 sf	1,100 sf	+1,040 sf
Provided Perimeter Wall/Baseheight	22 ft	28 ft	+ 6 ft
Provided Overall Height	22 ft	37 ft	+ 15 ft
Provided Number of Stories	2 (+ 1 Basement)	4 (No Basement)	+ 2
Lot Coverage / Open Space	46 % / 54%	52 % / 48%	+ 6% / -6%
Dwelling Units	2	2	0
Parking Spaces	1	2	+ 1

Prototype 3: No-Action Conditions
0.2% Annual Chance Floodplain

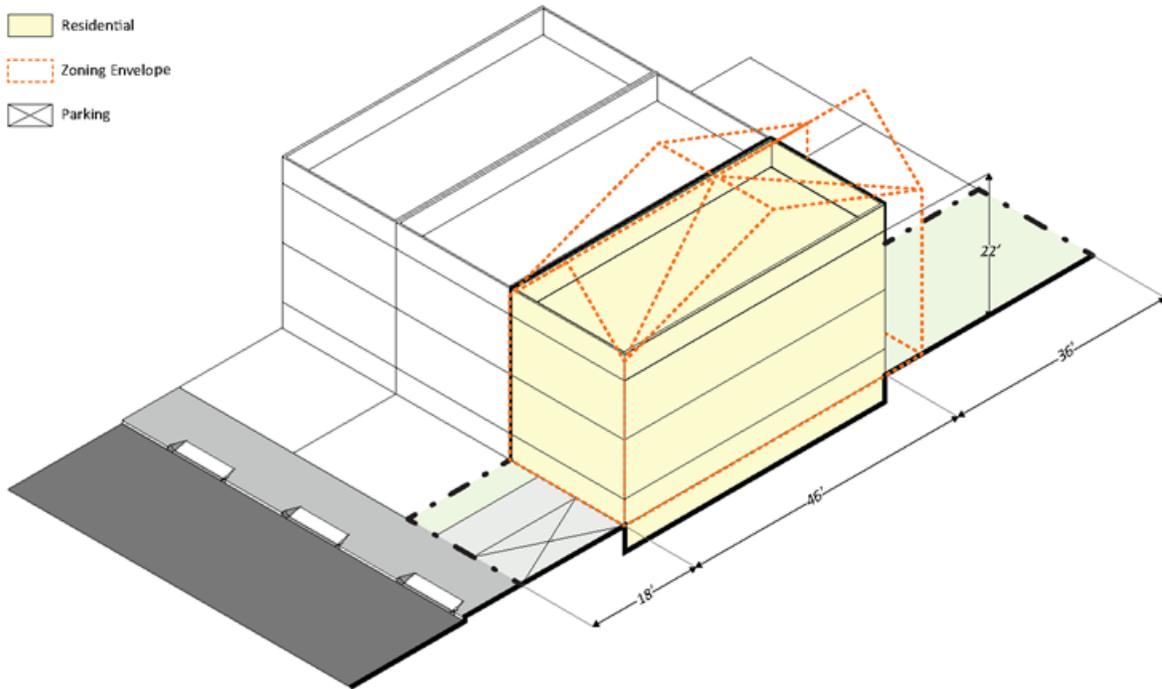
R4 Infill Residence District

Prototype 3

0.2% Annual Chance Floodplain - No Action

Legend

- Residential
- Zoning Envelope
- Parking



	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	2,000 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	0 sf
<i>Zoning Residential Floor Area</i>	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,760 sf	2,760 sf	0 sf
<i>Gross Residential Floor Area</i>	2,760 sf	2,760 sf	0 sf
Exempted Floor Area	60 sf	60 sf	0 sf
Provided Perimeter Wall/Baseheight	22 ft	22 ft	0 ft
Provided Overall Height	22 ft	31 ft	+ 9 ft
Provided Number of Stories	2 (+ 1 Basement)	3 (No Basement)	+ 1
Lot Coverage / Open Space	46 % / 54%	52 % / 48%	+ 6 % / -6%
Dwelling Units	2	2	0
Parking Spaces	1	1	0

Prototype 3: With-Action Conditions
0.2% Annual Chance Floodplain

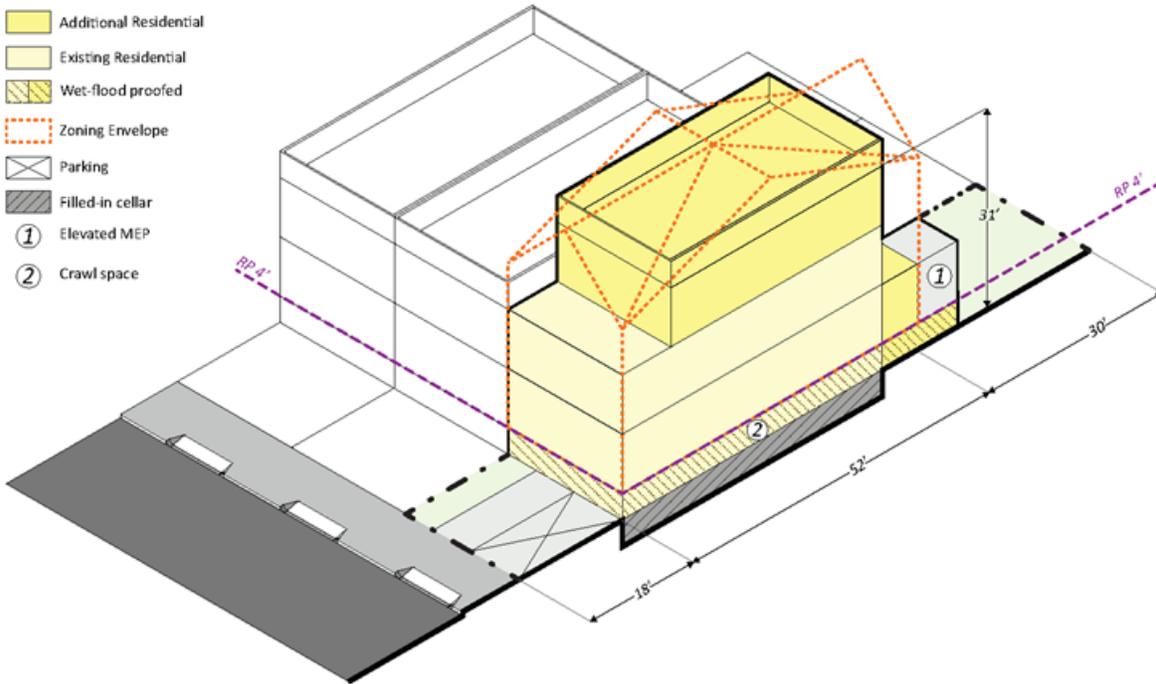
R4 Infill Residence District

Prototype 3

0.2% Annual Chance Floodplain - With Action

Legend

- Additional Residential
- Existing Residential
- Wet-flood proofed
- Zoning Envelope
- Parking
- Filled-in cellar
- 1 Elevated MEP
- 2 Crawl space



*RP = Reference Plane
*DFE= Design Flood Elevation

	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	2,700 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	0 sf
<i>Zoning Residential Floor Area</i>	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,760 sf	2,760 sf	0 sf
<i>Gross Residential Floor Area</i>	2,760 sf	2,760 sf	0 sf
Exempted Floor Area	50 sf	50 sf	0 sf
Provided Perimeter Wall/Baseheight	22 ft	22 ft	0 ft
Provided Overall Height	22 ft	31 ft	+ 9 ft
Provided Number of Stories	2 (+1 Basement)	3 (No Basement)	+ 1
Lot Coverage / Open Space	46 %	52 %	+ 6%
Dwelling Units	2	2	0
Parking Spaces	1	1	0

The building's gross floor area is 3,800 sf. As a result of the proposed rules, spaces used for MEP (60 sf) and the wet-floodproofed ground floor (1,040 sf) are exempted from the zoning floor area.

The lot is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a DFE of seven feet. In order to floodproof the building for the long term and exceed the minimum flood-resistant construction standards, the first occupiable floor is at 10 feet above grade and everything below is filled-in. The total building height is 37 feet with a perimeter wall of 28 feet—fitting within the permitted building envelope of an R4 Infill Residence District measured from a reference plane of 10 feet, which allows for a maximum building height of 45 feet (35 feet plus 10 feet) and a maximum perimeter wall height of 35 feet (25 feet plus 10 feet) (ZR 23-631). The ground floor has a wet-floodproofed garage with a floor to floor height of 10 feet, all residential floors have a floor to floor height of nine feet each. The MEP has been relocated from the basement to the rear yard as permitted obstruction, and has been elevated 10 feet above grade to match the first occupiable floor.

The With-Action scenario provides two parking spaces, one existing unenclosed parking space in the front yard and one enclosed parking space in a garage within the building. Since new dwelling units are not being created, compliance with parking requirements are not triggered, however, the provided parking spaces now meet the underlying zoning requirements (ZR 25-23). The building complies with all other underlying zoning regulations.

0.2% annual chance No-Action Scenario

The No-Action scenario is the same as existing because buildings in the 0.2% annual chance floodplain don't have to meet the minimum flood-resistant construction standards of Appendix G of the NYC Building Code. The permitted building envelope of an R4 Infill Residence District is measured from grade, which allows for a maximum building height of 35 feet (and a maximum perimeter wall height of 25 feet (ZR 23-631) (refer to **Figure 5d**).

0.2% annual chance With-Action Scenario

The With-Action scenario illustrates a retrofitted two-family attached residence with three stories (refer to **Figure 5e**). The basement is filled-in to comply with flood-resistant construction standard. The floor area lost due to the filled-in basement is added as a horizontal enlargement in the rear yard and as a partial story to the top of the building. The zoning lot is built with 2,700 sf of zoning floor area—the maximum permitted within an R4 Infill Residence District which allows for an FAR of 1.35 (ZR 23-142). The building's gross floor area is 2,760 sf. As a result of the proposed rules, spaces used for MEP (60 sf) are exempted from the zoning floor area.

In order to floodproof the building for the long term, the first occupiable floor is placed at four feet above grade, keeping the existing structure of the building, and the space below is an unoccupied wet-floodproofed crawl space. The total building height is 31 feet with a perimeter wall of 22 feet—fitting within the permitted building envelope of an R4 Infill district measured from a Reference plane of four feet, which allows for a maximum building height of 39 feet (35 feet plus four feet) and a maximum perimeter wall height of 29 feet (25 feet plus four feet) (ZR 23-631). All residential floors have a floor-to-floor height of nine feet each. The MEP has been relocated from the basement to the rear yard as permitted obstruction, and has been elevated four feet above grade to match the first occupiable floor.

Same as the existing condition, the With-Action scenario provides one parking space in an unenclosed space in the front yard. While the location of the parking space complies, it does not meet the two parking spaces as required in the underlying zoning (ZR 25-621 and ZR 25-23) since the two existing dwelling units were created prior to December 15, 1961 (ZR 25-21). Since new dwelling units are not being created, compliance with parking requirements are not triggered. The building complies with all other underlying zoning regulations.

1% annual chance floodplain Incremental Change

As a result of the With-Action scenario, there is an additional 1,040 sf of gross floor area and an additional 1,040 sf of exempted floor area, allowing for two additional stories and a horizontal enlargement. The With-Action has an additional 15 feet of building height.

No additional zoning floor area or dwelling units were added on the lot through the Proposed Action.

0.2% annual chance Incremental Change

As a result of the With-Action scenario there is an additional story and a horizontal enlargement accommodated. The With-Action has an additional nine feet of building height.

No additional zoning floor area, dwelling units, or parking spaces were added on the lot through the Proposed Action.

Prototype 5 *R7A District, 115-foot x 100-foot interior lot, 11,500 sf lot area High Rise Multi-Family Building, New Construction*

The following prototype, as shown in the illustrations below, utilizes a generic 115 ft x 100 ft interior lot facing a wide street in an R7A zoning district. These assumptions were made because they represent typical lot conditions in the 1% annual chance and 0.2% annual chance floodplain. The prototype illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Floor area exemption for wet-floodproofed ground floors;
- Larger bulkhead allowances; and
- Streetscape impacts.

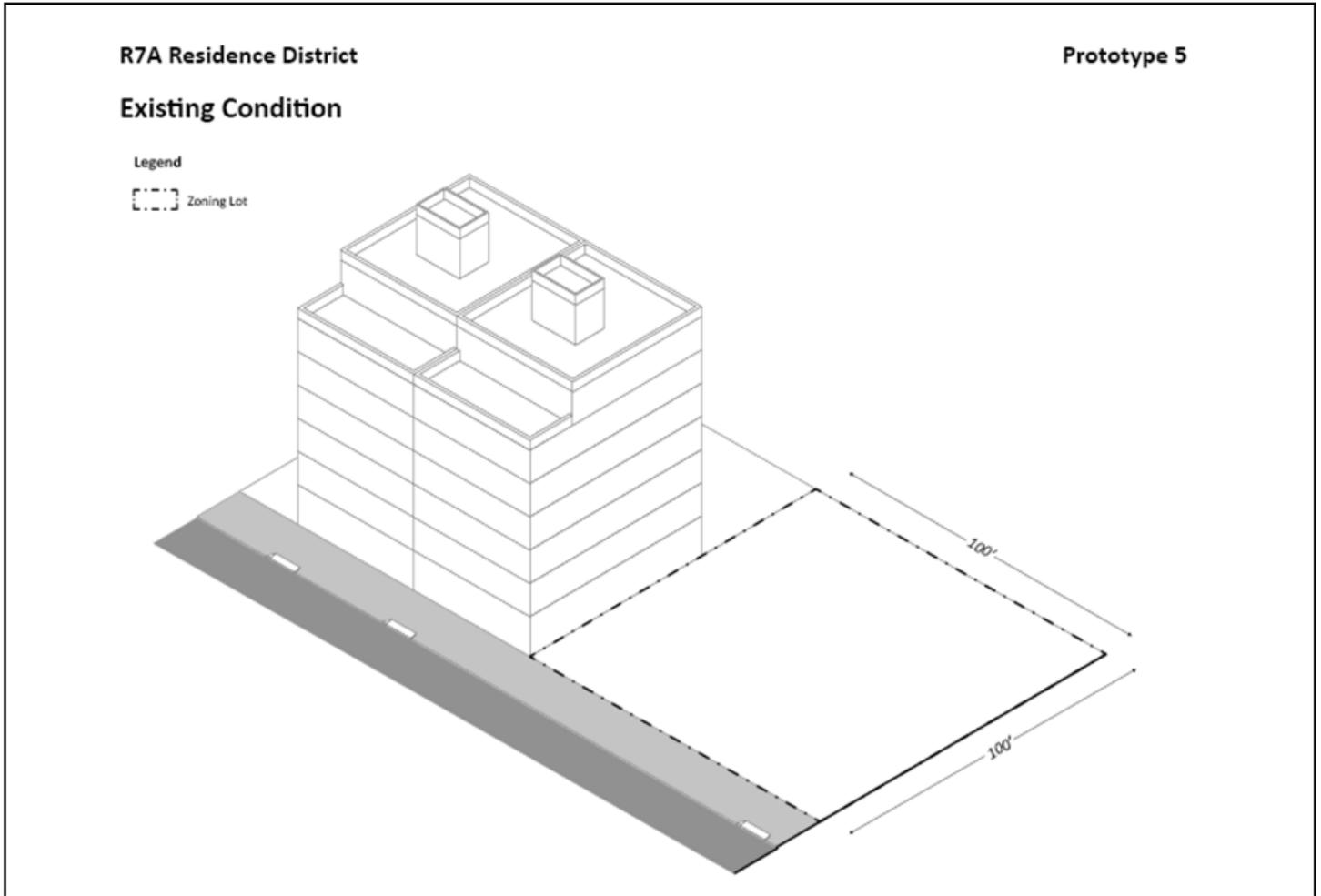
Existing Conditions

The existing condition demonstrates a 115,000 sf vacant lot (refer to **Figure 6a**).

1% annual chance floodplain No-Action Scenario

The No-Action scenario illustrates the development of a high-rise multi-family building with seven-stories and 54 dwelling units (refer to **Figure 6b**). The zoning lot is developed with 46,000 sf of residential zoning floor area – the maximum permitted within an R7A district which allows for an FAR of 4.0 (ZR 23-153). The building gross floor area is 56,330 sf. Spaces used for mechanical equipment (630 sf), ground level enclosed parking (6,670 sf) and 5% of the remaining gross floor area (2,990 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, ZR 28-10).

The lot is mapped with a *BF*E of two feet above grade, according to FEMA's flood maps resulting in a *DF*E of three feet. In order to meet the minimum flood-resistant construction standards, the first occupiable floor is placed at three feet above grade. The total building height is 73 feet with a base height of 63 feet—fitting within the permitted zoning envelope of an R7A district measured from the *BF*E which allows for a maximum building height of 82 feet (80 feet + 2 feet *BF*E) and a maximum base height of 67 feet (65 feet + 2 feet *BF*E) (ZR 23-662, ZR 12-10 Definition of Base Plane). The ground floor has residential units with a floor to floor height of 10 feet, a garage and lobby with a floor to floor height of 13 feet, while residential floors two through seven have a floor to floor height of 10 feet each.



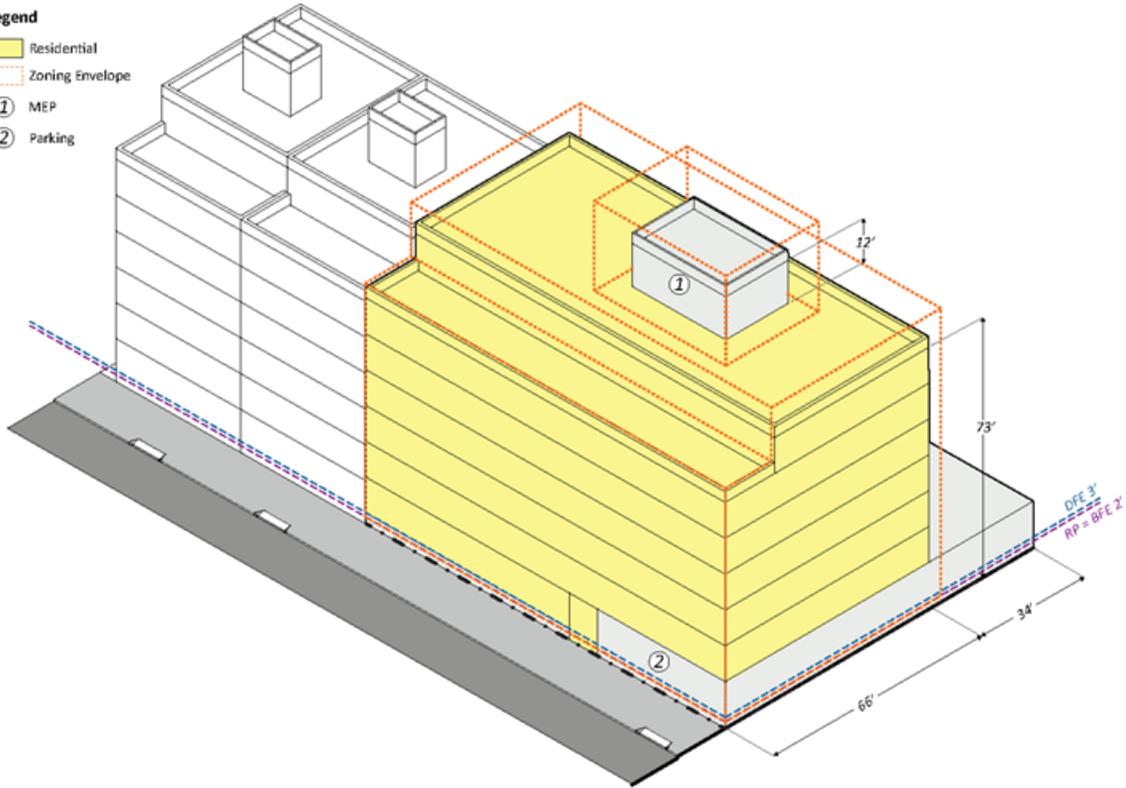
R7A Residence District

Prototype 5

1% Annual Chance Floodplain - No Action

Legend

- Residential
- Zoning Envelope
- ① MEP
- ② Parking



*BFE= Base Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	115,000 sf	115,000 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	0
Gross Floor Area	56,330 sf	60,980 sf	+ 4,650 sf
Gross Residential Floor Area	56,330 sf	60,980 sf	+ 4,650 sf
Exempted Floor Area	10,330 sf	14,980 sf	+ 4,650 sf
Provided Perimeter Wall/Baseheight	63 ft	70 ft	+ 7ft
Provided Overall Height	73 ft	80 ft	+ 7 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage	66 %	66 %	0
Dwelling Units	54	54	0
Parking Spaces	16	16	0

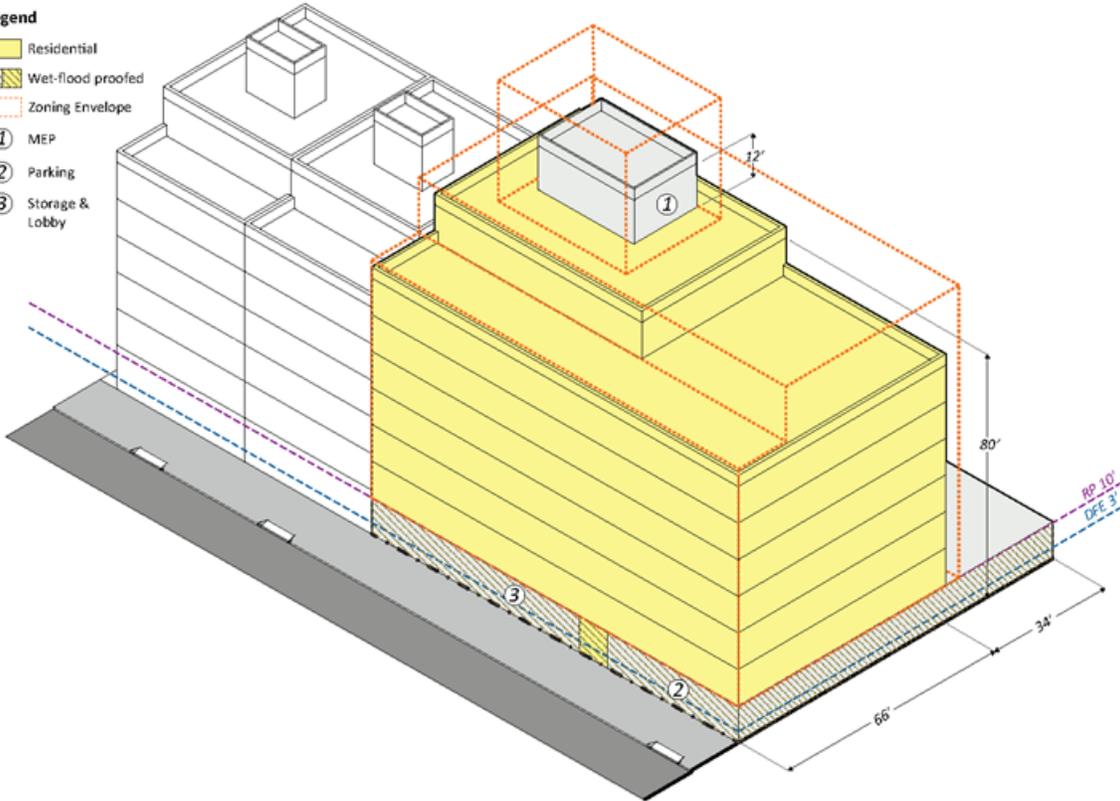
R7A Residence District

Prototype 5

1% Annual Chance Floodplain - With Action

Legend

- Residential
- Wet-flood proofed
- Zoning Envelope
- ① MEP
- ② Parking
- ③ Storage & Lobby



*RP = Reference Plane
*DFE= Design Flood Elevation

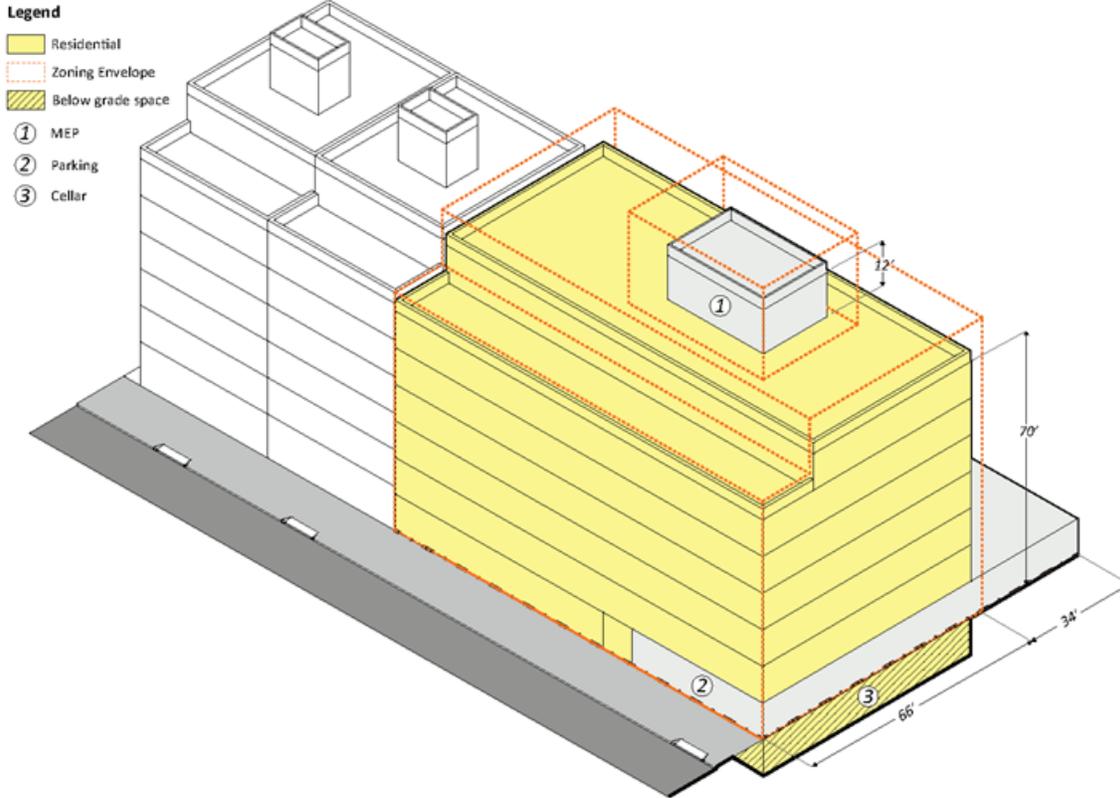
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	115,000 sf	115,000 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	0
Gross Floor Area	56,330 sf	60,980 sf	+ 4,650 sf
Gross Residential Floor Area	56,330 sf	60,980 sf	+ 4,650 sf
Exempted Floor Area	10,330 sf	14,980 sf	+ 4,650 sf
Provided Perimeter Wall/Baseheight	63 ft	70 ft	+ 7ft
Provided Overall Height	73 ft	80 ft	+ 7 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage	66 %	66 %	0
Dwelling Units	54	54	0
Parking Spaces	16	16	0

Prototype 5: No-Action Conditions
0.2% Annual Chance Floodplain

R7A Residence District

Prototype 5

0.2% Annual Chance Floodplain - No Action



	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	115,000 sf	115,000 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	0
Gross Floor Area	63,920 sf	60,980 sf	- 2,940 sf
Gross Residential Floor Area	63,920 sf	60,980 sf	- 2,940 sf
Exempted Floor Area	17,920 sf	14,980 sf	- 2,940 sf
Provided Perimeter Wall/Baseheight	60 ft	70 ft	+ 10 ft
Provided Overall Height	70 ft	80 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage	66 %	66 %	0
Dwelling Units	54	54	0
Parking Spaces	16	16	0

Prototype 5: With-Action Conditions
0.2% Annual Chance Floodplain

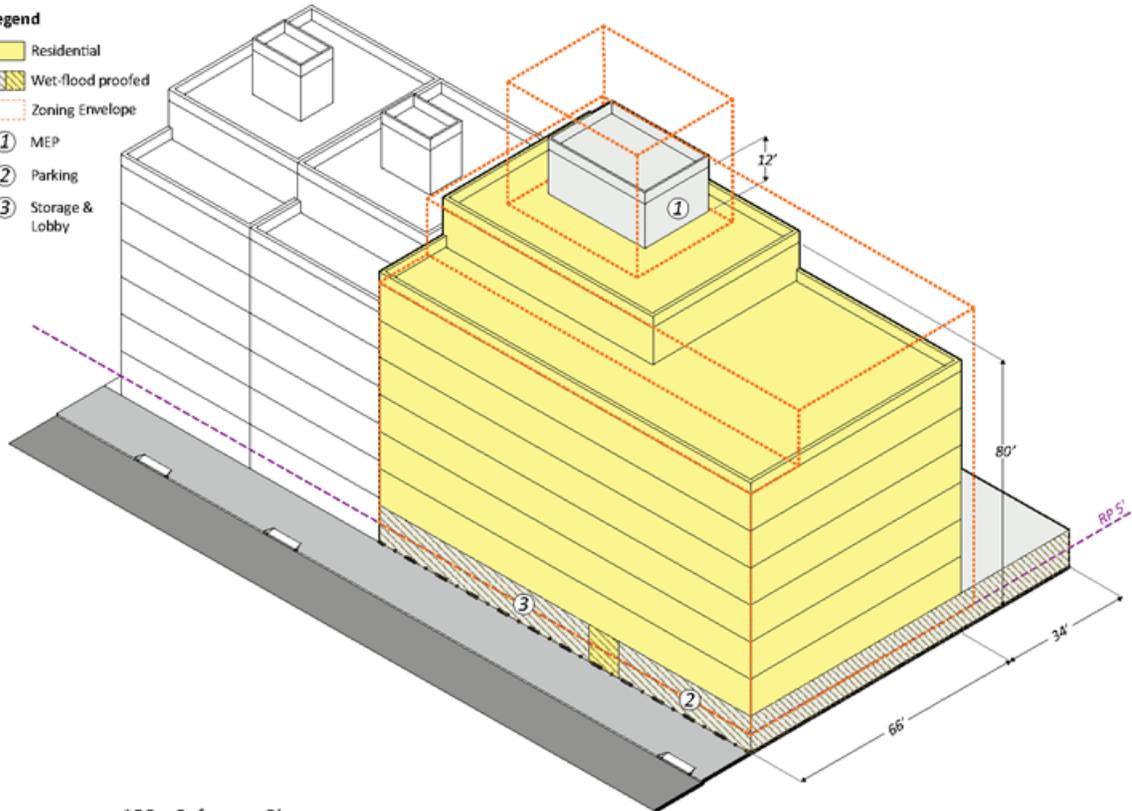
R7A Residence District

Prototype 5

0.2% Annual Chance Floodplain - With Action

Legend

- Residential
- Wet-flood proofed
- Zoning Envelope
- ① MEP
- ② Parking
- ③ Storage & Lobby



*RP = Reference Plane

	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	115,000 sf	115,000 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	0
<i>Zoning Residential Floor Area</i>	46,000 sf	46,000 sf	0
Gross Floor Area	63,920 sf	60,980 sf	- 2,940 sf
<i>Gross Residential Floor Area</i>	63,920 sf	60,980 sf	- 2,940 sf
Exempted Floor Area	17,920 sf	14,980 sf	- 2,940 sf
Provided Perimeter Wall/Baseheight	60 ft	70 ft	+ 10 ft
Provided Overall Height	70 ft	80 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage	66 %	66 %	0
Dwelling Units	54	54	0
Parking Spaces	16	16	0

The scenario provides 18 enclosed parking spaces, as required in the underlying zoning (ZR 25-62 and ZR 25-241), within a garage. The building complies with all other underlying zoning regulations.

1% annual chance floodplain With-Action Scenario

The With-Action scenario illustrates the development of a high-rise multi-family building with eight stories and 54 dwelling units (refer to **Figure 6c**). The zoning lot is developed with 46,000 sf of residential zoning floor area – the maximum permitted within an R7A district which allows for an FAR of 4.0 (ZR 23-153). The building gross floor area is 60,980 sf. As a result of the proposed rules, spaces used for MEP (630 sf) and wet-flood proofed ground level enclosed parking, storage, lobby and 5% of the remaining gross floor area (total 14,350 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, ZR 28-10).

The lot is mapped with a *BFE* of two feet above grade, according to FEMA’s flood maps resulting in a *DFE* of three feet. In order to floodproof the building for the long term and exceed the minimum *flood-resistant construction standards* and quality ground floor requirements, the first occupiable floor is placed at 10 feet above grade. The total building height is 80 feet with a base height of 70 feet—fitting within the permitted zoning quality house envelope of an R7A district measured from a reference plane of 10 feet, which allows for a maximum building height of 90 feet (80 feet + 10 feet) and a maximum base height of 75 feet (65 feet + 10 feet) (ZR 23-662). The ground floor has a lobby, storage and garage with a floor to floor height of 10 feet, while residential floors two through eight have a floor to floor height of 10 feet each.

The scenario provides 18 enclosed parking spaces, as required in the underlying zoning (ZR 25-62 and ZR 25-241), within a garage. The building complies with all other underlying zoning regulations.

0.2% annual chance No-Action Scenario

The No-Action scenario illustrates the development of a high-rise multi-family building with seven stories and 54 dwelling units (refer to **Figure 6d**). The zoning lot is developed with 46,000 sf of residential zoning floor area – the maximum permitted within an R7A district which allows for an FAR of 4.0 (ZR 23-153). The building gross floor area is 63,980 sf. Spaces used for mechanical equipment (630 sf), ground level enclosed parking (6,070 sf), cellar (6,300 sf) and 5% of the remaining gross floor area (4,920 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, ZR 28-10).

The first occupiable floor is placed at grade. The total building height is 70 feet with a perimeter wall of 60 feet—fitting within the permitted building envelope of an R7A district which allows for a maximum building height of 80 feet and a maximum perimeter wall height of 65 feet (ZR 23-662). The ground floor has residential, lobby and a garage with a floor to floor height of 10 feet, while residential floors two through seven have a floor to floor height of 10 feet each.

The scenario provides 18 enclosed parking spaces, as required in the underlying zoning (ZR 25-62 and ZR 25-241), within a garage. The building complies with all other underlying zoning regulations.

0.2% annual chance With-Action Scenario

The With-Action scenario illustrates the development of a high-rise multi-family building with eight stories and 54 dwelling units (refer to **Figure 6e**). The zoning lot is developed with 46,000 sf of residential zoning floor area – the maximum permitted within an R7A district which allows for an FAR of 4.0 (ZR 23-153). The building gross floor area is 60,980 sf. As a result of the proposed rules, spaces used for MEP (630 sf) and wet-flood proofed ground level enclosed parking, storage, lobby and 5% of the remaining gross floor area (total 14,350 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, ZR 28-10).

In order to floodproof the building for the long term, it exceeds the minimum *flood-resistant construction standards* and quality ground floor requirements, the first occupiable floor is placed at 10 feet above grade. The total building height is 80 feet with a perimeter wall of 70 feet—fitting within the permitted zoning envelope of an R7A district measured from a reference plane of five feet which allows for a maximum building height of 85 feet (80 feet + 5 feet) and a maximum perimeter wall height of 70 feet (65 feet + 5 feet) (ZR 23-662). The ground floor has a lobby, storage and garage with a floor to floor height of 10 feet, while residential floors two through eight have a floor to floor height of 10 feet each.

The scenario provides 18 enclosed parking spaces, as required in the underlying zoning (ZR 25-62 and ZR 25-241), within a garage. The building complies with all other underlying zoning regulations.

1% annual chance floodplain Incremental Change

As a result of the With-Action scenario there is an additional 4,650 sf to the total gross floor area and an additional 4,650 sf of exempted floor area.

The proposed rules allow for the ground floor to be wet-flood proofed and used for a lobby and enclosed parking. This resulted in an additional floor with an increased height of 7 feet. The first floor with dwelling units has been shifted from three feet above grade to the second floor which is 10 feet above grade.

No additional dwelling units or parking spaces were added on the lot through the Proposed Actions.

0.2% annual chance Incremental Change

As a result of the With-Action scenario there is a reduction of 2,940 sf to the total gross floor area and a reduction of 2,940 sf of exempted floor area.

The proposed rules allow for the ground floor to be wet-flood proofed and used for a lobby and enclosed parking. This resulted in an additional floor with an increased height of 10 feet. The first floor with dwelling units has been shifted from on grade to the second floor which is 10 feet above grade.

No additional dwelling units or parking spaces were added on the lot through the Proposed Actions.

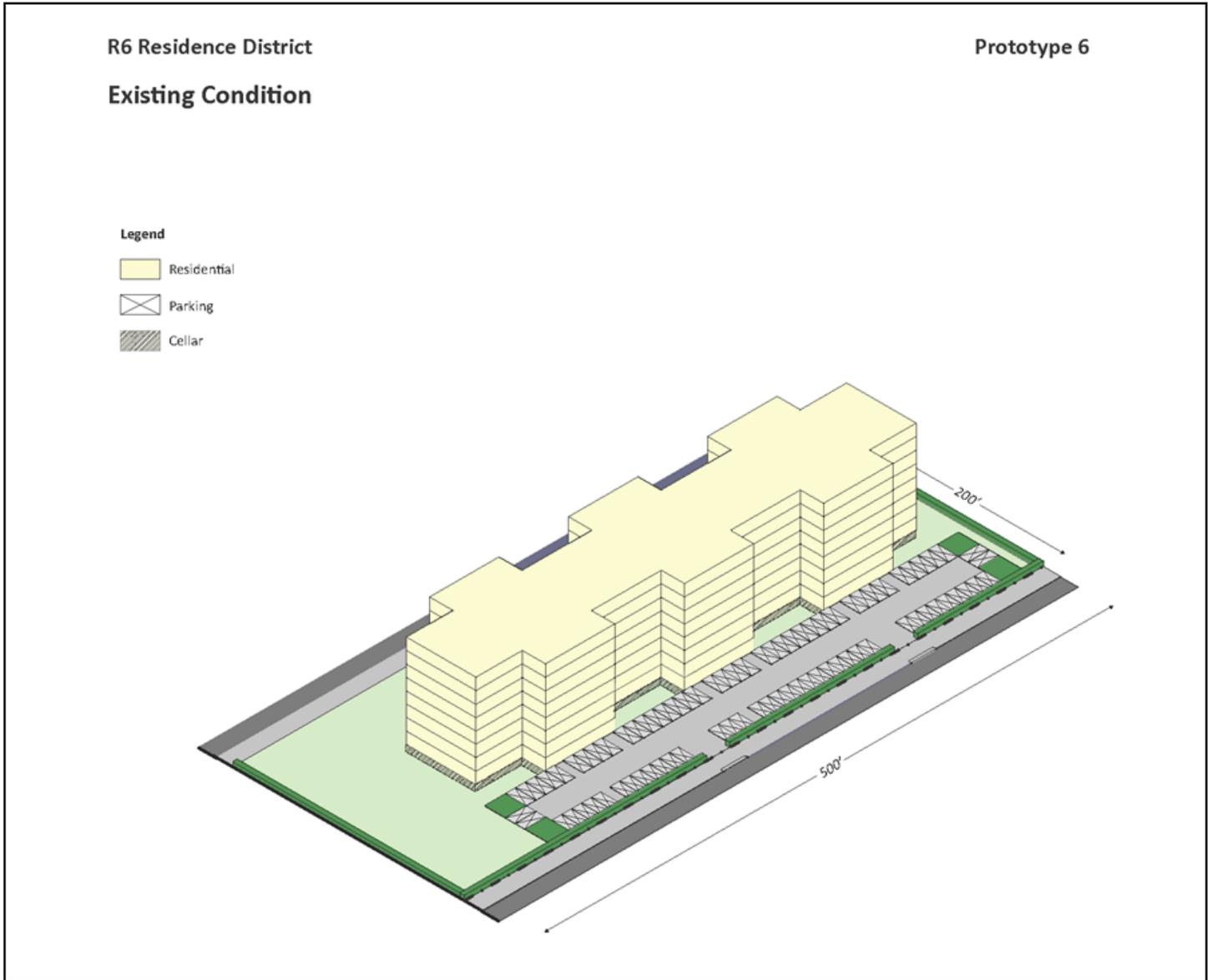
Prototype 6 *R6 Residence District, 500-foot x 200-foot through lot, 100,000 sf lot area Campus-Style Housing, Existing Building Retrofit*

The following prototype, as shown in the illustrations below, utilizes a generic 500-foot by 200-foot interior lot in an R6 zoning district. These assumptions were made because they represent typical lot conditions in the 1% annual chance and 0.2% annual chance floodplain. The prototype illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Added MEP building;
- Modified minimum distance between building requirements;
- Modified minimum open space provisions; and
- Streetscape impacts.

Existing Conditions

The existing condition illustrates a campus-style housing with eight-stories, 320 dwelling units, and no dwelling units on the ground floor (refer to **Figure 7a**). The zoning lot is developed with 240,000 sf of zoning floor area with an FAR of 2.40 – the maximum permitted within an R6 Residence District allows for an FAR of 2.43 (ZR 23-151). The building gross floor area is 270,000 sf. Spaces used for the cellar



Prototype 6: No-Action Conditions
1% and 0.2% Annual Chance Floodplains

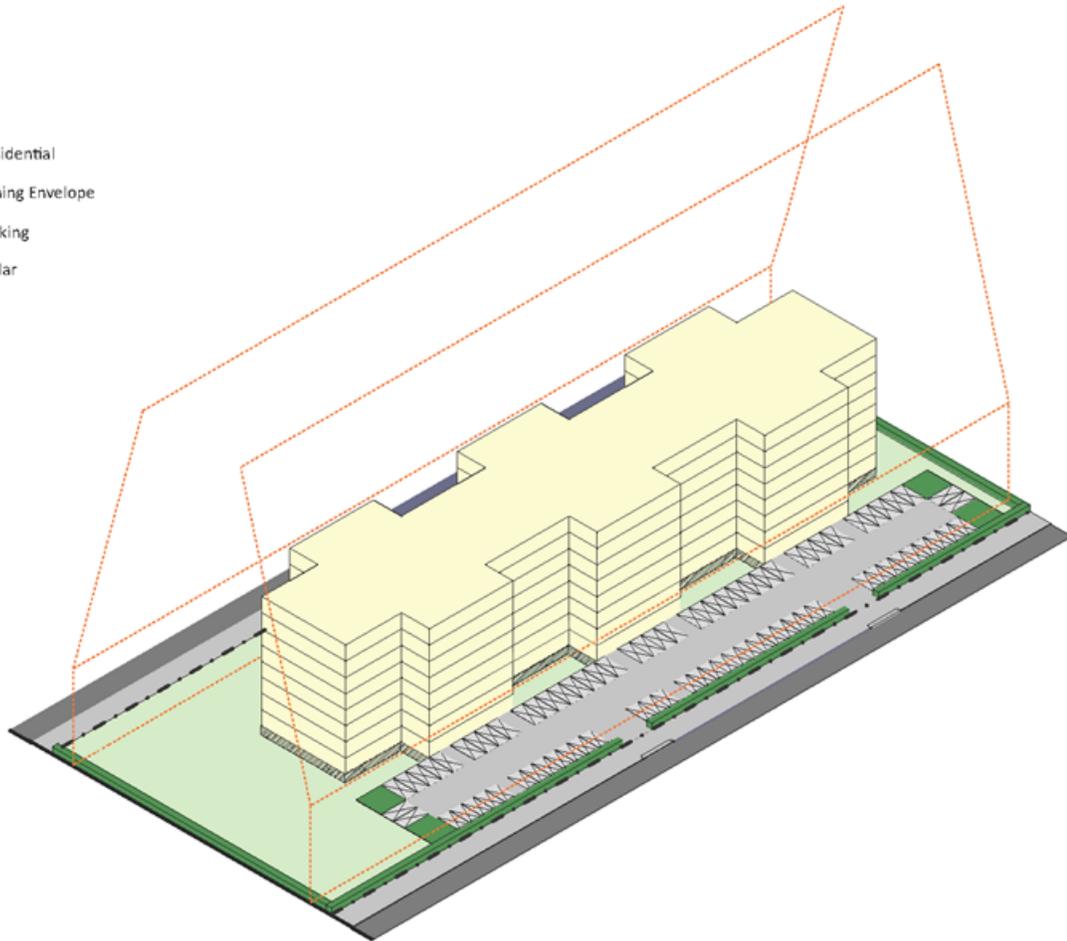
R6 Residence District

Prototype 6

1% & 0.2% Annual Chance Floodplain - No Action

Legend

- Residential
- Zoning Envelope
- Parking
- Cellar



	No Action	With Action	Change N/a to W/a
Lot Area	100,000 sf	100,000 sf	0
Zoning Floor Area	240,000 sf	240,000 sf	0
Zoning Residential Floor Area	240,000 sf	240,000 sf	0
Gross Floor Area	270,000 sf	247,200 sf	- 22,800 sf
Gross Residential Floor Area	270,000 sf	247,200 sf	- 22,800 sf
Exempted Floor Area	30,000 sf	7,200 sf	- 22,800 sf
Provided Overall Height	80 ft	80 ft	0
Provided Number of Stories	8	8	0
Open Space	46 %	39 %	- 7 %
Dwelling Units	320	320	0
Parking Spaces	78	78	0

Prototype 6: With-Action Conditions
1% and 0.2 % Annual Chance Floodplain

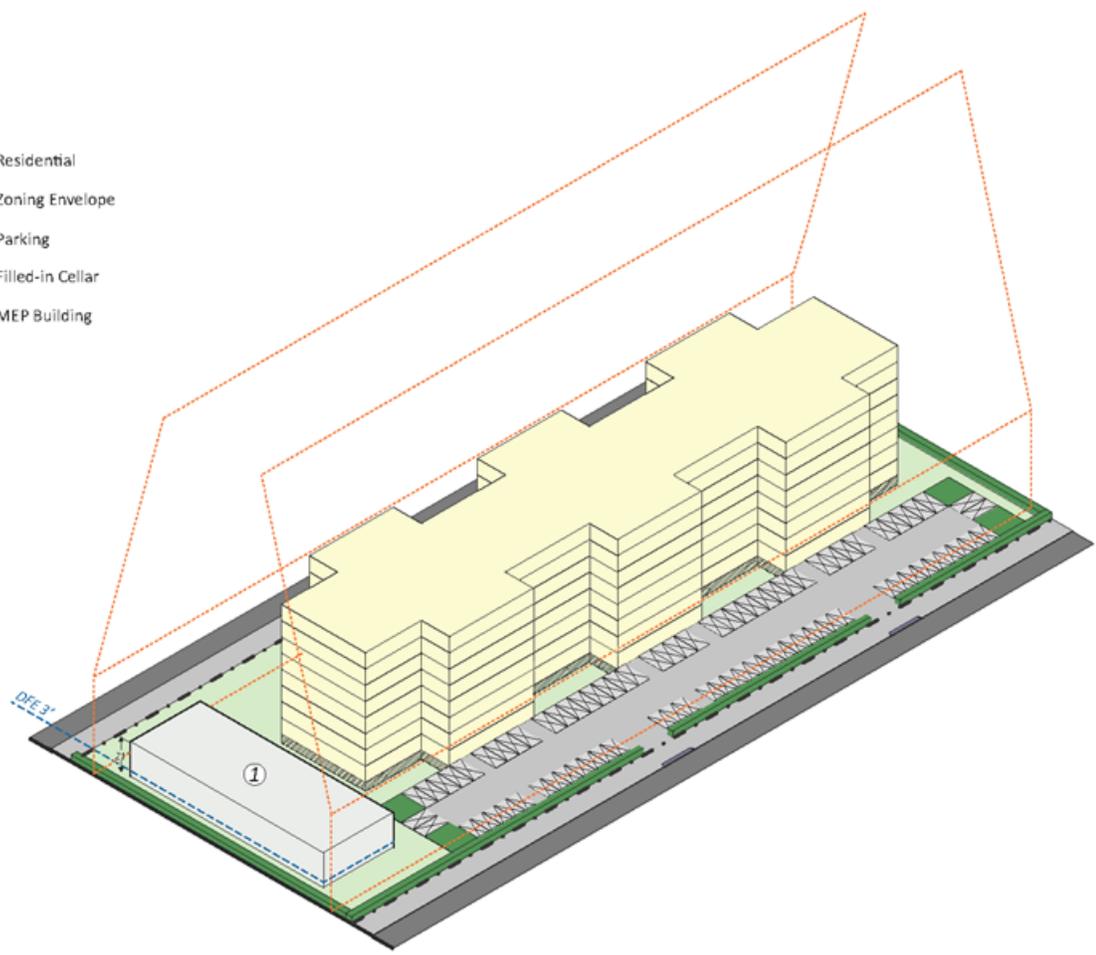
R6 Residence District

Prototype 6

1% & 0.2% Annual Chance Floodplain - With Action

Legend

- Residential
- Zoning Envelope
- Parking
- Filled-in Cellar
- 1 MEP Building



*DFE= Design Flood Elevation

	No Action	With Action	Change N/a to W/a
Lot Area	100,000 sf	100,000 sf	0
Zoning Floor Area	240,000 sf	240,000 sf	0
Zoning Residential Floor Area	240,000 sf	240,000 sf	0
Gross Floor Area	270,000 sf	247,200 sf	- 22,800 sf
Gross Residential Floor Area	270,000 sf	247,200 sf	- 22,800 sf
Exempted Floor Area	30,000 sf	7,200 sf	- 22,800 sf
Provided Overall Height	80 ft	80 ft	0
Provided Number of Stories	8	8	0
Open Space	46 %	39 %	- 7 %
Dwelling Units	320	320	0
Parking Spaces	78	78	0

(22,800 sf) and mechanical equipment (7,200 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

The total building height is 80 feet—fitting within the permitted sky exposure plane of an R6 Residence District (ZR 23-631). All residential floors have a floor-to-floor height of nine feet each. The mechanical equipment is located in the cellar.

Because the multifamily campus housing was built prior to December 15, 1961, the units would be affordable and thus meet the lower parking space requirements for income-restricted housing units. The existing scenario provides 78 parking spaces in an unenclosed parking lot on site meeting the minimum required parking spaces (ZR 25-251). The building complies with all other underlying zoning regulations.

1% annual chance floodplain No-Action Scenario

The No-Action scenario does not change from the existing condition (refer to **Figure 7b**).

1% annual chance floodplain With-Action Scenario

The With-Action scenario illustrates a campus-style housing with eight stories, 320 dwelling units, no dwelling units on the ground floor, and a new detached MEP building (refer to **Figure 7c**). The zoning lot is developed with 240,000 sf of zoning floor area with an FAR of 2.40 – the maximum permitted within an R6 Residence District allows for an FAR of 2.43 (ZR 23-151). The building gross floor area is 247,200 sf. As a result of the proposed rules, the MEP building (7,200 sf) is exempted from the zoning floor area.

The lot is mapped with a BFE of two feet above grade, according to FEMA’s flood maps resulting in a DFE of three feet. The total building height is 80 feet—fitting within the permitted sky exposure plane of an R6 Residence District (ZR 23-631). All residential floors have a floor-to-floor height of nine feet each. The MEP has been relocated from the cellar to a new detached building located on-site and 30 feet from the existing residential building. The cellar has also been filled-in, resulting in a reduction in the gross floor area. The overall height of the MEP building is 21 feet and the mechanical equipment inside has been elevated three feet above grade to the DFE.

Even with the addition of the MEP building on the site, the scenario provides 78 parking spaces in an unenclosed parking lot on site meeting the minimum required parking spaces (ZR25-251). Under the proposed rules, the reduction of open space will not create a new non-compliance with open space requirements. The building complies with all other underlying zoning regulations.

0.2% annual chance No-Action Scenario

The No-Action scenario is the same as existing because buildings in the 0.2% annual chance floodplain don’t have to meet the minimum flood-resistant construction standards of Appendix G of the Building Code (refer to **Figure 7d**).

0.2 annual chance With-Action Scenario

The With-Action scenario is the same as the 1% annual chance floodplain With-Action scenario (refer to **Figure 7e**).

1% and 0.2% annual chance floodplain Incremental Change

As a result of the With-Action scenario there is a reduction of 22,800 sf of gross floor area because the cellar was filled in to meet flood-resistant construction standards and since the MEP is relocated into a new

building located outside. There is a seven percent decrease in the open space due to the addition of the MEP building on-site.

No additional dwelling units, stories, or parking spaces were added on the lot through the Proposed Action.

Prototype 7 *R5 / C1-2 District, 120-foot by 100-foot subdivided lot, 12,000 sf lot area
Low Rise Mixed Use Building, New Construction*

The following prototype, as shown in the illustrations below, utilizes a generic 120-foot by 100-foot interior lot in an R5 / C1-2 zoning district that is subdivided into five tax lots. These assumptions were made because they represent typical lot conditions in the 1% annual chance and 0.2% annual chance floodplain. The prototype illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes
- Floor area exemption for dry-floodproofed commercial space;
- Allowance of commercial use on the second floor;
- Larger bulkhead allowances; and
- Streetscape impacts.

Existing Conditions

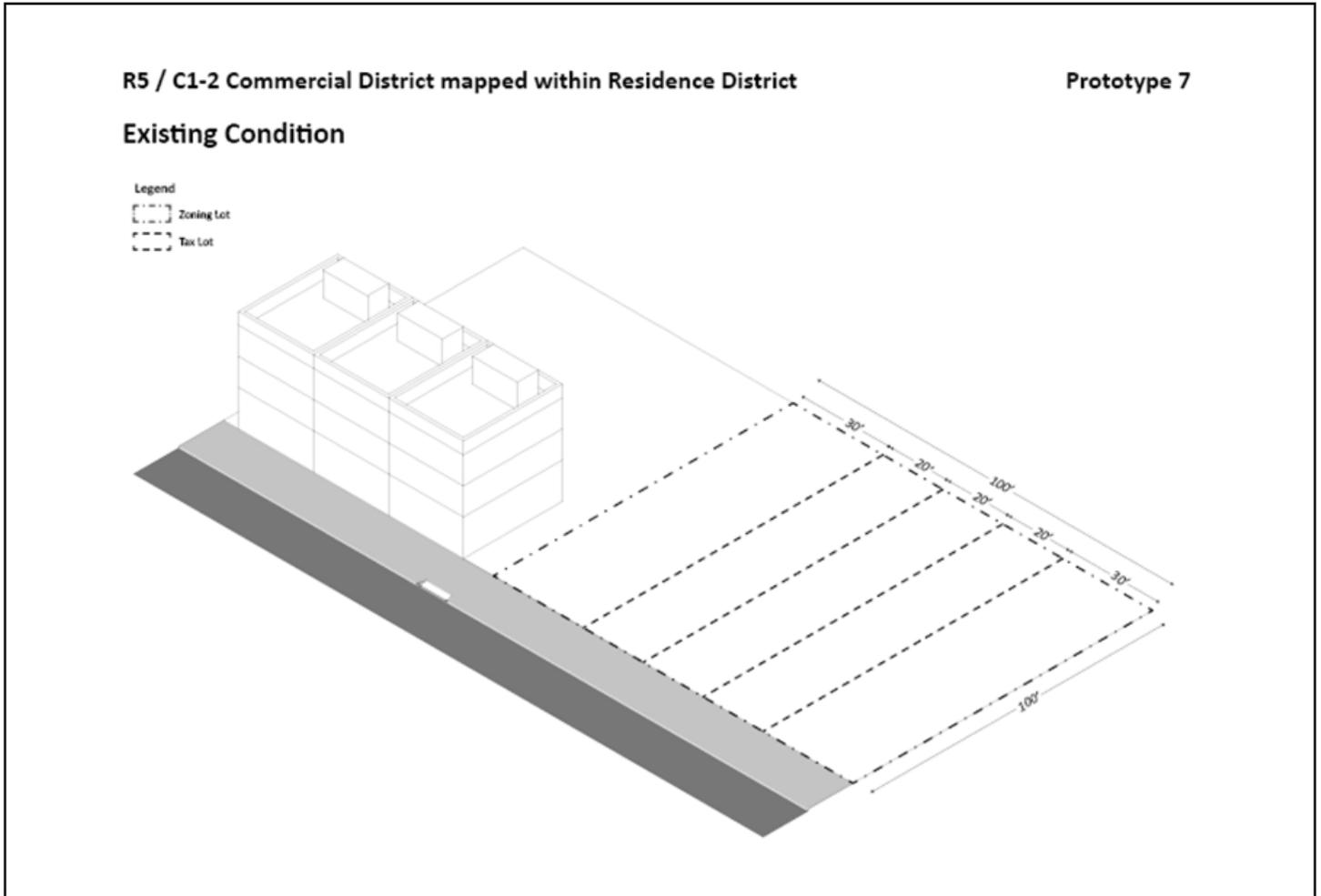
The existing condition demonstrates a 12,000 sf vacant lot (refer to **Figure 8a**). The lot will be subdivided into five separate tax lots: three 20-foot by 100-foot lots and two 30-foot by 100-foot lots and the development is assumed to be identical in design.

1% annual chance No-Action Scenario

The No-Action scenario illustrates the development of a low-rise mixed-use commercial and residential building with four stories and 10 dwelling units (refer to **Figure 8b**). Two dwelling units were provided per building to not trigger ADA requirements. While general development trends have shown that residential-only buildings are more viable due to the high costs of dry-floodproofing required for commercial uses at grade, the scenario depicts a mixed-use building for a conservative analysis. The zoning lot is developed with 15,000 sf of zoning floor area, providing an FAR of 1.25 – the maximum permitted within an R5 district is an FAR of 1.25 (ZR 23-142) The provided FAR is not maxed out in order to allow for adequate parking in the rear yard. The building gross floor area is 15,840 sf. Spaces used for mechanical equipment (840 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, Definition of Cellar).

The lot is mapped with a BFE of five feet above grade, according to FEMA’s flood maps resulting in a DFE of seven feet. In order to meet the minimum flood-resistant construction standards and use the ground floor as internal access, the first occupiable floor is placed at ten feet above grade. The total building height is 37 feet with a perimeter wall of 28 feet—fitting within the permitted building envelope of an R5 district measured from the BFE. This allows for a maximum building height of 45 feet (40 feet plus five feet BFE) and a maximum perimeter wall height of 35 feet (30 feet plus five feet BFE) (ZR 23-631, ZR 12-10 Definition of Base Plane). The ground floor has a dry flood-proofed internal access with a floor-to-floor height of 10 feet and residential floor two through four have a floor to floor height of nine feet each.

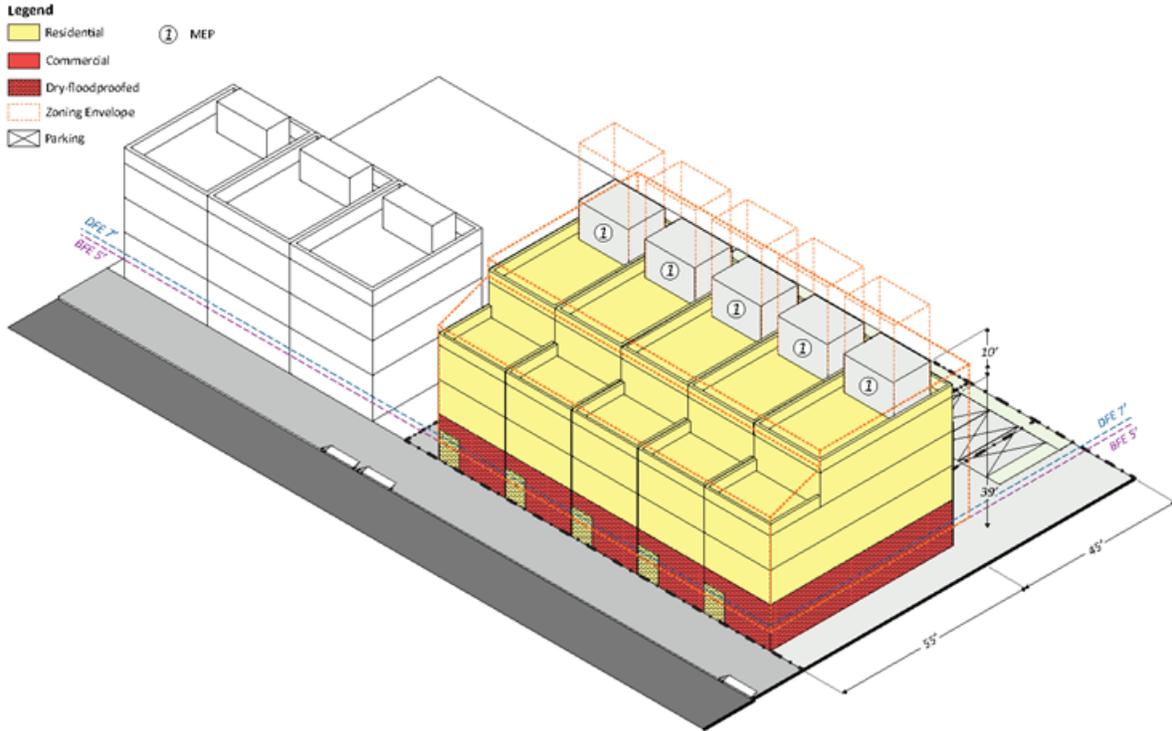
The scenario provides nine parking spaces--all in an unenclosed group parking facility at the rear of the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.



R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

1% Annual Chance Floodplain - No Action



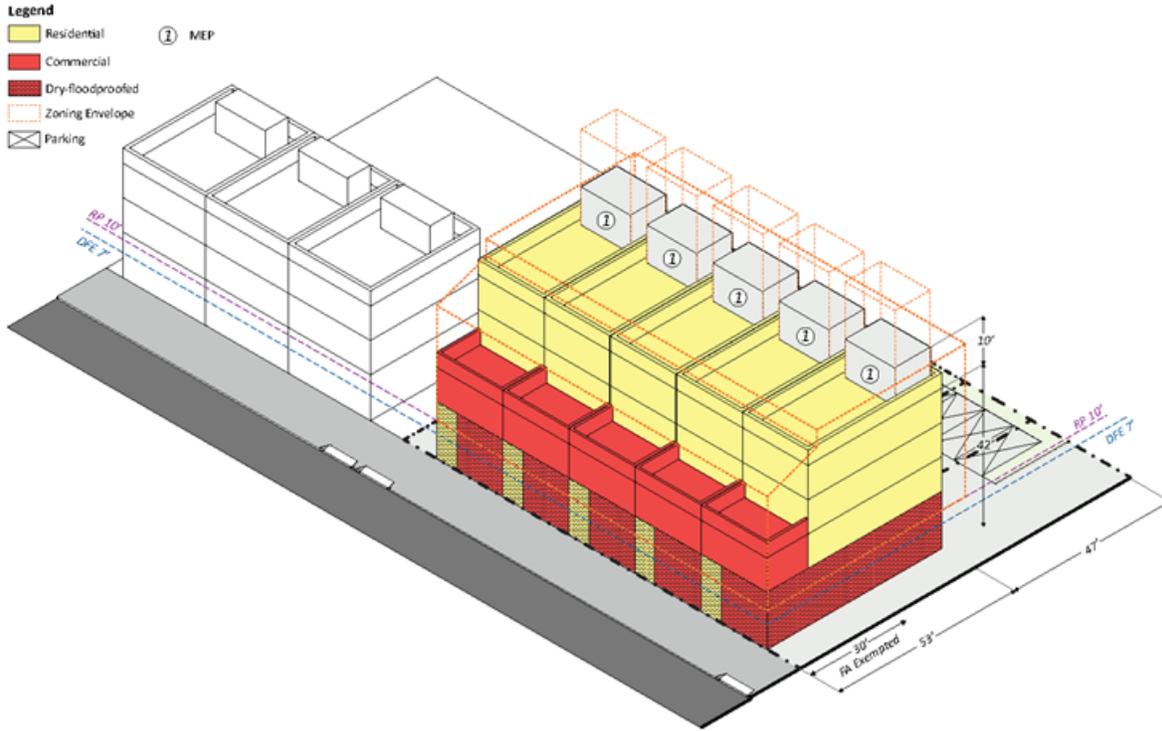
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	12,000 sf	12,000 sf	0
Zoning Floor Area	15,000 sf	15,000 sf	0
Zoning Residential Floor Area	15,000 sf	12,150 sf	- 2,850 sf
Zoning Commercial Floor Area	0 sf	2,860 sf	+ 2,860 sf
Gross Floor Area	21,310 sf	19,510 sf	- 1,800 sf
Gross Residential Floor Area	16,650 sf	13,740 sf	- 2,910 sf
Gross Commercial Floor Area	3,850 sf	4,960 sf	+ 1,110 sf
Exempted Floor Area	6,310 sf	4,500 sf	- 1,810 sf
Provided Perimeter Wall/Baseheight	30 ft	24 ft	- 6 ft
Provided Overall Height	39 ft	42 ft	+ 3 ft
Provided Number of Stories	4	4	0
Lot Coverage / Open Space	44 % / 56%	44 % / 56%	0
Dwelling Units	10	10	0
Parking Spaces	9	9	0

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

1% Annual Chance Floodplain - With Action



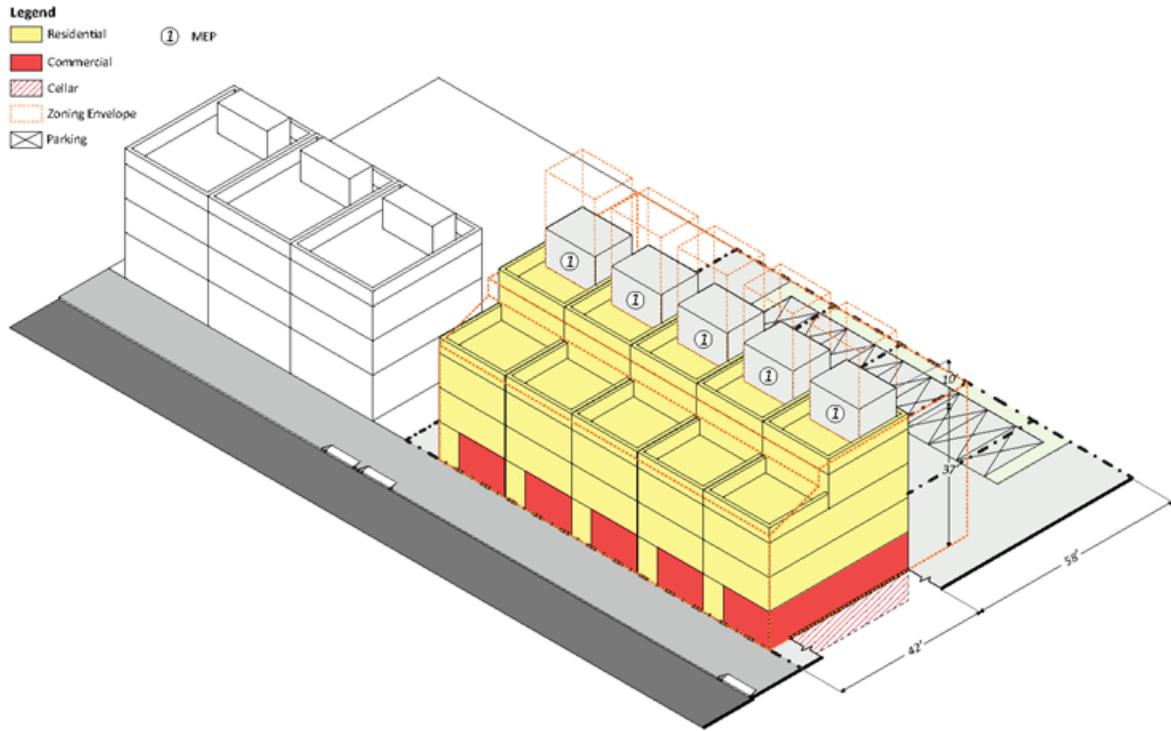
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	12,000 sf	12,000 sf	0
Zoning Floor Area	15,000 sf	15,000 sf	0
Zoning Residential Floor Area	15,000 sf	12,150 sf	- 2,850 sf
Zoning Commercial Floor Area	0 sf	2,860 sf	+ 2,860 sf
Gross Floor Area	21,310 sf	19,510 sf	- 1,800 sf
Gross Residential Floor Area	16,650 sf	13,740 sf	- 2,910 sf
Gross Commercial Floor Area	3,850 sf	4,960 sf	+ 1,110 sf
Exempted Floor Area	6,310 sf	4,500 sf	- 1,810 ft
Provided Perimeter Wall/Baseheight	30 ft	24 ft	- 6 ft
Provided Overall Height	39 ft	42 ft	+ 3 ft
Provided Number of Stories	4	4	0
Lot Coverage / Open Space	44 % / 56%	44 % / 56%	0
Dwelling Units	10	10	0
Parking Spaces	9	9	0

Prototype 7: No-Action Conditions
0.2% Annual Chance Floodplain

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

0.2% Annual Chance Floodplain - No Action



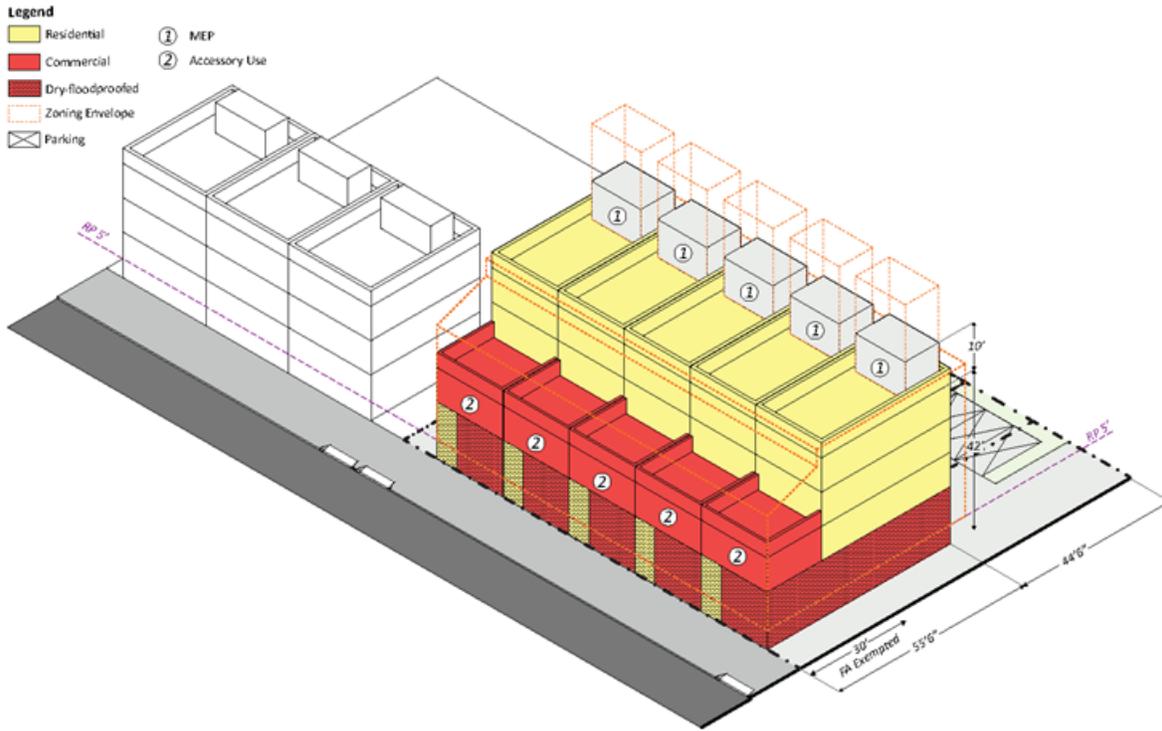
	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	12,000 sf	12,000 sf	0
Zoning Floor Area	15,000 sf	15,000 sf	0
<i>Zoning Residential Floor Area</i>	12,060 sf	11,550 sf	- 510 sf
<i>Zoning Commercial Floor Area</i>	2,940 sf	3,435 sf	+ 495 sf
Gross Floor Area	20,040 sf	19,560 sf	- 480 sf
<i>Gross Residential Floor Area</i>	12,060 sf	13,215 sf	+ 1,155 sf
<i>Gross Commercial Floor Area</i>	7,140 sf	5,535 sf	- 1,605 sf
Exempted Floor Area	5,040 sf	4,575 sf	- 465 sf
Provided Perimeter Wall/Baseheight	28 ft	24 ft	- 4 ft
Provided Overall Height	37 ft	42 ft	+ 5 ft
Provided Number of Stories	4	4	0
Lot Coverage / Open Space	35 % / 65 %	32 % / 68 %	-3% / +3%
Dwelling Units	10	10	0
Parking Spaces	9	9	0

Prototype 7: With-Action Conditions
0.2% Annual Chance Floodplain

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

0.2% Annual Chance Floodplain - With Action



*RP = Reference Plane

	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	12,000 sf	12,000 sf	0 sf
Zoning Floor Area	15,000 sf	15,000 sf	0 sf
Zoning Residential Floor Area	12,060 sf	11,550 sf	- 510 sf
Zoning Commercial Floor Area	2,940 sf	3,435 sf	+ 495 sf
Gross Floor Area	20,040 sf	19,560 sf	- 480 sf
Gross Residential Floor Area	12,060 sf	13,215 sf	+ 1,155 sf
Gross Commercial Floor Area	7,1400 sf	5,535 sf	- 1,605 sf
Exempted Floor Area	5,040 sf	4,575 sf	- 465 sf
Provided Perimeter Wall/Baseheight	28 ft	24 ft	- 4 ft
Provided Overall Height	37 ft	42 ft	+ 5 ft
Provided Number of Stories	4	4	0
Lot Coverage / Open Space	35 % / 65 %	32 % / 68 %	-3% / +3%
Dwelling Units	10	10	0
Parking Spaces	9	9	0

1% annual chance With-Action Scenario

The With-Action scenario illustrates the development of a low-rise mixed-use commercial and residential building with four stories and 10 dwelling units (refer to **Figure 8c**). Two dwelling units were provided per building to not trigger ADA requirements. The zoning lot is developed with a total of 15,000 sf, 12,150 sf of residential zoning floor area and 2,860 sf of commercial zoning floor area – the maximum permitted within an C1-2/R5 district which allows for an FAR of 1.25 (ZR 23-142). The building gross floor area is 19,510 sf. As a result of the proposed rules, spaces used for MEP (810 sf) and the first 30 feet of dry-floodproofed space from the street wall at ground level (total 3,690 sf) are exempted from the zoning floor area. The exempted commercial floor area at the ground floor is added to the second floor as commercial use which will most likely be used as an accessory space and as overall residential use.

The lot is mapped with a BFE of five feet above grade, according to FEMA’s flood maps resulting in a DFE of seven feet. In order to floodproof the building for the long term and exceed the minimum flood-resistant construction standards, the building is using the maximum proposed reference plane of 10 feet above grade. In order to get the proposed floor area exemption, the ground floor is dry flood proofed and the first occupiable residential floor is placed at 15 feet above grade. The total building height is 42 feet with a perimeter wall of 24 feet—fitting within the permitted building envelope of an R5 district measured from a Reference plane of 10 feet, which allows for a maximum building height of 50 feet (40 feet + 10 feet) and a maximum perimeter wall height of 40 feet (30 feet + 10 feet). The ground floor has a residential lobby and active commercial use with a floor-to-floor height of 15 feet, while residential floors two through four have a floor-to-floor height of nine feet each.

The scenario provides nine parking spaces--all in an unenclosed group parking facility at the rear of the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

0.2% annual chance No-Action Scenario

The No-Action scenario illustrates the development of a low-rise mixed-use commercial and residential building with four-stories and 10 dwelling units (refer to **Figure 8d**). Two dwelling units were provided per building to not trigger ADA requirements. The zoning lot is developed with 15,000 sf of zoning floor area 12,060 sf of residential zoning floor area and 2,940 sf of commercial zoning floor area – the maximum permitted within an C1-2/R5 district which allows for an FAR of 1.25 (ZR 23-142). The building gross floor area is 20,040 sf. Spaces used for mechanical equipment (840 sf) and cellar (4,200 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). The cellar used for commercial accessory use.

The first occupiable floor is at grade and the building does not meet minimum flood resilience standards. The total building height is 37 feet with a perimeter wall of 28 feet—fitting within the permitted building envelope of an R5 district, which allows for a maximum building height of 40 feet and a maximum perimeter wall height of 30 feet (ZR 23-631). The ground floor has a residential lobby and commercial use with a floor-to-floor height of 10 feet, while residential floors two through four have a floor-to-floor height of nine feet each.

The scenario provides nine parking spaces--all in an unenclosed group parking facility at the rear of the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

0.2% annual chance With-Action Scenario

The With-Action scenario illustrates the development of a low-rise mixed-use commercial and residential building with four-stories and 10 dwelling units (refer to **Figure 8e**). Two dwelling units were provided per

building to not trigger ADA requirements. The zoning lot is developed with 15,000 sf of zoning floor area 11,550 sf of residential zoning floor area and 3,435 sf of commercial zoning floor area – the maximum permitted within an C1-2/R5 district which allows for an FAR of 1.25 (ZR 23-142). The building gross floor area is 19,560 sf. As a result of the proposed rules, spaces used for MEP (810 sf) and the first 30 feet from the street wall at ground level (total 3,765 sf) are exempted from the zoning floor area. The exempted commercial floor area at the ground floor is added to the second floor as commercial accessory use and as residential use.

The reference plane is five feet above grade, complying with proposed regulations. In order to floodproof the building for the long term and exceed the minimum flood-resistant construction standards, the ground floor is dry flood proofed and the first occupiable residential floor is placed at 15 feet above grade. The total building height is 42 feet with a perimeter wall of 24 feet—fitting within the permitted zoning envelope of an R5 district measured from a Reference plane of five feet. This allows for a maximum building height of 45 feet (40 feet plus five feet) and a maximum perimeter wall height of 35 feet (30 feet plus five feet). The ground floor has a residential lobby and commercial use with a floor-to-floor height of 15 feet, while residential floors two through four have a floor-to-floor height of nine feet each.

The scenario provides nine parking spaces--all in an unenclosed group parking facility at the rear of the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

1% annual chance Incremental Change

As a result of the With-Action scenario there is an additional 3,670 sf of gross floor area, an additional 3,660 sf of exempted floor area, a reduction of four feet of perimeter wall and an additional five feet of overall building height. There is also an additional 90 sf of residential zoning floor area and a reduction of 80 sf of commercial zoning floor area.

The proposed rules allow the ground floor to be dry-floodproofed and the first 30 feet from the street wall is exempted. This resulted in an additional 3,660 sf of exempted floor area to be located on the second floor as accessory commercial use and residential use.

There is no change to the number of dwelling units or parking spaces on the lot through the Proposed Action.

0.2% annual chance Incremental Change

As a result of the With-Action scenario there is a decrease of 480 sf of gross floor area, an additional 3,735 sf of exempted floor area, and an additional five feet of overall building height.

The proposed rules allow the ground floor to be dry-floodproofed and the first 30 feet from the street wall is exempted. This resulted in an additional 3,735 sf of exempted floor area to be located on the second floor as accessory commercial use and residential use.

There is no change to the overall zoning floor area and no additional dwelling units, parking spaces, or stories were added on the lot through the Proposed Action.

Prototype 11 *R4 Residence District, 25-foot x 100-foot interior lot, 2,500 sf lot area Single Family Detached Residence, New Construction*

The following prototype, as shown in the illustrations below, utilizes a generic 25-foot by 100-foot interior lot in an R4 zoning district. These assumptions were made because they represent typical lot conditions in

the 1% annual chance and 0.2% annual chance floodplain. The prototype illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- “Cottage envelope”;
- Floor area exemption for wet-floodproofed ground floor;
- Permitted obstructions of MEP in the rear yard; and
- Streetscape impacts.

Existing Conditions

The existing condition demonstrates a 2,500 sf vacant lot (refer to **Figure 9a**).

1% annual chance No-Action Scenario

The No-Action scenario illustrates the development of a single-family detached residence with three stories. The building has an attic and a garage (refer to **Figure 9b**). The zoning lot is developed with 2,250 sf of zoning floor area with an FAR of 0.90. The maximum permitted within an R4 Residence District including the attic allowance is an FAR of 0.90 (ZR 23-142). The building gross floor area is 3,195 sf. Spaces used for mechanical equipment (45 sf) and the wet-floodproofed ground floor (900 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area, Definition of Cellar).

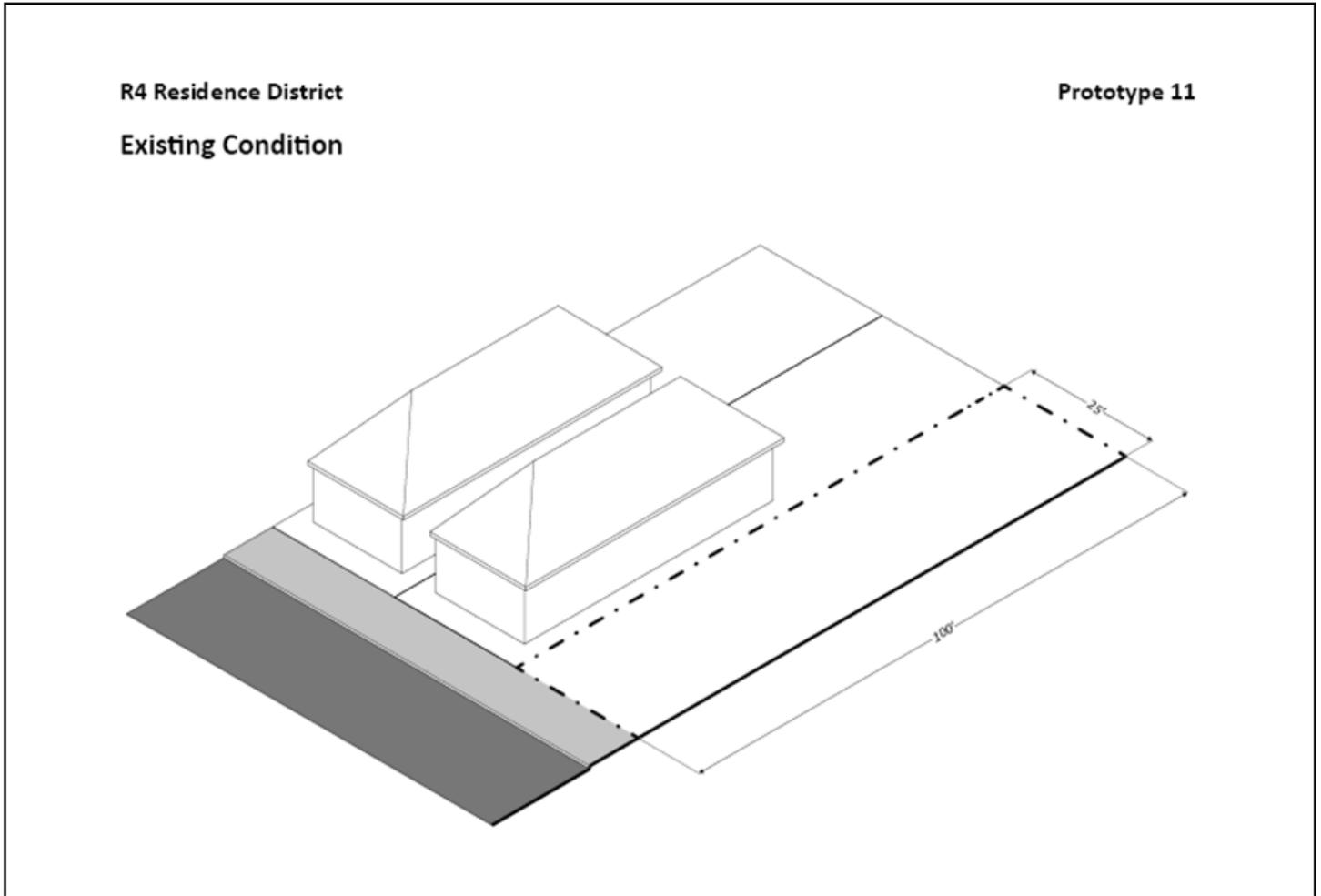
The lot is mapped with a BFE of five feet above grade, according to FEMA’s flood maps resulting in a DFE of seven feet. In order to meet the minimum flood-resistant construction standards and use the ground floor as a garage, the first occupiable floor is placed at eight feet above grade. The total building height is 40 feet with a perimeter wall of 26 feet—fitting within the permitted building envelope of an R4 Residence District measured from the BFE. This allows for a maximum building height of 40 feet (35 feet plus five feet BFE) and a maximum perimeter wall height of 30 feet (25 feet plus five feet BFE) (ZR 23-631, ZR 12-10 Definition of Base Plane). The ground floor has a wet- floodproofed garage with a floor-to-floor height of eight feet, all residential floors have a floor-to-floor height of nine feet each, and the attic has a floor-to-floor height of eight feet.

The scenario provides one enclosed parking space in a garage within the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

1% annual chance With-Action Scenario

The With-Action scenario illustrates the development of a single-family detached residence with three-stories (refer to **Figure 9c**). The zoning lot is developed with 2,250 sf of zoning floor area with an FAR of 0.90--the maximum permitted within an R4 district including the attic allowance for buildings utilizing the cottage envelope. The building gross floor area is 3,348 sf. As a result of the proposed rules, spaces used for MEP (52 sf) and the wet-floodproofed ground floor (1,046 sf) are exempted from the zoning floor area.

The lot is mapped with a BFE of five feet above grade, according to FEMA’s flood maps resulting in a DFE of seven feet. In order to floodproof the building for the long term, and exceed the minimum flood-resistant construction standards, the first occupiable floor is placed at 10 feet above grade. The total building height is 35 feet with a perimeter wall of 28 feet—fitting within the proposed cottage envelope measured from a Reference plane of 10 feet which allows for a maximum building height of 35 feet (25 feet plus 10 feet) and a maximum perimeter wall height of 29 feet (19 feet plus 10 feet). The ground floor has a wet-floodproofed garage with a floor-to-floor height of 10 feet, residential floors two through three have a floor-to-floor height of nine feet each, and the attic has a floor-to-floor height of six feet. The MEP is located in



Prototype 11: No-Action Conditions
1% Annual Chance Floodplain

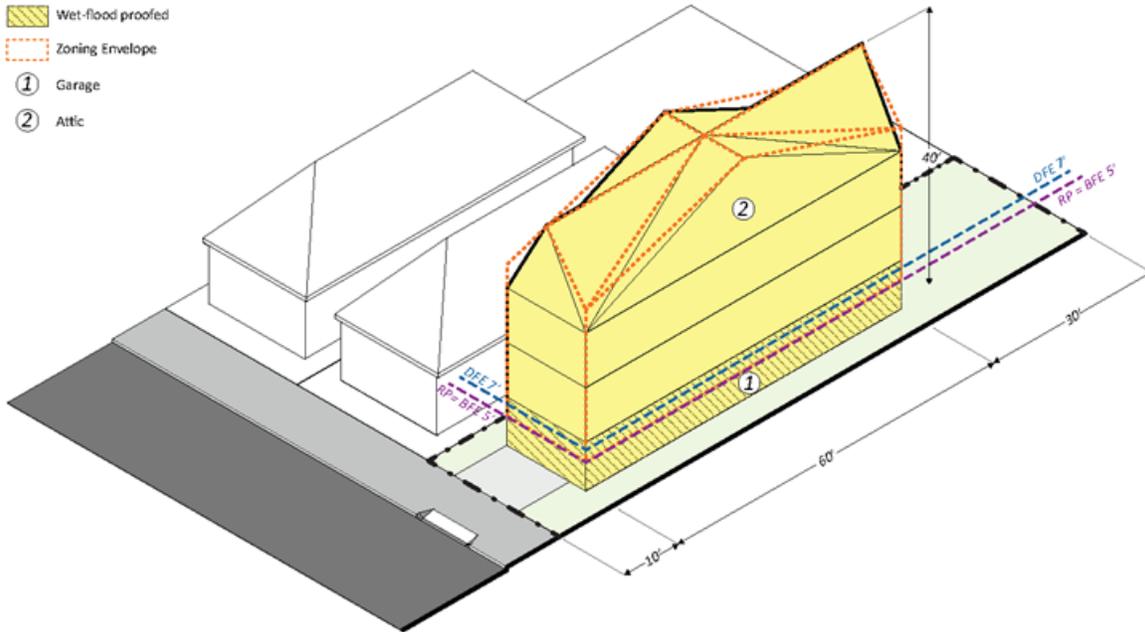
R4 Residence District

Prototype 11

1% Annual Chance Floodplain - No Action

Legend

- Residential
- Wet-flood proofed
- Zoning Envelope
- ① Garage
- ② Attic



*DFE= Design Flood Elevation

*BFE= Base Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	2,250 sf	2,250 sf	0
Zoning Residential Floor Area	2,250 sf	2,250 sf	0
Gross Floor Area	3,195 sf	3,348 sf	+ 153 sf
Gross Residential Floor Area	3,195 sf	3,348 sf	+ 153 sf
Exempted Floor Area	945 sf	1,098 sf	+ 153 sf
Provided Perimeter Wall/Baseheight	26 ft	28 ft	+ 2 ft
Provided Overall Height	40 ft	35 ft	- 5 ft
Provided Number of Stories	3 (+ attic)	3 (+ attic)	0
Lot Coverage / Open Space	36 % / 64 %	42 % / 58 %	+ 8% / - 6%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

Prototype 11: With-Action Conditions
1% Annual Chance Floodplain

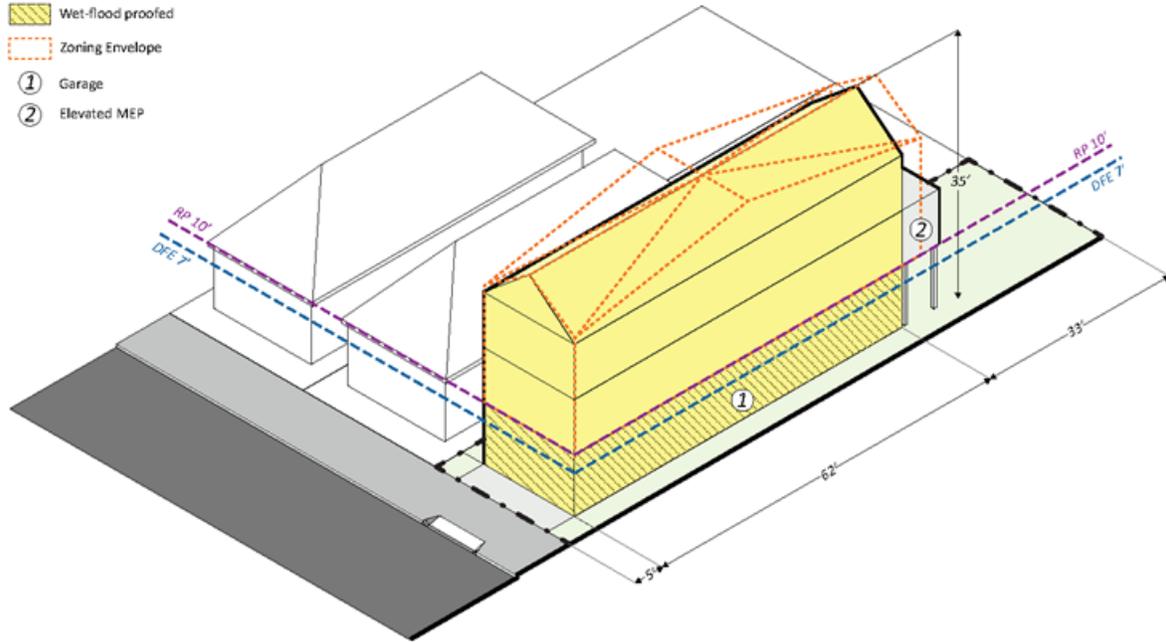
R4 Residence District

Prototype 11

1% Annual Chance Floodplain - With Action

Legend

- Residential
- Wet-flood proofed
- Zoning Envelope
- ① Garage
- ② Elevated MEP



*RP = Reference Plane
*DFE = Design Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	2,250 sf	2,250 sf	0
Zoning Residential Floor Area	2,250 sf	2,250 sf	0
Gross Floor Area	3,195 sf	3,348 sf	+ 153 sf
Gross Residential Floor Area	3,195 sf	3,348 sf	+ 153 sf
Exempted Floor Area	945 sf	1,098 sf	+ 153 sf
Provided Perimeter Wall/Baseheight	26 ft	28 ft	+ 2 ft
Provided Overall Height	40 ft	35 ft	- 5 ft
Provided Number of Stories	3 (+ attic)	3 (+ attic)	0
Lot Coverage / Open Space	36 % / 64 %	42 % / 58 %	+ 8% / - 6%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

Prototype 11: No-Action Conditions
0.2% Annual Chance Floodplain

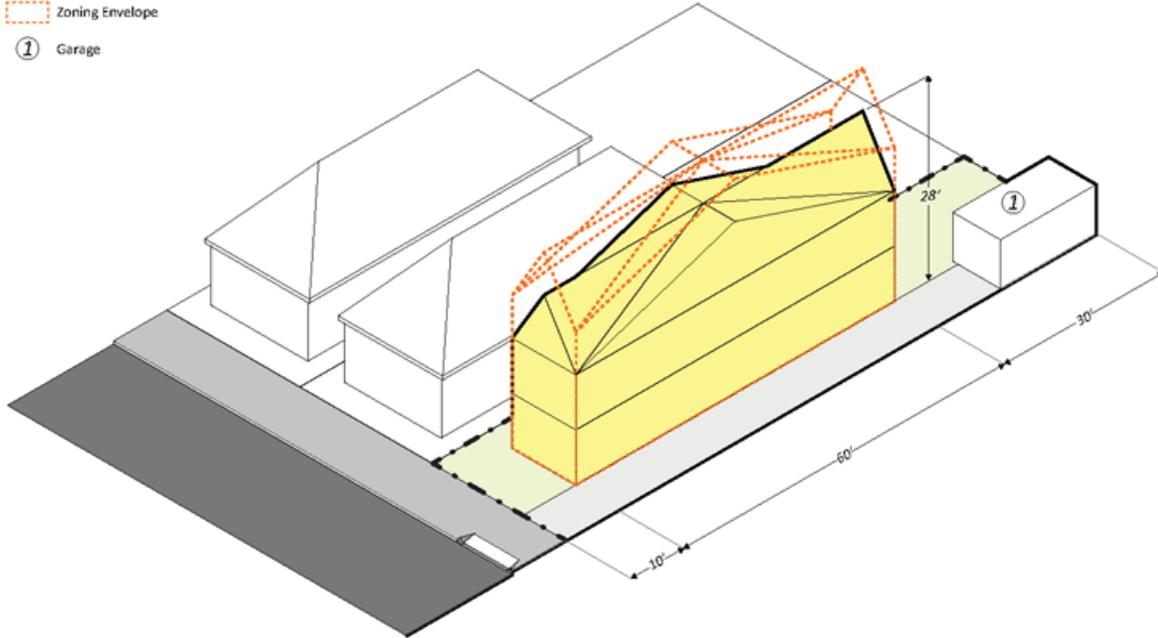
R4 Residence District

Prototype 11

0.2% Annual Chance Floodplain - No Action

Legend

- Residential
- Zoning Envelope
- 1 Garage



	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,890 sf	1,925 sf	+ 35 sf
<i>Zoning Residential Floor Area</i>	1,890 sf	1,925 sf	+ 35 sf
Gross Floor Area	2,090 sf	3,085 sf	+ 995 sf
<i>Gross Residential Floor Area</i>	2,090 sf	3,085 sf	+ 995 sf
Exempted Floor Area	200 sf	1,160 sf	+ 960 sf
Provided Perimeter Wall/Baseheight	18 ft	17 ft	- 1 ft
Provided Overall Height	28 ft	27 ft	- 1 ft
Provided Number of Stories	2 (+ attic)	2 (+ attic)	0
Lot Coverage / Open Space	35 % / 65 %	44 % / 56 %	+9% / -9%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

Prototype 11: With-Action Conditions
0.2% Annual Chance Floodplain

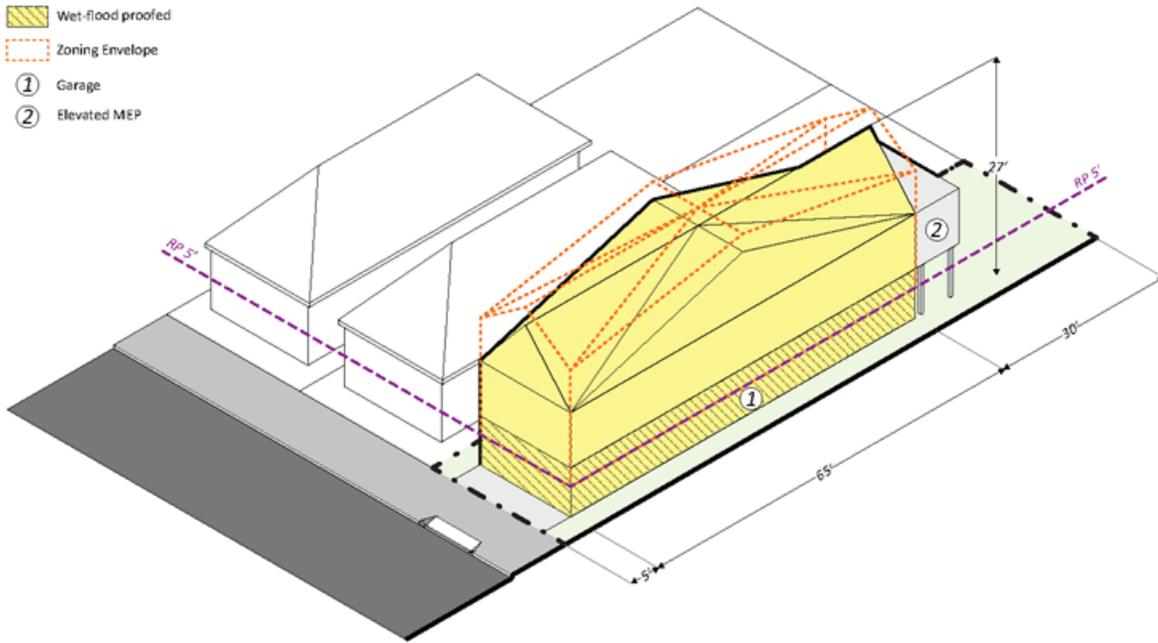
R4 Residence District

Prototype 11

0.2% Annual Chance Floodplain - With Action

Legend

- Residential
- Wet-flood proofed
- Zoning Envelope
- ① Garage
- ② Elevated MEP



*RP = Reference Plane

	0.2% Annual Chance Floodplain - No Action	0.2% Annual Chance Floodplain - W/ Action	Change
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,890 sf	1,925 sf	+ 35 sf
Zoning Residential Floor Area	1,890 sf	1,925 sf	+ 35 sf
Gross Floor Area	2,090 sf	3,085 sf	+ 995 sf
Gross Residential Floor Area	2,090 sf	3,085 sf	+ 995 sf
Exempted Floor Area	200 sf	1,160 sf	+ 960 sf
Provided Perimeter Wall/Baseheight	18 ft	17 ft	- 1 ft
Provided Overall Height	28 ft	27 ft	- 1 ft
Provided Number of Stories	2 (+ attic)	2 (+ attic)	0
Lot Coverage / Open Space	35 % / 65 %	44 % / 56 %	+9% / -9%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

the rear yard as permitted obstruction, and has been elevated 10 feet above grade to match the first occupiable floor.

The scenario provides one enclosed parking space in a garage within the building, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

0.2% annual chance No-Action Scenario

The No-Action scenario illustrates the development of a single-family detached residence with two-stories and an attic (refer to **Figure 9d**). The zoning lot is developed with 1,890 sf of zoning floor area with an FAR of 0.75. The maximum permitted within an R4 district including the attic allowance is an FAR of 0.90 (ZR 23-142). The building gross floor area is 2,090 sf. Spaces used for mechanical equipment (33 sf) and an enclosed garage (177 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

The first occupiable floor is at grade and the building does not meet minimum flood-resistant construction standards. The total building height is 28 feet with a perimeter wall of 18 feet—fitting within the permitted building envelope of an R4 district, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 25 feet (ZR 23-631). Residential floors one through two have a floor-to-floor height of nine feet each and the attic has a floor-to-floor height of 10 feet.

The scenario provides one enclosed parking space in the side yard, as required in the underlying zoning (ZR 25-23). The building complies with all other underlying zoning regulations.

0.2% annual chance With-Action Scenario

The With-Action scenario illustrates the development of a single-family detached residence with two stories and an attic (refer to **Figure 9e**). The zoning lot is developed with 1,925 sf of zoning floor area with an FAR of 0.77. The maximum permitted within an R4 district including the attic allowance is an FAR of 0.90 (ZR 23-142). The building gross floor area is 3,085 sf. AS a result of the proposed rules, spaces used for MEP (55 sf) and the wet-floodproofed garage at ground level (1,105 sf) are exempted from the zoning floor area.

In order to floodproof the building for the long term, provide a garage on the ground floor, and to take advantage of the flexibility of the proposed envelope, the building exceeds the minimum flood-resistant construction standards and the first occupiable floor is placed at eight feet above grade. The total building height is 27 feet with a perimeter wall of 17 feet— fitting within the proposed cottage envelope measured from a Reference plane of 5 feet, which allows for a maximum building height of 30 feet (25 feet plus five feet) and a maximum perimeter wall height of 24 feet (19 feet plus five feet). The ground floor has a wet floodproofed garage with a floor-to-floor height of eight feet, the second floor has a floor-to-floor height of nine feet, and the attic has a floor-to-floor height of 10 feet. The MEP is located in the rear yard as permitted obstruction, and has been elevated eight feet above grade to match the first occupiable floor.

The scenario provides one enclosed parking space in a garage, as required in the underlying zoning (ZR 25-621 and ZR 25-23). The building complies with all other underlying zoning regulations.

1% annual chance Incremental Change

As a result of the With-Action scenario there is an additional 153 sf of gross floor area and an additional 153 sf of exempted floor area. The perimeter wall is two feet higher and the overall height is five feet lower.

No additional stories, dwelling units, or parking spaces were added on the lot through the Proposed Action.

0.2% annual chance Incremental Change

As a result of the With-Action scenario there is an additional 995 sf of gross floor area, an additional 35 sf of zoning floor area, and an additional 960 sf of exempted floor area. The perimeter wall is one foot lower and the overall height is one foot lower.

No additional stories, dwelling units, or parking spaces were added on the lot through the Proposed Action.

Conceptual Analysis – Analysis of Proposed, New Authorizations, and Special Permits

Under SEQRA, a conceptual analysis is warranted if a proposal creates new discretionary actions that are broadly applicable, even when projects seeking those discretionary actions will trigger a future, separate environmental review. SEQRA's goal is to incorporate environmental considerations into the decision-making process at the earliest possible opportunity. Thus, it is the Lead Agency's obligation to consider all possible environmental impacts of the new discretionary actions at the time it creates them, at least on a conceptual basis.

The Proposed Actions introduce new discretionary authorizations and special permits applicable to certain Plan Review Sites. On these sites, future development may require separate, future, discretionary authorizations or special permits that are newly introduced by the Proposed Actions. While these discretionary approvals would trigger environmental review at the time they are sought, the environmental effects of these approvals were analyzed conceptually, as a means of disclosing future potential significant adverse impacts.

As the Proposed Action would modify and create new discretionary actions, an assessment of the potential environmental impacts that could result from these actions within the City's 1% and 0.2% annual chance floodplains is warranted. However, because it is not possible to predict whether a discretionary action would be pursued on any one site in the future, the RWCDs for the Proposed Action does not include consideration of specific development that would seek these actions. Instead, a Conceptual Analysis will be provided to understand how the new discretionary actions could be utilized and to generically assess the potential environmental impacts that could result. However, all potential significant adverse impacts related to these future discretionary actions would be disclosed through environmental review at the time of application. These scenarios shall include, but are not limited to:

- An existing building that exceeds height limits may need additional height or floor area to meet flood-resistant construction standards; and
- An existing building located within a residential zoning district that may convert the ground-floor to a professional office and dry-floodproof the space.

Analysis Year

The *CEQR Technical Manual* notes that for some actions where the build-out depends on market conditions and other variables, the build year cannot be determined with precision. In these cases, a 10-year build year is generally considered reasonable, as it captures a typical cycle of market conditions and generally represents the outer timeframe within which predictions of future development and retrofit work may usually be made without speculation. Therefore, an analysis year of 2029 has been identified for this environmental review.

G. ILLUSTRATIVE COMPARISON OF THE 2013 FLOOD TEXT AND THE PROPOSED ACTION

As detailed above, the 2013 Flood Text was adopted on a temporary, emergency basis, and is set to expire with the adoption of new and final FEMA FIRMs, anticipated to occur in the next few years. Therefore, the 2013 Flood Text would no longer be applicable in the 2030 future without the Proposed Action, and is therefore not analyzed in this environmental review. However, for illustrative purposes, a comparison of the 2013 Flood Text and the Proposed Action is provided in **Figures 10** through **14** below for the five Prototypical Analysis Sites detailed in this Draft Scope of Work (Prototypes 3, 5, 6, 7, and 11).

H. DRAFT EIS SCOPE OF WORK

As described in greater detail below, the EIS will contain:

- A description of the Proposed Action and the RWCDs, as well as the environmental setting;
- An analysis of the potential for significant adverse environmental impacts to result from the Proposed Action;
- A description of practicable mitigation measures that could eliminate or minimize any significant adverse environmental impacts disclosed in the EIS;
- An identification of any significant adverse environmental effects that cannot be avoided if the Proposed Action is implemented;
- A discussion of alternatives to the Proposed Action; and
- A discussion of any irreversible and irretrievable commitments of resources that could result from the Proposed Action.

The following descriptions illustrate the structure and content of the EIS.

TASK 1. DESCRIPTION OF THE PROPOSED ACTION AND ANALYTICAL FRAMEWORK

This chapter in the EIS will introduce the reader to the Proposed Action and provide the criteria, per the *CEQR Technical Manual*, that are used to assess impacts. The chapter will contain a brief description of uses in the Rezoning Area; the RWCDs; and a discussion of approvals required, procedures to be followed, and a description of the No-Action condition.

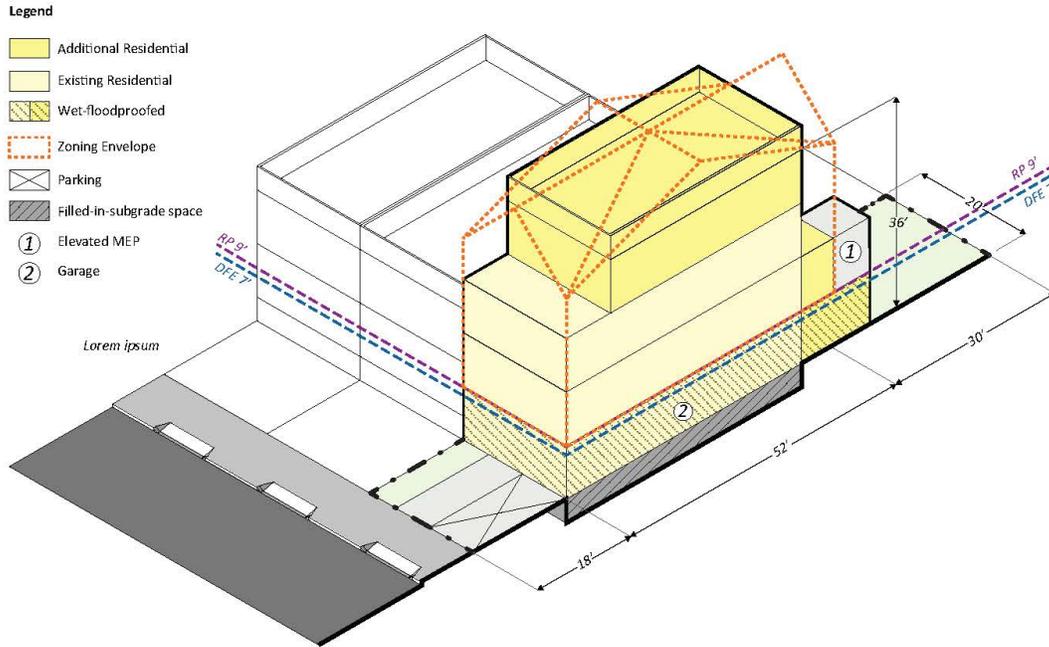
The chapter will include appropriate data from the ULURP application and drawings. The role of the lead agency for CEQR and a description of the environmental review process will be provided.

The analysis framework will be discussed in the first chapter of the EIS and set the regulatory context for the EIS (i.e., ULURP and CEQR – their timing, public review, hearings, etc.), and then explain the basic approach to the technical chapters. Each chapter will address existing conditions, a future analysis year without the Proposed Action, and that future analysis year with the Proposed Action; that any significant adverse environmental impacts will be identified comparing the With-Action condition to the No-Action condition; that mitigation will be proposed for identified significant adverse environmental impacts; and that practicable alternatives that meet the goals of the Proposed Action but reduce or eliminate identified impacts will be considered. As part of this discussion, the rationale for the future analysis year will be

R4 Infill Residence District

Prototype 3

1% Annual Chance Floodplain - FT1



*RP = Reference Plane
 *DFE= Design Flood Elevation

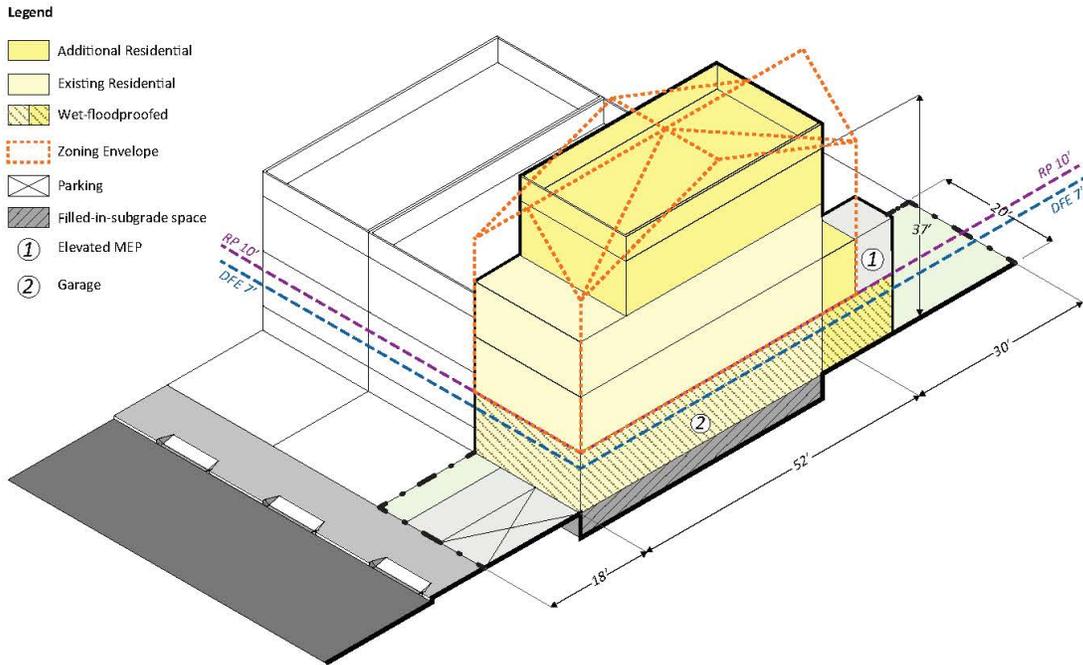
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to FT1	Change FT1 to W/a	Change N/a to W/a
Lot Area	2,000 sf	2,000 sf	2,000 sf	0	0	0
Zoning Floor Area	2,700 sf	2,700 sf	2,700 sf	0	0	0
Zoning Residential Floor Area	2,700 sf	2,700 sf	2,700 sf	0	0	0
Gross Floor Area	2,760 sf	2,760 sf	3,800 sf	0	+ 1,040 sf	+ 1,040 sf
Gross Residential Floor Area	2,760 sf	2,760 sf	3,800 sf	0	+ 1,040 sf	+ 1,040 sf
Exempted Floor Area	60 sf	60 sf	1,100 sf	0	+ 1,040 sf	+ 1,040 sf
Provided Perimeter Wall/Baseheight	22 ft	27 ft	28 ft	+ 5 ft	+ 1 ft	+ 6 ft
Provided Overall Height	22 ft	36 ft	37 ft	+ 14 ft	+ 1 ft	+ 15 ft
Provided Number of Stories	2 (+ 1 Basement)	4 (No Basement)	4 (No Basement)	+ 2	0	+ 2
Lot Coverage / Open Space	46 % / 54%	52 % / 48%	52 % / 48%	+ 6 % / -6%	0	+ 6 % / -6%
Dwelling Units	2	2	2	0	0	0
Parking Spaces	1	2	2	+ 1	0	+ 1

**** FT1 diagrams for illustrative purposes only****

R4 Infill Residence District

Prototype 3

1% Annual Chance Floodplain - With Action



*RP = Reference Plane
 *DFE= Design Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,000 sf	2,000 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	2,700 sf	0 sf
Zoning Residential Floor Area	2,700 sf	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,760 sf	2,760 sf	3,800 sf	+1,040 sf
Gross Residential Floor Area	2,760 sf	2,760 sf	3,800 sf	+1,040 sf
Exempted Floor Area	60 sf	60 sf	1,100 sf	+1,040 sf
Provided Perimeter Wall/Baseheight	22 ft	27 ft	28 ft	+ 6 ft
Provided Overall Height	22 ft	36 ft	37 ft	+ 15 ft
Provided Number of Stories	2 (+ 1 Basement)	4 (No Basement)	4 (No Basement)	+ 2
Lot Coverage / Open Space	46 % / 54%	52 % / 48%	52 % / 48%	+ 6% / -6%
Dwelling Units	2	2	2	0
Parking Spaces	1	2	2	+ 1

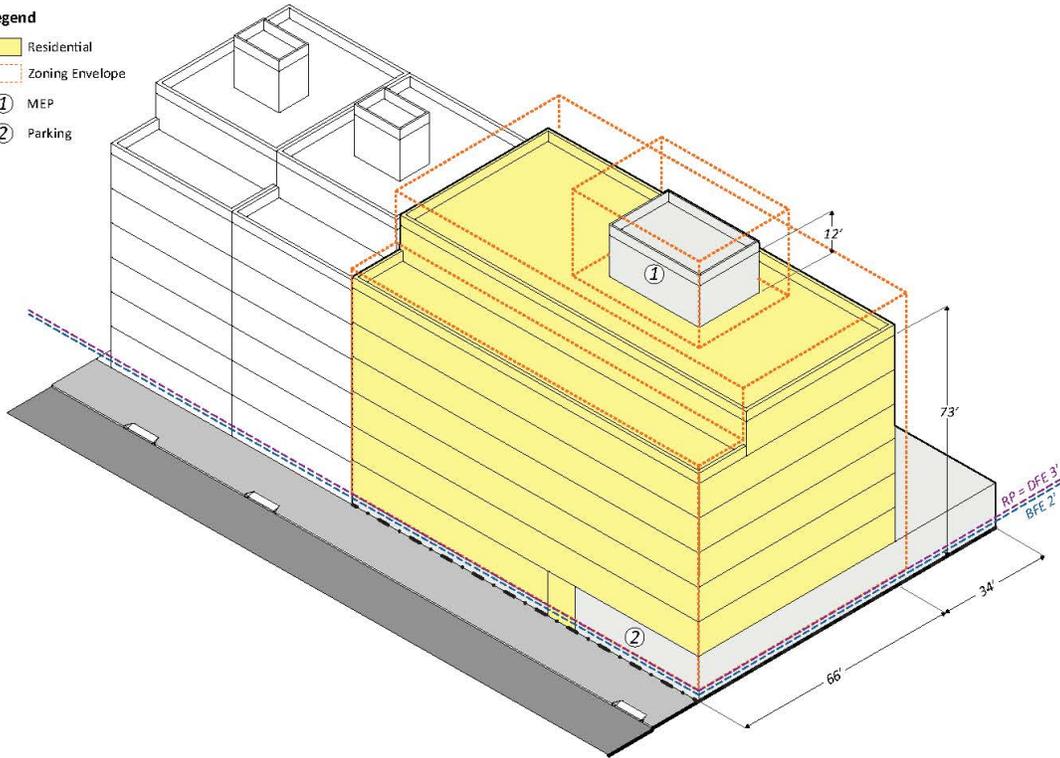
R7A Residence District

Prototype 5

1% Annual Chance Floodplain - FT1

Legend

- Residential
- Zoning Envelope
- ① MEP
- ② Parking



*RP = Reference Plane
 *DFE= Design Flood Elevation

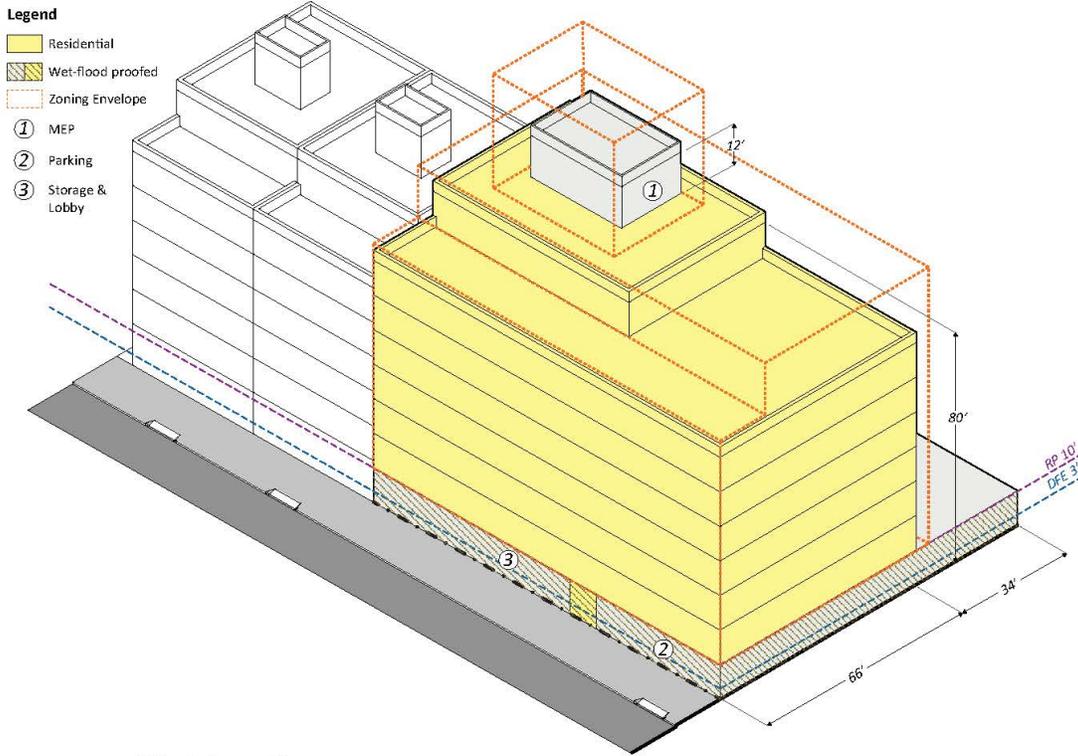
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to FT1	Change FT1 to W/a	Change N/a to W/a
Lot Area	115,000 sf	115,000 sf	115,000 sf	0	0	0
Zoning Floor Area	46,000 sf	46,000 sf	46,000 sf	0	0	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	46,000 sf	0	0	0
Gross Floor Area	56,330 sf	56,330 sf	60,980 sf	0	+ 4,650 sf	+ 4,650 sf
Gross Residential Floor Area	56,330 sf	56,330 sf	60,980 sf	0	+ 4,650 sf	+ 4,650 sf
Exempted Floor Area	10,330 sf	10,330 sf	14,980 sf	0	+ 4,650 sf	+ 4,650 sf
Provided Perimeter Wall/Baseheight	63 ft	63 ft	70 ft	0	+ 7ft	+ 7ft
Provided Overall Height	73 ft	73 ft	80 ft	0	+ 7 ft	+ 7 ft
Provided Number of Stories	7	7	8	0	+ 1	+ 1
Lot Coverage	66 %	66 %	66 %	0	0	0
Dwelling Units	54	54	54	0	0	0
Parking Spaces	16	16	16	0	0	0

**** FT1 diagrams for illustrative purposes only****

R7A Residence District

Prototype 5

1% Annual Chance Floodplain - With Action



*RP = Reference Plane
 *DFE= Design Flood Elevation

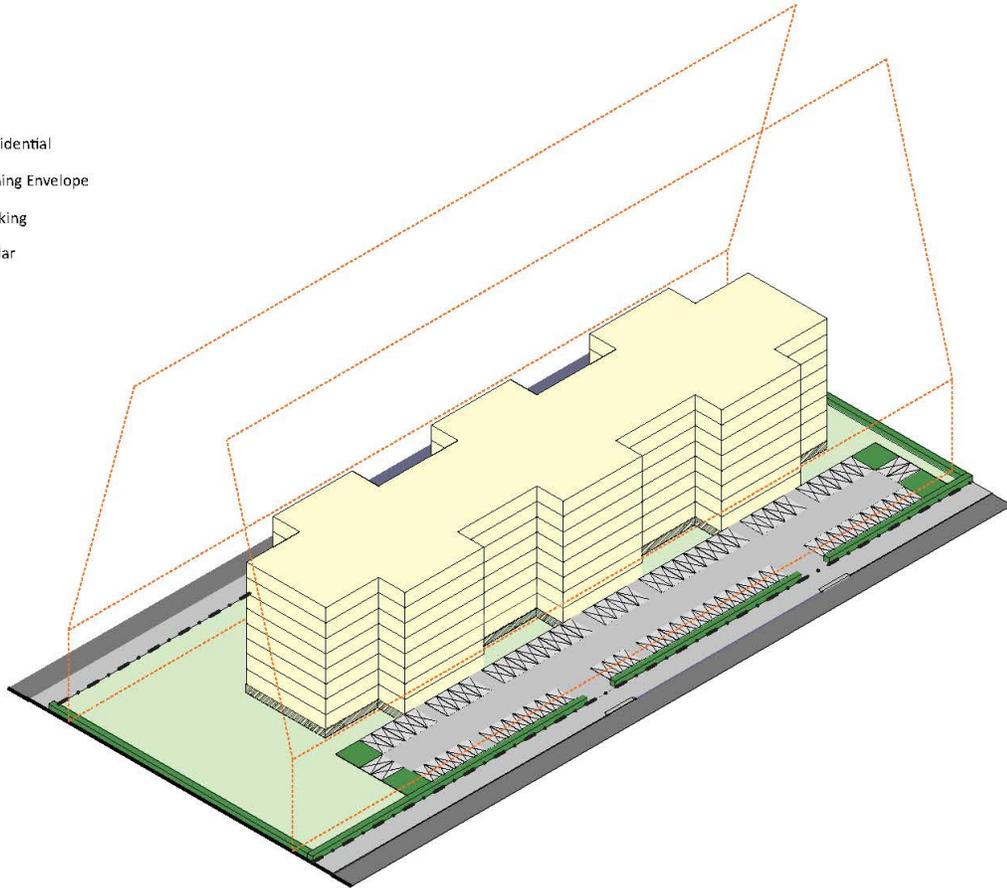
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	115,000 sf	115,000 sf	115,000 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	46,000 sf	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	46,000 sf	0
Gross Floor Area	56,330 sf	56,330 sf	60,980 sf	+ 4,650 sf
Gross Residential Floor Area	56,330 sf	56,330 sf	60,980 sf	+ 4,650 sf
Exempted Floor Area	10,330 sf	10,330 sf	14,980 sf	+ 4,650 sf
Provided Perimeter Wall/Baseheight	63 ft	63 ft	70 ft	+ 7ft
Provided Overall Height	73 ft	73 ft	80 ft	+ 7 ft
Provided Number of Stories	7	7	8	+ 1
Lot Coverage	66 %	66 %	66 %	0
Dwelling Units	54	54	54	0
Parking Spaces	16	16	16	0

R6 Residence District

Prototype 6

1% Annual Chance Floodplain - FT1

- Legend**
- Residential
 - Zoning Envelope
 - Parking
 - Cellar



	No Action	1% Annual Chance Floodplain - FT1	With Action	Change N/a to FT1	Change FT1 to W/a	Change N/a to W/a
Lot Area	100,000 sf	100,000 sf	100,000 sf	0	0	0
Zoning Floor Area	240,000 sf	240,000 sf	240,000 sf	0	0	0
Zoning Residential Floor Area	240,000 sf	240,000 sf	240,000 sf	0	0	0
Gross Floor Area	270,000 sf	270,000 sf	247,200 sf	0	- 22,800 sf	- 22,800 sf
Gross Residential Floor Area	270,000 sf	270,000 sf	247,200 sf	0	- 22,800 sf	- 22,800 sf
Exempted Floor Area	30,000 sf	30,000 sf	7,200 sf	0	- 22,800 sf	- 22,800 sf
Provided Overall Height	80 ft	80 ft	80 ft	0	0	0
Provided Number of Stories	8	8	8	0	0	0
Open Space	46 %	46 %	39 %	0	- 7 %	- 7 %
Dwelling Units	320	320	320	0	0	0
Parking Spaces	78	78	78	0	0	0

**** FT1 diagrams for illustrative purposes only****

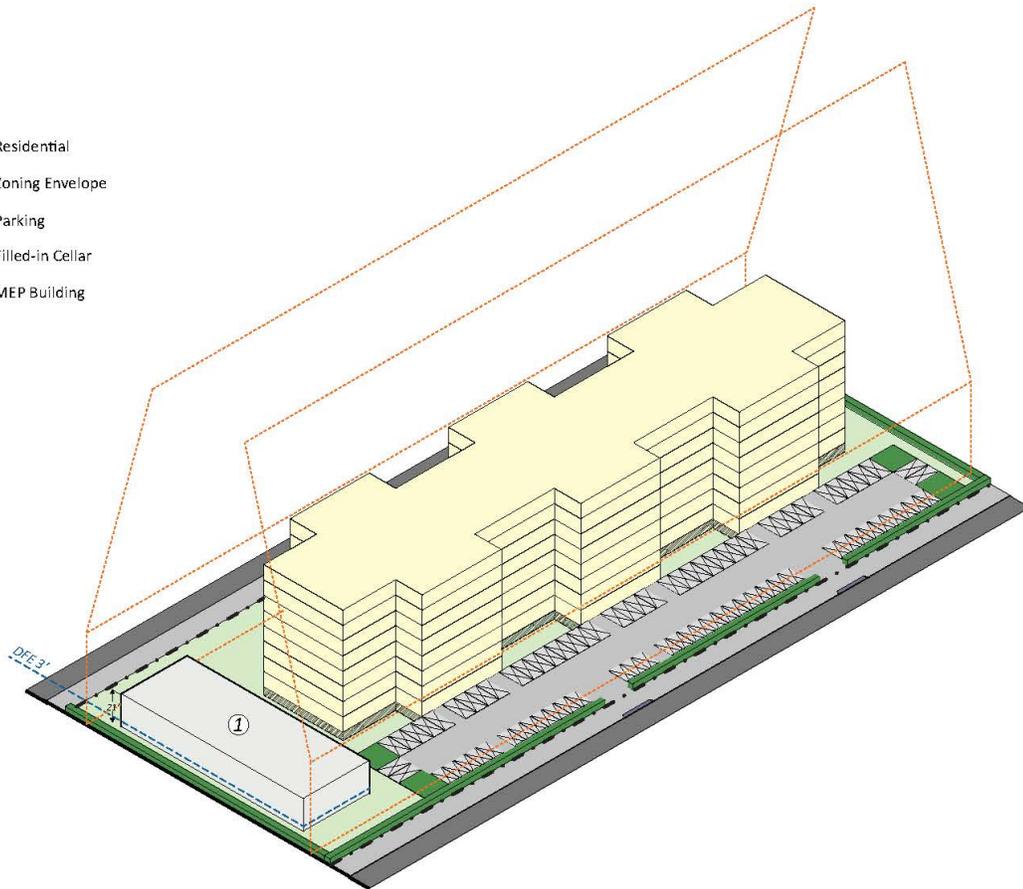
R6 Residence District

Prototype 6

1% & 0.2% Annual Chance Floodplain - With Action

Legend

- Residential
- Zoning Envelope
- Parking
- Filled-in Cellar
- ① MEP Building



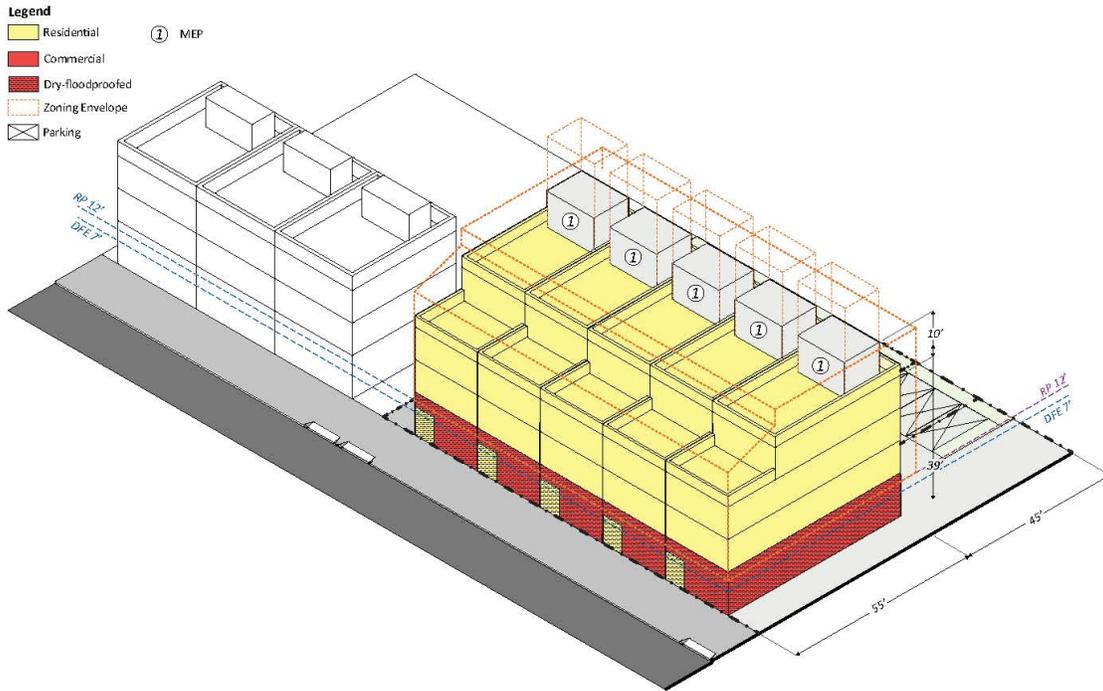
*DFE= Design Flood Elevation

	No Action	1% Annual Chance Floodplain - FT1	With Action	Change N/a to W/a
Lot Area	100,000 sf	100,000 sf	100,000 sf	0
Zoning Floor Area	240,000 sf	240,000 sf	240,000 sf	0
Zoning Residential Floor Area	240,000 sf	240,000 sf	240,000 sf	0
Gross Floor Area	270,000 sf	270,000 sf	247,200 sf	- 22,800 sf
Gross Residential Floor Area	270,000 sf	270,000 sf	247,200 sf	- 22,800 sf
Exempted Floor Area	30,000 sf	30,000 sf	7,200 sf	- 22,800 sf
Provided Overall Height	80 ft	80 ft	80 ft	0
Provided Number of Stories	8	8	8	0
Open Space	46 %	46 %	39 %	- 7 %
Dwelling Units	320	320	320	0
Parking Spaces	78	78	78	0

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

1% Annual Chance Floodplain - FT1



*RP = Reference Plane
 *DFE= Design Flood Elevation
 *BFE= Base Flood Elevation

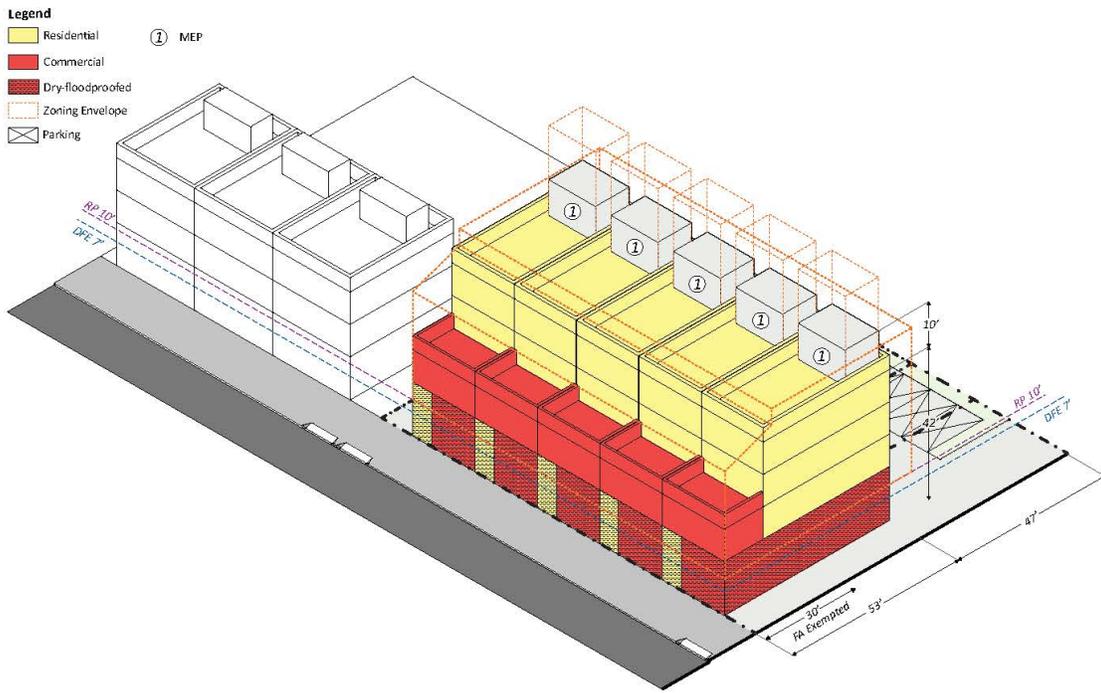
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to FT1	Change FT1 to W/a	Change N/a to W/a
Lot Area	12,000 sf	12,000 sf	12,000 sf	0	0	0
Zoning Floor Area	15,000 sf	15,000 sf	15,000 sf	0	0	0
Zoning Residential Floor Area	15,000 sf	15,000 sf	12,150 sf	0	- 2,850 sf	- 2,850 sf
Zoning Commercial Floor Area	0 sf	0 sf	2,860 sf	0	+ 2,860 sf	+ 2,860 sf
Gross Floor Area	21,310 sf	21,310 sf	19,510 sf	0	- 1,800 sf	- 1,800 sf
Gross Residential Floor Area	16,650 sf	16,650 sf	13,740 sf	0	- 2,910 sf	- 2,910 sf
Gross Commercial Floor Area	3,850 sf	3,850 sf	4,960 sf	0	+ 1,110 sf	+ 1,110 sf
Exempted Floor Area	6,310 sf	6,310 sf	4,500 sf	0	- 1,810 ft	- 1,810 ft
Provided Perimeter Wall/Baseheight	30 ft	30 ft	24 ft	0	- 6 ft	- 6 ft
Provided Overall Height	39 ft	39 ft	42 ft	0	+ 3 ft	+ 3 ft
Provided Number of Stories	4	4	4	0	0	0
Lot Coverage / Open Space	44 % / 56%	44 % / 56%	44 % / 56%	0	0	0
Dwelling Units	10	10	10	0	0	0
Parking Spaces	9	9	9	0	0	0

**** FT1 diagrams for illustrative purposes only****

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

1% Annual Chance Floodplain - With Action



*RP = Reference Plane
 *DFE= Design Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	12,000 sf	12,000 sf	12,000 sf	0
Zoning Floor Area	15,000 sf	15,000 sf	15,000 sf	0
Zoning Residential Floor Area	15,000 sf	15,000 sf	12,150 sf	- 2,850 sf
Zoning Commercial Floor Area	0 sf	0 sf	2,860 sf	+ 2,860 sf
Gross Floor Area	21,310 sf	21,310 sf	19,510 sf	- 1,800 sf
Gross Residential Floor Area	16,650 sf	16,650 sf	13,740 sf	- 2,910 sf
Gross Commercial Floor Area	3,850 sf	3,850 sf	4,960 sf	+ 1,110 sf
Exempted Floor Area	6,310 sf	6,310 sf	4,500 sf	- 1,810 ft
Provided Perimeter Wall/Baseheight	30 ft	30 ft	24 ft	- 6 ft
Provided Overall Height	39 ft	39 ft	42 ft	+ 3 ft
Provided Number of Stories	4	4	4	0
Lot Coverage / Open Space	44 % / 56%	44 % / 56%	44 % / 56%	0
Dwelling Units	10	10	10	0
Parking Spaces	9	9	9	0

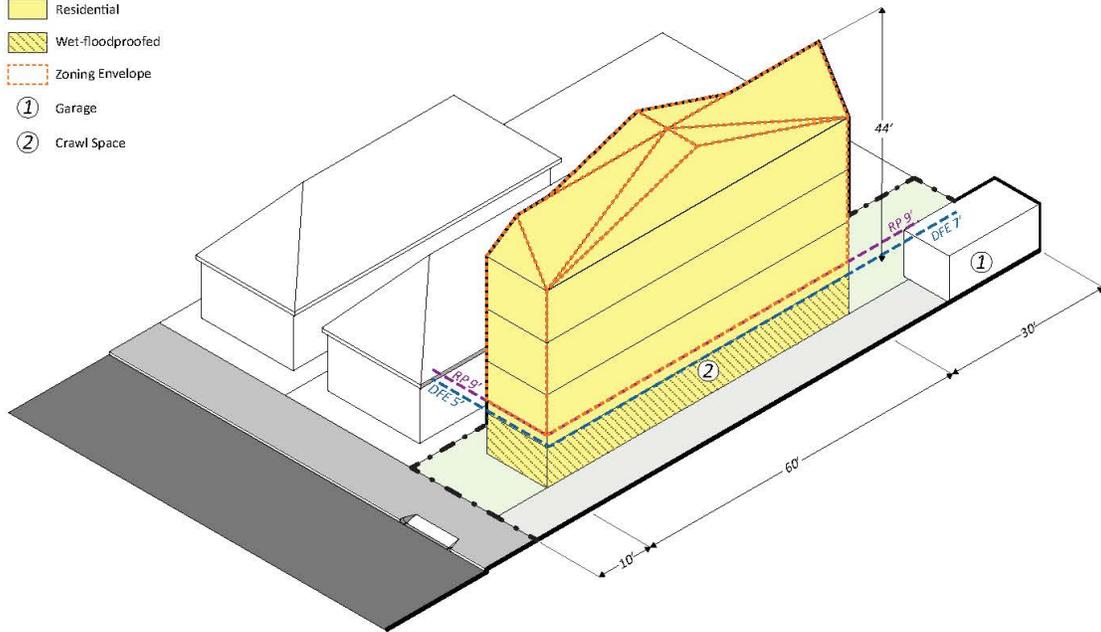
R4 Residence District

Prototype 11

1% Annual Chance Floodplain - FT1

Legend

- Residential
- Wet-floodproofed
- Zoning Envelope
- ① Garage
- ② Crawl Space



*BFE= Base Flood Elevation

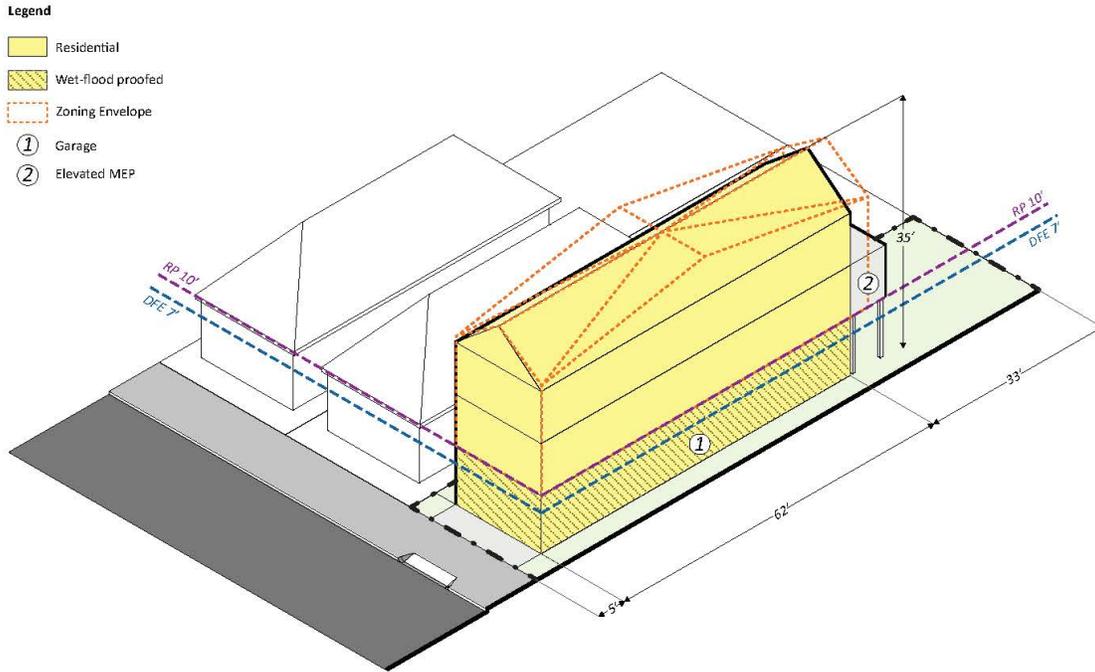
	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to FT1	Change FT1 to W/a	Change N/a to W/a
Lot Area	2,500 sf	2,500 sf	2,500 sf	0	0	0
Zoning Floor Area	2,250 sf	2,250 sf	2,250 sf	0	0	0
Zoning Residential Floor Area	2,250 sf	2,250 sf	2,250 sf	0	0	0
Gross Floor Area	3,195 sf	3,170 sf	3,348 sf	- 25 sf	+ 178 sf	+ 153 sf
Gross Residential Floor Area	3,195 sf	3,170 sf	3,348 sf	- 25 sf	+ 178 sf	+ 153 sf
Exempted Floor Area	945 sf	920 sf	1,098 sf	- 25 sf	+ 178 sf	+ 153 sf
Provided Perimeter Wall/Baseheight	26 ft	34 ft	28 ft	+ 8 ft	- 8 ft	+ 2 ft
Provided Overall Height	40 ft	44 ft	35 ft	+ 4 ft	- 9 ft	- 5 ft
Provided Number of Stories	3 (+ attic)	3 (+ attic)	3 (+ attic)	0	0	0
Lot Coverage / Open Space	36 % / 64 %	35 % / 65 %	42 % / 58 %	- 1% / +1%	+ 7% / - 7%	+ 8% / - 6%
Dwelling Units	1	1	1	0	0	0
Parking Spaces	1	1	1	0	0	0

**** FT1 diagrams for illustrative purposes only****

R4 Residence District

Prototype 11

1% Annual Chance Floodplain - With Action



*RP = Reference Plane
 *DFE= Design Flood Elevation

	1% Annual Chance Floodplain - No Action	1% Annual Chance Floodplain - FT1	1% Annual Chance Floodplain - W/ Action	Change N/a to W/a
Lot Area	2,500 sf	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	2,250 sf	2,250 sf	2,250 sf	0
Zoning Residential Floor Area	2,250 sf	2,250 sf	2,250 sf	0
Gross Floor Area	3,195 sf	3,170 sf	3,348 sf	+ 153 sf
Gross Residential Floor Area	3,195 sf	3,170 sf	3,348 sf	+ 153 sf
Exempted Floor Area	945 sf	920 sf	1,098 sf	+ 153 sf
Provided Perimeter Wall/Baseheight	26 ft	34 ft	28 ft	+ 2 ft
Provided Overall Height	40 ft	44 ft	35 ft	- 5 ft
Provided Number of Stories	3 (+ attic)	3 (+ attic)	3 (+ attic)	0
Lot Coverage / Open Space	36 % / 64 %	35 % / 65 %	42 % / 58 %	+ 8% / - 6%
Dwelling Units	1	1	1	0
Parking Spaces	1	1	1	0

presented. In addition, this chapter will present an analysis year and qualitative construction scenario for the RWCDS.

TASK 2. LAND USE, ZONING, & PUBLIC POLICY

A land use analysis characterizes specific uses and development trends in the area that may be affected by a proposed action, and determines whether a proposed action is either compatible with those conditions or whether it may affect them. Similarly, the analysis considers the action's compliance with, and effect on, the area's zoning and other applicable public policies. This chapter will analyze the potential impacts of the Proposed Action on land use, zoning, and public policy, pursuant to the methodologies presented in the *CEQR Technical Manual*. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect land use, zoning, and public policy by assessing Prototypical Analysis Sites, employing a qualitative non-site-specific approach.

TASK 3. SOCIOECONOMIC CONDITIONS

The socioeconomic character of an area includes its population, housing, and economic activity. Socioeconomic changes may occur when a project directly or indirectly changes any of these elements. Although socioeconomic changes may not result in impacts under CEQR, they are disclosed if they would affect land use patterns, low-income populations, the availability of goods and services, or economic investment in a way that changes the socioeconomic character of the area. This chapter will assess the Proposed Action's potential effects on the socioeconomic conditions. The five principal issues of concern with respect to socioeconomic conditions are whether a Proposed Action would result in significant adverse impacts due to: (1) direct residential displacement; (2) direct business and institutional displacement; (3) indirect residential displacement; (4) indirect business and institutional displacement; and (5) adverse effects on specific industries. The Proposed Action is not anticipated to result in adverse impacts with respect to direct residential displacement, direct business and institutional displacement, indirect residential displacement, indirect business and institutional displacement, or a specific industry. Nonetheless, to be conservative, the EIS will include analysis of these areas per *CEQR Technical Manual* guidance. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect socioeconomic conditions by assessing Prototypical Analysis Sites.

TASK 4. COMMUNITY FACILITIES & SERVICES

Community facilities, as defined under CEQR, include public or publicly funded schools, hospitals, libraries, daycare centers, and fire and police protection. Direct effects occur when a proposed action physically alters or displaces a community facility. Indirect effects result when increases in population create additional demand on service delivery. The demand for community facilities and services is directly related to the type and size of the new population generated by a proposed action. New residential developments tend to affect families, such as public schools, daycare centers, libraries, and hospitals. According to the *CEQR Technical Manual*, a detailed community facility analysis is conducted when a proposed action would have a direct or indirect effect on a community facility. The Proposed Action would not directly result in any residential development. Nonetheless, for conservative purposes, the EIS will include a preliminary screening assessment of any potential impacts on community facilities and services using Prototypical Analysis Sites.

TASK 5. OPEN SPACE

The *CEQR Technical Manual* recommends performing an open space assessment if a proposed action would have a direct effect on an open space (i.e., displacement of an existing open space resource) or an indirect effect through increased population size. Indirect effects may occur when a population generated by a proposed action would be sufficiently large to noticeably diminish the ability of an area's open spaces to serve the future population. The Proposed Action is not expected to directly displace any open space resources, or result in any new residential development. However, for conservative purposes, the EIS will include a preliminary screening assessment of any potential impacts on open space using Prototypical Analysis Sites.

TASK 6. SHADOWS

The *CEQR Technical Manual* requires a preliminary shadows screening assessment for proposed actions that would result in new structures or additions to existing structures greater than 50 feet in incremental height or adjacent to sunlight-sensitive resources. Such resources include publicly accessible open spaces, important sunlight-sensitive natural features, or historic resources with sunlight-sensitive features. It is not possible to evaluate the impacts of any specific development because the specific location of future development projects is unknown. Therefore, the EIS will include a shadow assessment of Prototypical Analysis Sites to determine how action-generated shadows would affect sunlight-sensitive resources. The shadow assessment will be coordinated with the open space, historic and cultural resources, and natural resources analyses and will be conducted in accordance with *CEQR Technical Manual* methodologies.

TASK 7. HISTORIC & CULTURAL RESOURCES

Historic and cultural resources include archaeological (buried) resources and architectural (historic standing structure) resources. The *CEQR Technical Manual* identifies historic and cultural resources as districts, buildings, structures, sites, and objects of historical, aesthetic, cultural, and archaeological importance. Historic and cultural resources include designated New York City Landmarks (NYCLs) and Historic Districts; properties calendared for consideration as NYCLs by the New York City Landmarks Preservation Commission (LPC) or determined eligible for NYCL designation (NYCL-eligible); properties listed on the State and National Registers of Historic Places (S/NR) or formally determined eligible for S/NR listing (S/NR-eligible), or properties contained within a S/NR-listed or eligible Historic District; properties recommended by the New York State Board for listing on the S/NR; National Historic Landmarks (NHLs); and potential historic resources (i.e., properties not identified by one of the programs listed above, but that appear to meet their eligibility requirements). According to the *CEQR Technical Manual*, a historic and cultural resources assessment is warranted if there is the potential to affect either archaeological or architectural resources.

The Proposed Action could result in new in-ground disturbance, and would affect height and bulk controls in areas where historic architectural resources are present. Although it is not possible to evaluate the impacts of any specific development because the specific location of future development projects is unknown, the EIS will include a historic and cultural resources assessment to analyze the potential for significant adverse impacts based on Prototypical Analysis Sites.

TASK 8. URBAN DESIGN & VISUAL RESOURCES

An area's urban components and visual resources together define the look and character of the neighborhood. The urban design characteristics of a neighborhood encompass the various components of

buildings and streets in the area, which include building bulk, use, and type; building arrangement; block form and street pattern; streetscape elements; street hierarchy; and natural features. An area's visual resources are its unique or important public view corridors, vistas, or natural or built features. For CEQR analysis purposes, this includes only views from public and publicly accessible locations and does not include private residences or places of business.

It is not possible to evaluate the impacts of any specific development, because the specific location of future development projects is unknown. Therefore, consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect urban design and visual resources by assessing Prototypical Analysis Sites using a qualitative, non-site-specific approach.

TASK 9. NATURAL RESOURCES

The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetlands, including freshwater and tidal wetlands; terrestrial resources, such as grasslands and thickets; shoreline resources, such as beaches, dunes, and bluffs; gardens and other ornamental landscaping; and natural resources that may be associated with built resources, such as old piers and other waterfront structures. The Proposed Action would result in zoning text and map amendments specifically intended to address sites located in the City's 1% and 0.2% annual chance floodplains, which are in close proximity to water resources. As such, the EIS will provide a natural resources assessment. Because the specific location of future development projects is unknown, the natural resources assessment will be based on Prototypical Analysis Sites.

TASK 10. HAZARDOUS MATERIALS

A hazardous materials assessment determines whether a proposed action may increase the exposure of people or the environment to hazardous materials, and, if so, whether this increased exposure would result in potential significant public health or environmental impacts. The potential for significant impacts related to hazardous materials can occur when: (a) elevated levels of hazardous materials exist on a site and the project would increase pathways to human or environmental exposures; (b) a project would introduce new activities or processes using hazardous materials and the risk of human or environmental exposure is increased; or (c) the project would introduce a population to potential human or environmental exposure from off-site sources.

The Proposed Action could result in ground disturbance in areas where hazardous materials may be present. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to result in adverse impacts related to hazardous materials by assessing Prototypical Analysis Sites.

TASK 11. WATER & SEWER INFRASTRUCTURE

The *CEQR Technical Manual* requires an assessment of the potential effects of a proposed action on the City's water supply, wastewater treatment, and stormwater management infrastructure to ensure that these systems have adequate capacity to accommodate land use or density changes. According to the *CEQR Technical Manual*, only projects that increase density or change drainage conditions on a large site require such an analysis. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect the City's water and sewer infrastructure by assessing Prototypical Analysis Sites.

TASK 12. SOLID WASTE & SANITATION SERVICES

A solid waste assessment determines whether an action has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity or otherwise be inconsistent with the City's Solid Waste Management Plan or with State policy related to the City's integrated solid waste management system. The EIS will include a preliminary screening assessment of the Proposed Action's potential to affect solid waste and sanitation services. If warranted, a more detailed analysis will be provided. The assessment will be based on Prototypical Analysis Sites because the specific locations of future development projects are unknown.

TASK 13. ENERGY

According to the *CEQR Technical Manual*, an EIS must include a discussion of the effects of a proposed action on the use and conservation of energy, if applicable and significant. In most cases, a proposed action does not need a detailed energy assessment, but its operational energy is projected. A detailed energy assessment is limited to actions that may significantly affect the transmission or generation of energy. For other actions, in lieu of a detailed assessment, the estimated amount of energy that would be consumed annually because of the day-to-day operation of the buildings and uses resulting from an action is disclosed, as recommended in the *CEQR Technical Manual*. Although significant adverse energy impacts are not anticipated to result from the Proposed Action, the EIS will include a preliminary screening analysis based on Prototypical Analysis Sites to consider projected operational energy consumption.

TASK 14. TRANSPORTATION

The objective of a transportation analysis is to determine whether a proposed action may have a potential significant impact on traffic operations and mobility, public transportation facilities and services, pedestrian elements and flow, the safety of all roadway users (pedestrians, bicyclists and motorists), on-and off-street parking, or goods movement. The *CEQR Technical Manual* states that a quantified transportation analysis may be warranted if a proposed action results in 50 or more vehicle trips and/or 200 or more transit/pedestrian trips during a given peak hour.

Traffic & Parking

The objective of traffic and parking analyses is to determine whether a proposed action is expected to have significant impacts on street and roadway conditions or on parking resources. This includes the sufficiency of street and highway elements to adequately process a proposed action's expected traffic flow and operating condition changes, and the effect of the proposed action on parking resources in the area. According to the *CEQR Technical Manual*, a preliminary trip generation analysis for a project will generally be appropriate to determine the volume of vehicular trips expected during peak hours. In most areas of the City, if a proposed action is expected to result in 50 or more peak hour vehicular trip ends, a detailed traffic analysis may be warranted. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect traffic and parking conditions by assessing Prototypical Analysis Sites.

Transit & Pedestrians

The objective of transit and pedestrian analyses is to determine whether a proposed action would have a significant impact on public transit facilities and services and on pedestrian flows. According to the general thresholds used by the Metropolitan Transit Authority (MTA) and specified in the *CEQR Technical*

Manual, if a proposed action would result in pedestrian elements with 200 or more pedestrian trips, 50 or more bus trips in a single direction on a single route, or 200 or more passengers at a subway station or on a subway line during any analysis peak hour, further detailed analysis may be warranted for a particular technical area. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect transit and pedestrian conditions by assessing Prototypical Analysis Sites.

TASK 15. AIR QUALITY

Ambient air quality, or the quality of the surrounding air, may be affected by air pollutants produced by motor vehicles, referred to as "mobile sources," by fixed facilities, usually referenced as "stationary sources," or by a combination of both. Under CEQR, an air quality analysis determines whether a proposed action would result in stationary or mobile sources of pollutant emissions that could have a significant adverse impact on ambient air quality and considers the potential of existing sources of air pollution to impact the proposed uses. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect air quality by assessing Prototypical Analysis Sites.

TASK 16. GREENHOUSE GAS EMISSIONS

As noted in the *CEQR Technical Manual*, increased concentrations of greenhouse gases (GHGs) are changing the global climate, resulting in wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change are also likely to be felt at the local level. Through *PlaNYC*, New York City's long-term sustainability program, the City advances sustainability initiatives and goals to both greatly reduce GHG emissions and increase the City's resilience to climate change. The New York City Climate Protection Act, enacted as Local Law 22 of 2008, established the goal to reduce citywide GHG emissions to 30 percent below 2005 levels by 2030 (the "GHG reduction goal"). This goal was developed for planning for an increase in population of almost one million residents while achieving significant GHG reductions. The EIS for the Proposed Action will include a preliminary screening assessment of GHG emissions, and, if warranted, a more detailed analysis will be provided. Prototypical Analysis Sites will guide this assessment, because specific locations of future development projects are unknown.

TASK 17. NOISE

The *CEQR Technical Manual* requires an assessment of the Proposed Action's potential effects on sensitive noise receptors (including residences, healthcare facilities, schools, open space, etc.) and the potential noise exposure at any new sensitive receptors introduced by the Proposed Action. Based on the projected likely effects of the Proposed Action, the EIS will include a noise assessment in accordance with the *CEQR Technical Manual*. Consistent with the analytic framework described above, the EIS will consider the Proposed Action's potential to adversely affect noise by assessing Prototypical Assessment Sites.

TASK 18. PUBLIC HEALTH

According to the *CEQR Technical Manual*, public health is the organized effort of society to protect and improve the health and well-being of the population through monitoring; assessment as surveillance; health promotion; prevention of disease, injury, disorder, disability and premature death; and reducing inequalities in health status. A public health assessment may be warranted if an unmitigated significant adverse impact

is identified in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect public health by assessing Prototypical Analysis Sites.

TASK 19. NEIGHBORHOOD CHARACTER

The *CEQR Technical Manual* defines neighborhood character as a mixture of the various elements that give neighborhoods their distinct personality. These elements can include land use, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, transportation and noise, but not all these elements contribute to neighborhood character in all cases. For neighborhood character, CEQR considers how those elements combine to create the context and feeling of a neighborhood, and how an action would affect that context.

According to the *CEQR Technical Manual*, an assessment of neighborhood character may be appropriate if a proposed action impacts any of those individual elements within a neighborhood. It is also possible that several moderate changes in the elements that contribute to a neighborhood's character could lead to a significant impact on neighborhood character. Generally, neighborhood character impacts are rare, and it would be unusual that, in the absence of a significant adverse impact in any of the relevant technical areas, a combination of moderate effects to the neighborhood would result in an impact to neighborhood character. Moreover, a significant impact identified in one of the technical areas that contribute to a neighborhood's character is not automatically equivalent to a significant impact on neighborhood character, but rather serves as an indication that neighborhood character should be examined.

Methodologies outlined in the *CEQR Technical Manual* will be used to provide an assessment of the Proposed Action on neighborhood character. Consistent with the analytical framework described above, the EIS will consider the Proposed Action's potential to adversely affect neighborhood character by assessing Prototypical Analysis Sites using a qualitative non-site-specific approach.

TASK 20. CONSTRUCTION

Construction impacts, although temporary, can have a disruptive and noticeable effect on the adjacent community, as well as people passing through the area. Construction impacts are usually important when construction activity has the potential to affect transportation conditions, archaeological resources and the integrity of historic resources, community noise patterns, air quality conditions, and mitigation of hazardous materials. This chapter of the EIS will provide a preliminary impact assessment following the guidance in the *CEQR Technical Manual*. Although not anticipated, if additional analysis is required, a detailed assessment of the Prototypical Analysis Sites will be conducted.

TASK 21. MITIGATION

Where significant adverse impacts have been identified in the analyses discussed above, measures will be described to mitigate those impacts, to the extent practicable and feasible. Where impacts cannot be mitigated, they will be identified as unavoidable adverse impacts.

TASK 22. ALTERNATIVES

CEQR requires an analysis of a No-Action Alternative (without the Proposed Action), which in this case assumes that the zoning text and map amendments are not implemented and the 2013 Flood Text and 2015

Recovery Text have expired. Additional alternatives and variations of the Proposed Action will be identified based on any significant adverse impacts identified in the EIS. As noted above, there will be two With-Action scenarios for each Prototypical Analysis Site to illustrate the impact of the Proposed Action in both the 1% annual chance floodplain and the 0.2% annual chance floodplain. Both With-Action scenarios assume that the 2013 Flood Text and 2015 Recovery Text have been superseded by the Proposed Action, and most building owners have the flexibility of incorporating future flood risks when making resiliency investments. Other alternatives to be analyzed would include an alternative or alternatives to reduce or avoid any significant adverse impacts of the Proposed Action. The analysis of each alternative will be qualitative, except where quantitative impacts of the Proposed Action have been identified.

TASK 23. CONCEPTUAL DEVELOPMENT

Because the Proposed Action would create new, discretionary actions to be considered by the BSA and establish emergency provisions that could be triggered quickly through a CPC authorization, an assessment of the potential environmental impacts that could result from these actions is needed. However, because it is not possible to predict whether a discretionary action would be pursued on any one site in the future, or where applicable “Recovery Areas” would be located, the RWCDS for the Proposed Action does not consider specific developments. Instead, a conceptual analysis will evaluate the new, discretionary actions that could be used to generically assess the potential environmental impacts.

TASK 24. SUMMARY EIS CHAPTERS

Several summary chapters will be prepared, focusing on various aspects of the EIS, as set forth in the regulations and the *CEQR Technical Manual*. Chapters are as follows:

- Executive Summary. Once the EIS technical sections have been prepared, a concise executive summary will be drafted. The executive summary will incorporate relevant material from the body of the EIS to describe the Proposed Action, its environmental impacts, measures to mitigate those impacts, and alternatives to the Proposed Action.
- Unavoidable Adverse Impacts. Those impacts, if any, that could not be avoided and could not be practicably mitigated, will be listed in this chapter.
- Growth-Inducing Aspects of the Proposed Project. This chapter will focus on whether the Proposed Action have the potential to induce new development within the surrounding area.
- Irreversible and Irretrievable Commitments of Resources. This chapter will focus on those resources, such as energy and construction materials, that would be irretrievably committed through implementation of the Proposed Action.