Zoning for Coastal Flood Resiliency

CEQR No. 19DCP192Y
ULURP No. N210095 ZRY

Lead Agency:
New York City Department of City Planning

October 16, 2020

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Final Scope of Work for an Environmental Impact Statement

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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 affected by Hurricane Sandy and to help ensure that new construction there would be more resilient. 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. Applicability of the 2015 Recovery Text expired in July 2020. Therefore, DCP is proposing a citywide zoning text amendment, "Zoning for Coastal Flood Resiliency" (the "Proposed Action"), to improve upon and make permanent the relevant provisions of the existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text. In addition, the Proposed Action includes special provisions to help facilitate the city's long-term recovery from the COVID-19 pandemic and its associated economic effects by providing more time for existing non-conforming uses to reopen and for builders to undertake certain construction projects. The Proposed Action also includes updates to other sections of the ZR, including the Special Regulations Applying in the Waterfront Area (Article VI, Chapter 2) and provisions within various Special Purpose Districts.

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 coastal flood events, (b) be resilient in the long-term by accounting for climate change, and (c) potentially save on long-term flood insurance costs. In addition, it would allow resiliency improvements to be more easily incorporated on waterfront sites at the water's edge and in public spaces, as well as provide zoning regulations to help facilitate the city's long-term recovery from the COVID-19 pandemic and other future disasters. Overall, implementation of the Proposed Action would improve the ability of the city to withstand and recover quickly from future storms or other disaster events.

The Proposed Action would mostly affect New York City's current 1% annual and 0.2% annual chance floodplains (illustrated in **Figure 1**). However, select provisions of the Proposed Action would be applicable citywide (discussed in detail 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

Citywide FEMA Floodplains

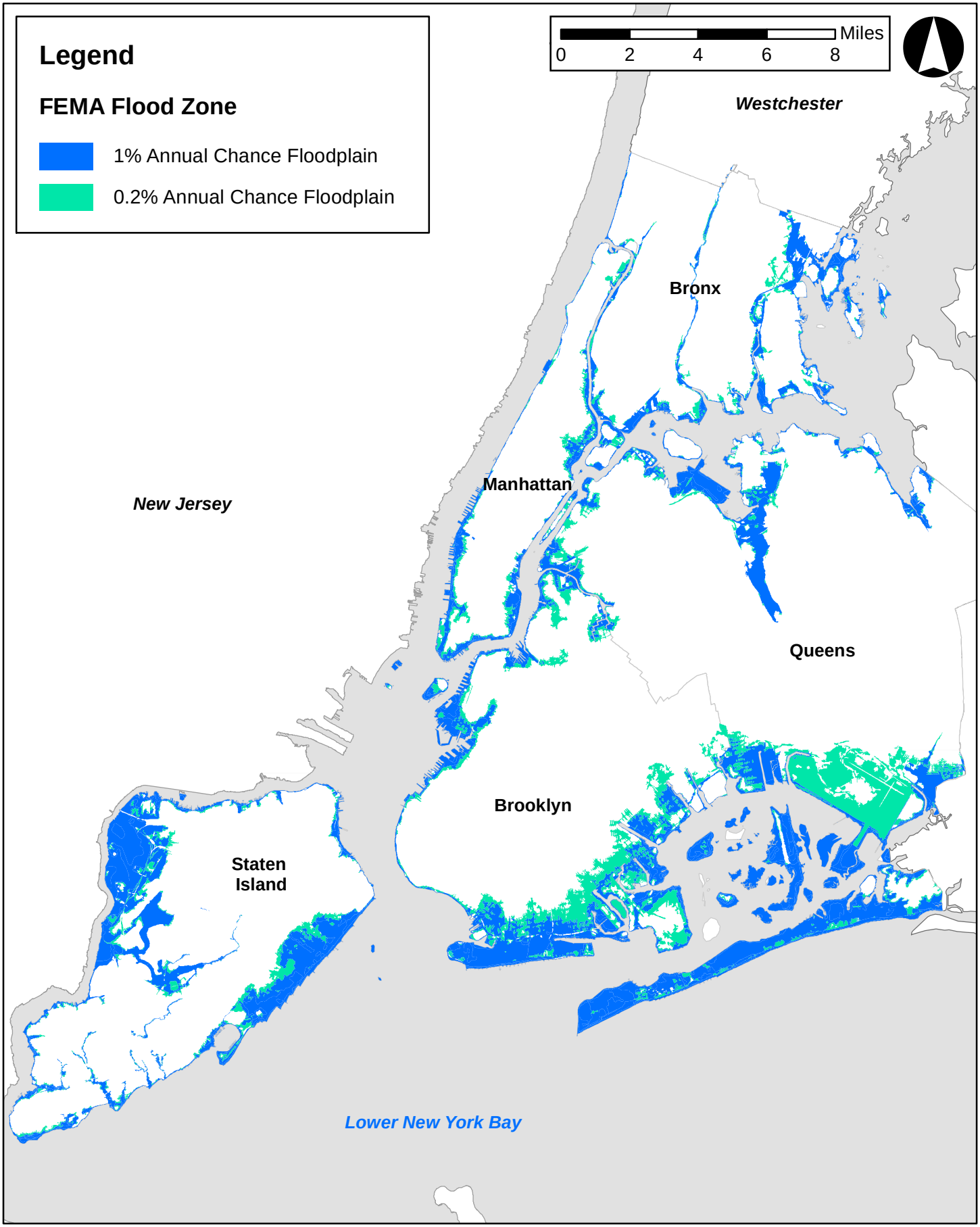


Figure 1b

FEMA Floodplains: Bronx

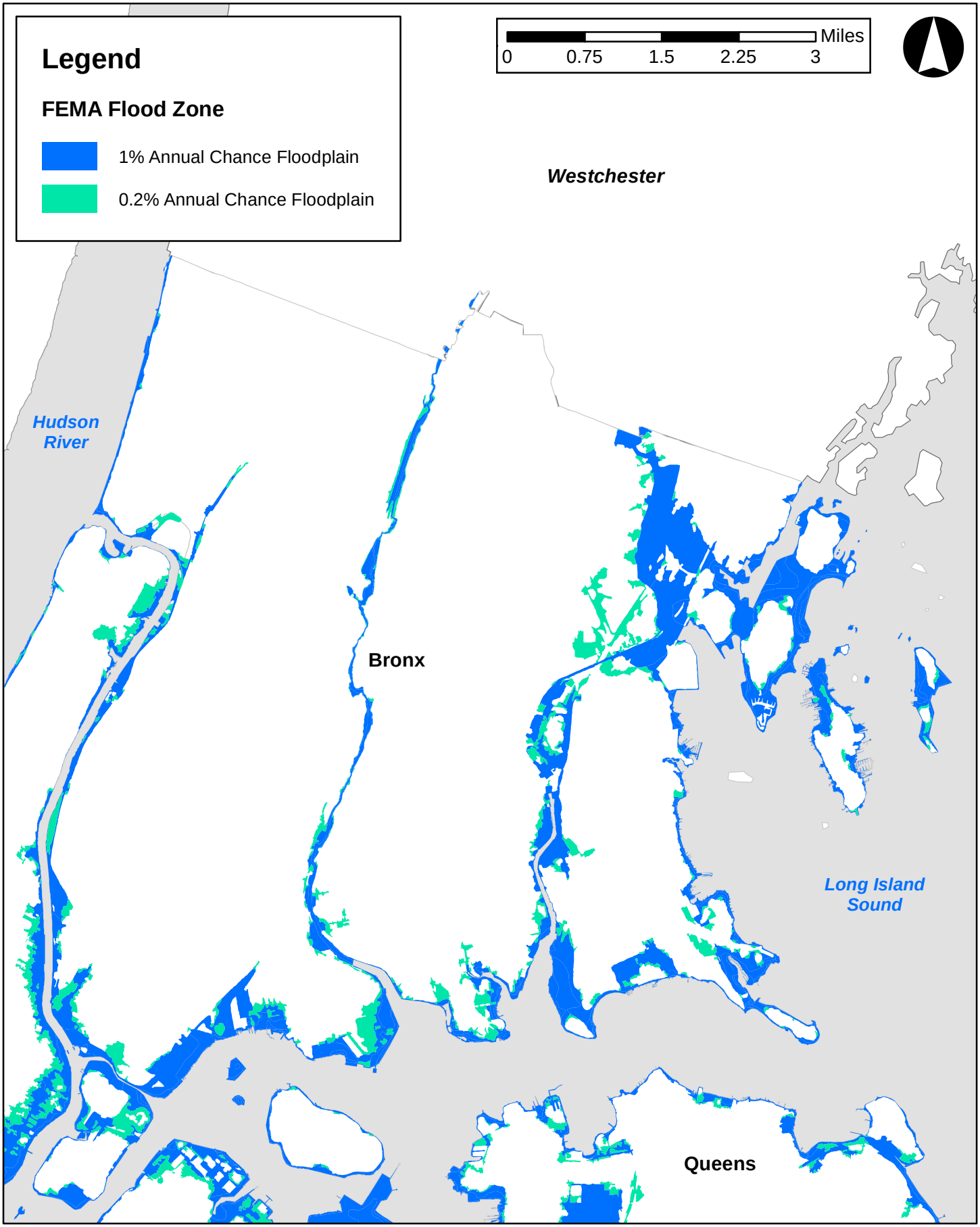


Figure 1c

FEMA Floodplains: Brooklyn

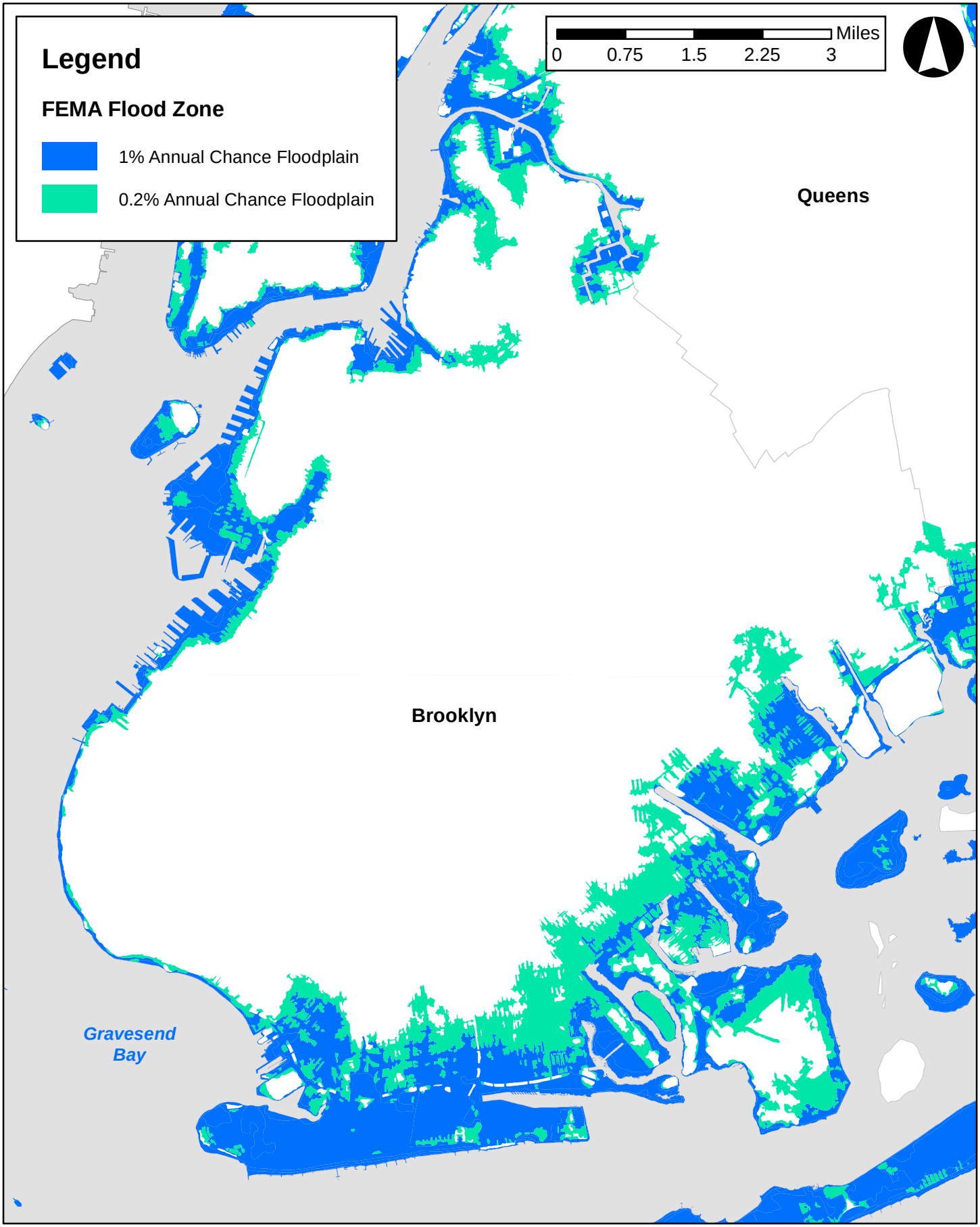


Figure 1d

FEMA Floodplains: Manhattan

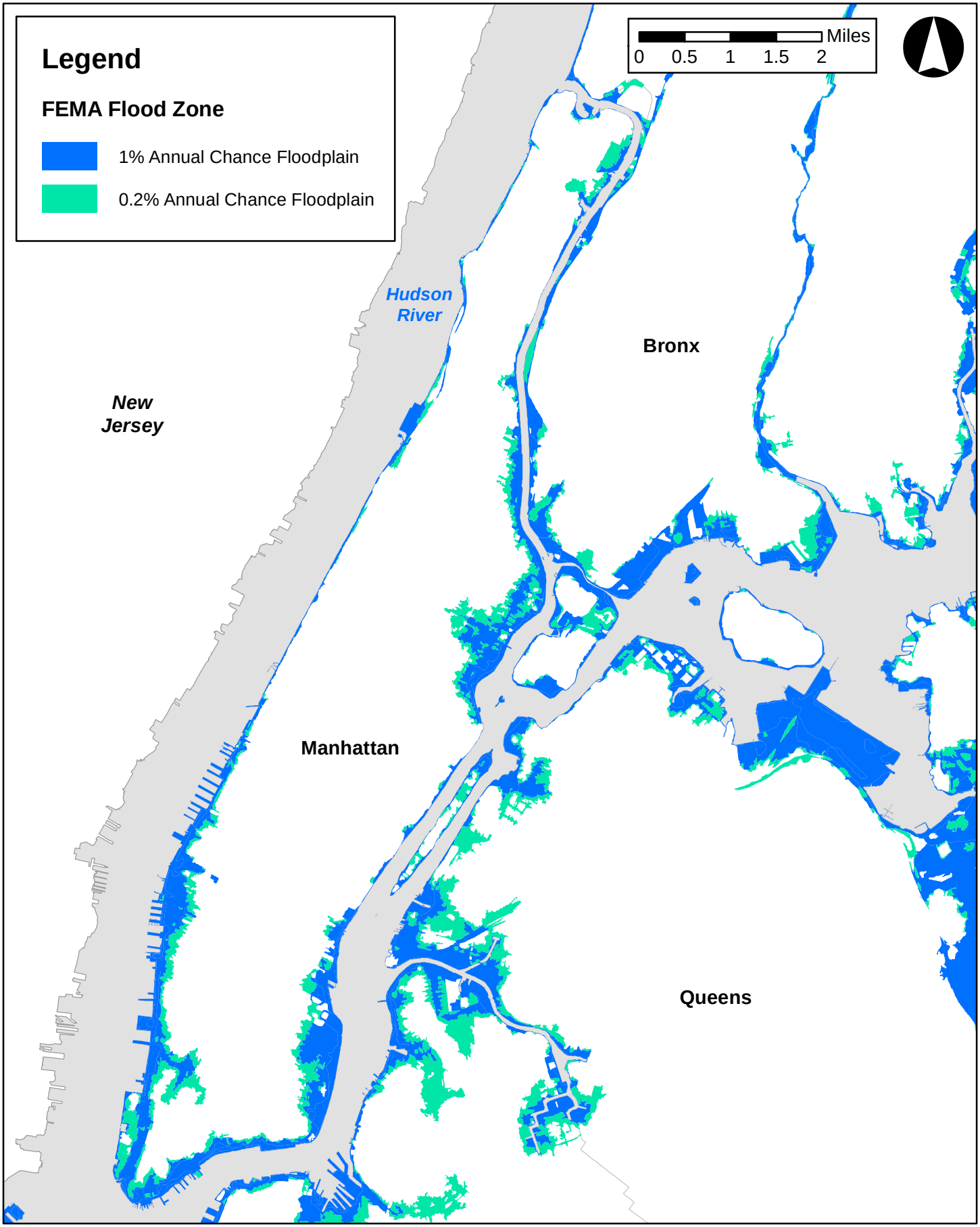


Figure 1e

FEMA Floodplains: Queens

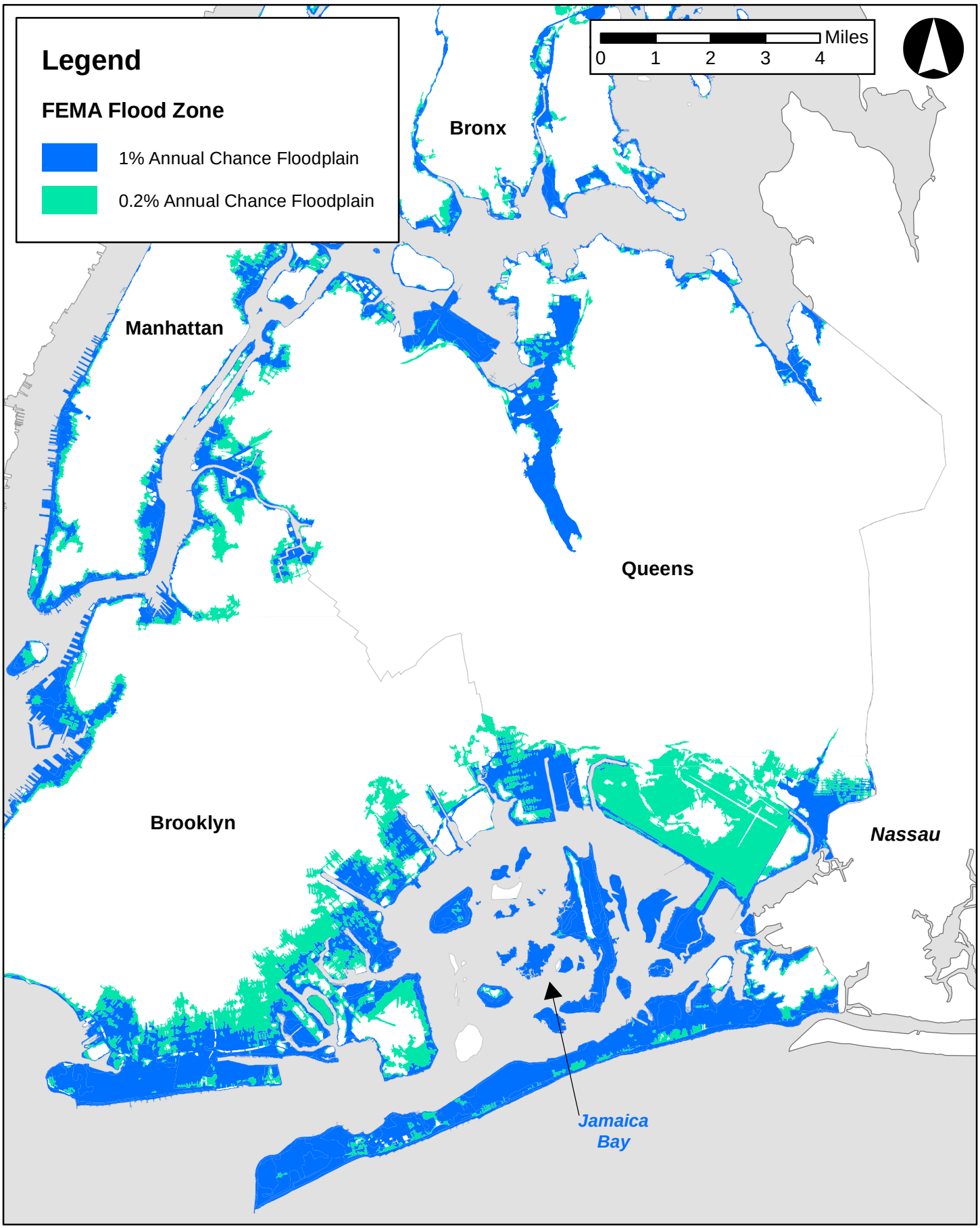
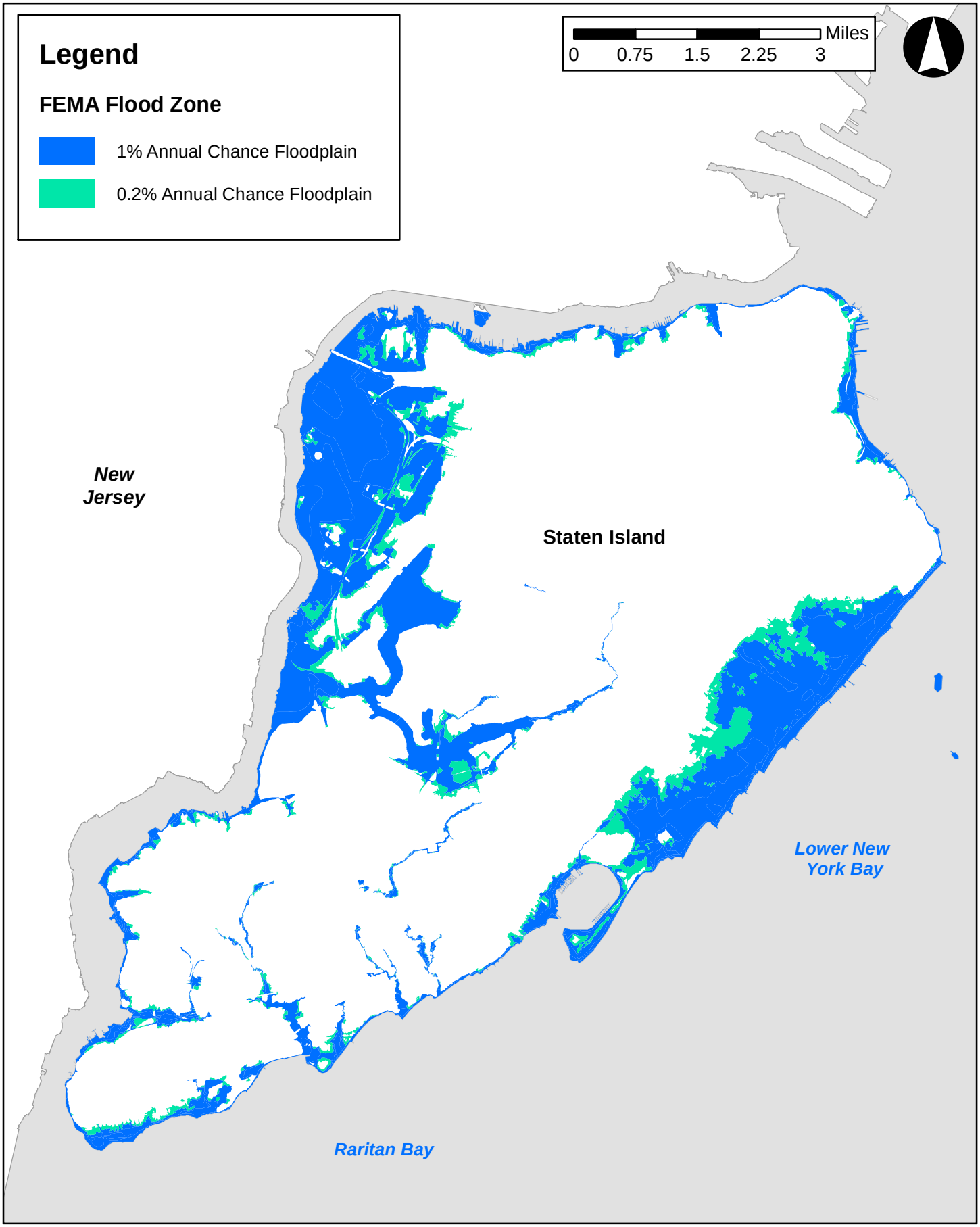


Figure 1f

FEMA Floodplains: Staten Island



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 and lots in both the city's 1% annual and 0.2% annual chance floodplains would be able to pursue resiliency improvements to partially meet, fully meet, or exceed flood-resistant construction standards, even when these standards are not required by FEMA or Appendix G of the New York City Building Code.
2. **An enhanced building envelope:** Zoning allowances coupled with revised design requirements would allow building owners to more effectively factor 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 maintains an inviting streetscape.
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 projected flooding heights on roofs or in new, separate structures that would elevate a site's MEP equipment.
4. **A zoning framework that facilitates recovery from future disasters:** A regulatory structure would be established to facilitate the recovery from potential future disasters. Given the present COVID-19 pandemic, selective provisions would be included to facilitate the present recovery. The Proposed Action would also limit the growth of nursing homes and other similar facilities in flood prone areas. This would increase the safety of particularly vulnerable populations and allow the City to more effectively assist impacted areas.

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 and environmental reviews, but are moving in parallel with the citywide zoning text amendment.

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 otherwise 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 adverse 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,

[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.

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 *Final Scope of Work* was prepared in accordance with those laws and regulations and the *CEQR Technical Manual*.

In accordance with CEQR, this *Final Scope of Work* is being distributed for public review. A public meeting for the *Draft Scope of* Work was 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 remained open until Thursday, June 27, 2019 (refer to **Appendices B** and **C**). This *Final Scope of Work* was then 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 Coastal 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 its extensive and varied shoreline, NYC is vulnerable to coastal 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. The rates for this flood insurance vary depending on the property's location, height above sea level and general building characteristics. These rates can be substantially reduced when subgrade spaces, such as basements and cellars are filled in residential buildings, and when living spaces are elevated above the base flood elevation (BFE).[3]

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 Districts 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

[3] 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.

people.[4] In industrial areas, it contains roughly 3,600 private businesses that employ approximately 87,000 people.[5] 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.

Table 1: Number of Lots and Buildings in the Floodplain

	1% Annual Chance[6] (FIRM + PFIRM)	0.2% Annual Chance[7] (FIRM + PFIRM)	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, 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 **Figures 2 and 3**). 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

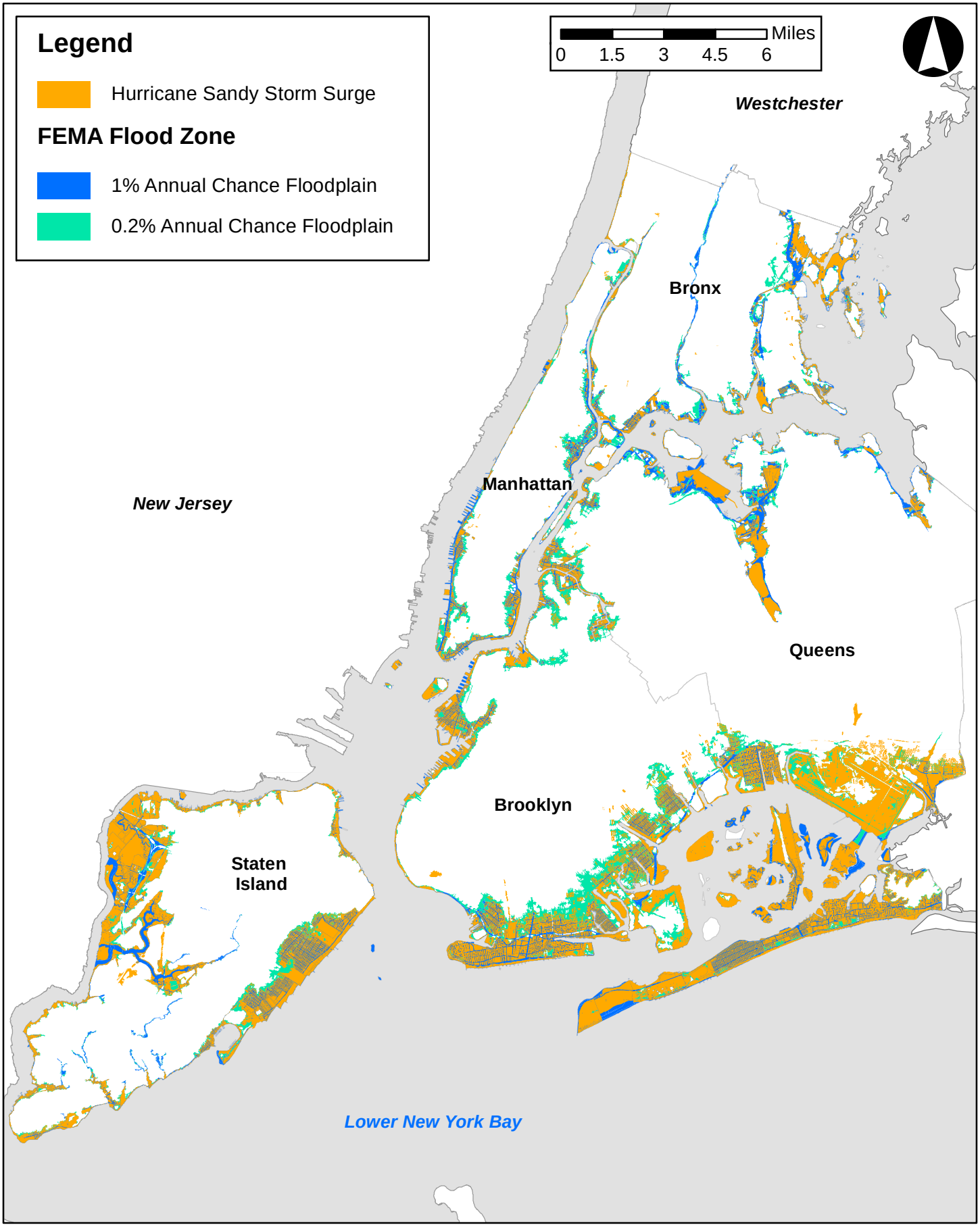
[4] NYC Planning, *Resilient Retail* (2016). New York City, NY. Source: www.nyc.gov/resilientretail

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

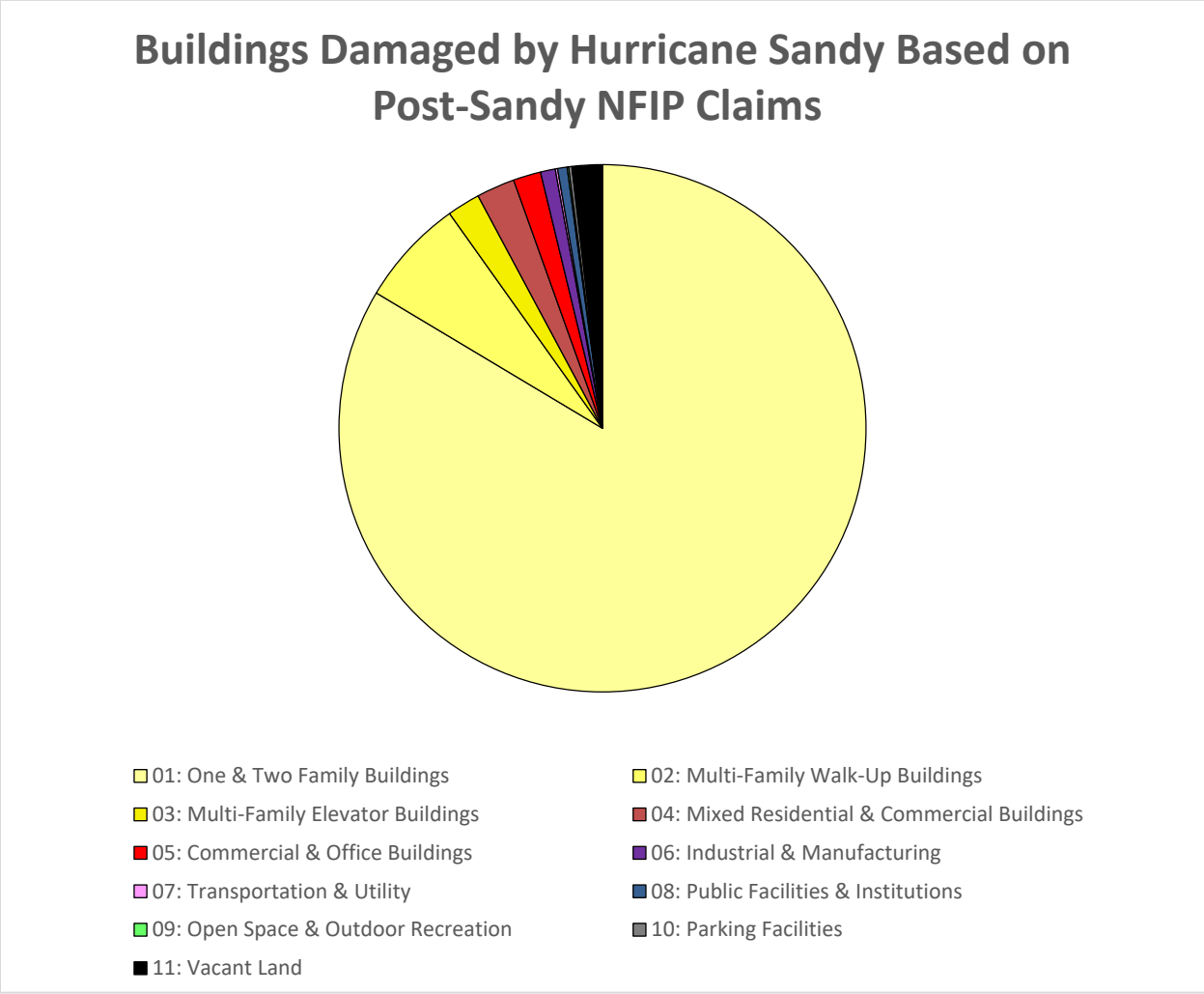
[6] The 1% annual chance floodplain, also referred to as the "100-year floodplain," is the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year, and is designated on the FEMA FIRMs and PFIRMs.

[7] The 0.2% annual chance floodplain, also referred to as the "500-year floodplain," is the area that will be inundated by the flood event having a 0.2-percent chance of being equaled or exceeded in any given year, and is designated on FEMA's FIRMs and PFIRMs. The area of the City's 0.2% annual chance floodplain officially includes the area of the 1% annual chance floodplain. However, for the purposes of clarity in this document, the term 0.2% annual chance floodplain will only refer to that portion of the overall floodplain exclusive of the 1% annual chance floodplain.

Hurricane Sandy Storm Surge



Buildings Damaged by Hurricane Sandy in New York City



Source: *NYC DCP*

The City's Regulatory Framework in the Floodplain

The need to quickly recover from Hurricane Sandy uncovered several regulatory conflicts between the construction standards in Appendix G of the NYC Building Code, 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 and enforced by DOB. Within the 1% annual chance floodplain, Appendix G currently requires all habitable spaces of new construction, and existing buildings that were substantially damaged, or are undertaking substantial improvements[8] to be raised above the Design Flood Elevation (DFE).[9] 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 uses.[10] 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 Appendix G.

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 Contextual 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) 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 the requirements

[8] 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.

[9] 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.

[10] 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.

of Appendix G. The subsequent 2015 Recovery Text simplified the process for old buildings to document non-compliances,[12] and established new rules to allow damaged homes located within narrow and small lots to be reconstructed.

Both 2013 and 2015 zoning changes also supported 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 local 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. As an example, in 2017, the City established Special Coastal Risk Districts in Broad Channel and Hamilton Beach, Queens to limit future density in these areas due to their exceptional vulnerability to coastal storms and projected daily tidal flooding due to sea level rise. On a citywide level, the City's land use strategy has aimed to maintain prevailing land uses and the planned density across neighborhoods in the floodplain while encouraging buildings and neighborhoods of all types to become resilient in the long-term.

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 New York Codes, Rules, and Regulations (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 applicability of the 2015 Recovery Text expired in July 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 with the 2013 Flood Text regulations are provided in **Appendix A** to show a comparison of what exists today and what the Proposed Action is modifying and improving.

COVID-19 Pandemic Recovery

New York City encountered its first case of COVID-19 on March 1, 2020 and, on March 7, Governor Andrew Cuomo declared a State disaster emergency for the entire state to address the threat the virus posed to the health and welfare of New York residents and visitors. With cases quickly increasing over the next few weeks, the Governor announced a full stay-at-home order for all non-essential workers on March 20 and halted all non-essential construction on March 27. The City's Uniform Land Use Review Procedure (ULURP) was suspended on March 16.

As of mid-July, over 220,000 cases and 22,000 deaths were reported in the city, making it one of the global centers of the pandemic. In addition, the city's economy was greatly impacted by the shutdown, losing nearly one million jobs in the span of only a few weeks.

To help address these issues, Mayor Bill de Blasio issued Emergency Executive Order No. 98 on March 12 which included a declaration of a state of emergency in the city due to the virus. This order was updated repeatedly and soon also addressed legally imposed deadlines for the filing of certain documents or for the completion of other required actions since the measures taken to combat the spread of the virus could prevent individuals, business and other entities from meeting them. These measures were generally intended to provide more time for businesses to reopen and builders to complete construction projects. However, these allowances cannot be extended beyond the timeframe of the Emergency Order.

[12] 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.

D. PURPOSE & NEED

The Proposed Action would provide those homeowners, business owners, and practitioners who live and work in the city's floodplain the option to design or otherwise retrofit buildings to: (a) reduce damage from future coastal flood events, (b) be resilient in the long-term by accounting for climate change, and (c) potentially save on long-term flood insurance costs. In addition, it would allow resiliency improvements to be more easily incorporated on waterfront sites at the water's edge and in public spaces, as well as provide zoning regulations to help facilitate the city's long-term recovery from the COVID-19 pandemic and other future disasters. Overall, implementation of the Proposed Action would improve the ability of the city to withstand and recover quickly from future storms or other disaster events.

The Proposed Action builds upon the 2013 Flood Text and the 2015 Recovery Text which were approved in the aftermath of Hurricane Sandy. These temporary zoning rules, adopted on an emergency basis, removed many of the zoning barriers hindering the reconstruction and retrofitting of buildings affected by the storm and helped ensure that new construction in these locations would be more resilient. The 2013 Flood Text provisions are set to expire with the adoption of new and final FEMA Flood Insurance Rate Maps, anticipated to occur in the next few years. Applicability of the 2015 Recovery Text expired in July 2020. If these rules are not made permanent, it would limit the ability of owners to protect existing vulnerable buildings from flooding and would disincentivize more resilient construction in the floodplain.

Therefore, the Proposed Action would make permanent the temporary zoning rules of these previous actions, but also improve upon them based on lessons learned since their original implementation through DCP's analysis of resilient construction in the floodplain, coordination with partner City agencies, and community feedback received during public engagement since Hurricane Sandy.

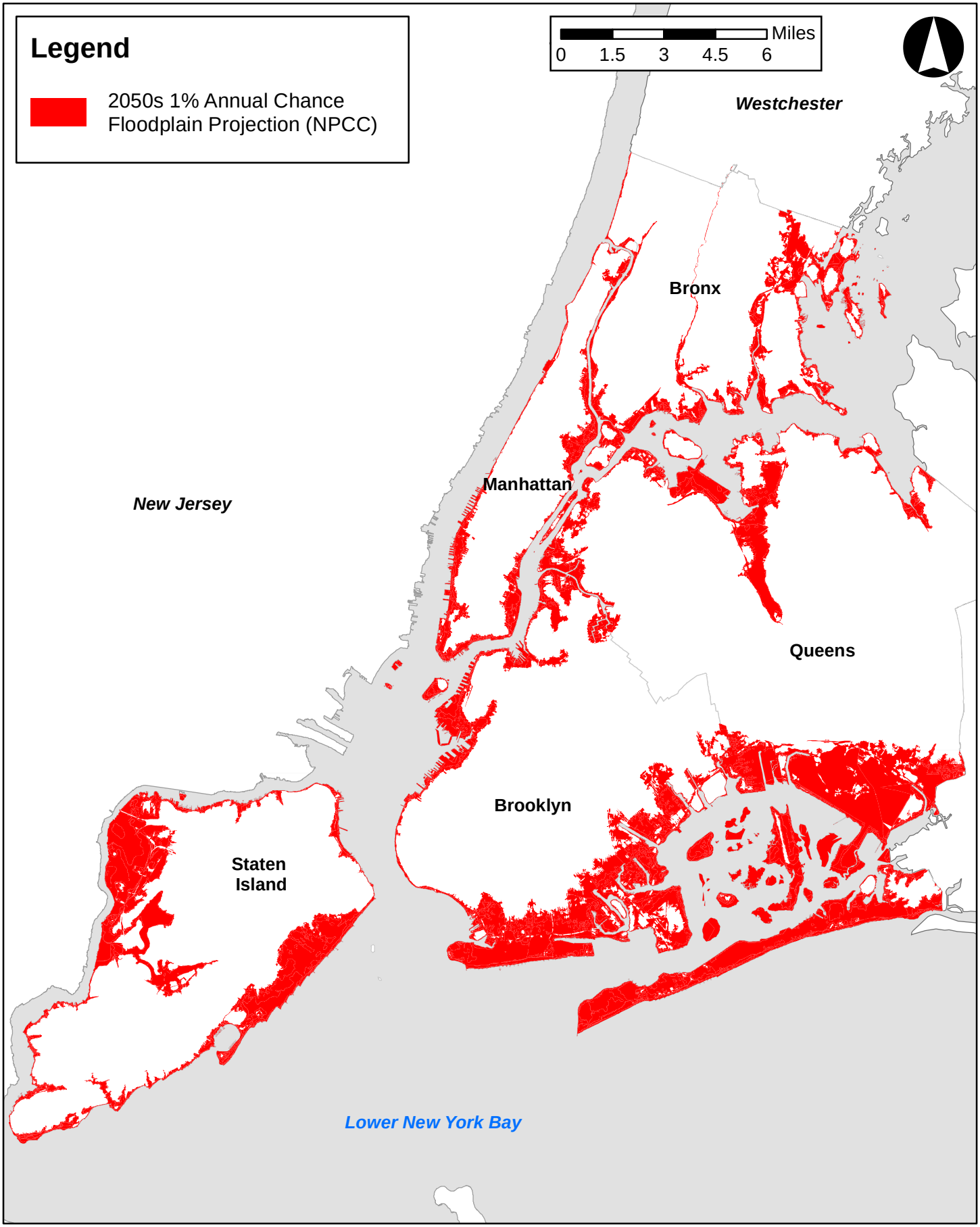
Most critically, the 2013 Flood Text and the 2015 Recovery Text focused on modifying zoning regulations so that buildings could be constructed or modified to meet minimum requirements set forth in Appendix G of the Building Code. However, the city's flood risk will continue to increase with climate change, 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.

To supplement and inform future flood risk, the City relies on the findings of the New York City Panel on Climate Change (NPCC). The NPCC is a group of scientists and private sector experts that provides climate change projections for the city. NPCC's most recent report, released in early 2019, provides the latest estimates for sea level rise (SLR) in the city. The projections take into account different climate change scenarios and inputs to arrive at high- and low-range SLR projections for the 2020s, 2050s, 2080s, and 2100. The NPCC projects that the city could experience 28 inches of sea level rise at the 90th percentile of its estimation in the 2050s. The City uses the NPCC's high-range sea level rise projections for the 2050s as its actionable data to inform land use and capital planning considerations, including the Proposed Action. The City continues to monitor the NPCC's projections as they evolve over time because the science and underlying data are not static and will continue to advance.

Based on data provided by the NPCC, by the 2050s, the 1% annual chance floodplain is projected to cover one-quarter of the city's total landmass by the 2050s (refer to **Figure 4**).[14] 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. As a

[14] 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



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.

Beyond this, there are other issues that need to be addressed to ensure that the zoning regulations applicable in the floodplain allow for all types of buildings in neighborhoods across the city to be resilient in the long term. Each neighborhood in the floodplain faces different challenges to adapt to climate change. For instance, most of the floodplain is characterized by low-density communities that contain a prevalence of single- and two-family homes that are highly vulnerable to flooding but are also easier to retrofit since they often can be physically elevated. There are also medium- and high-density neighborhoods in the floodplain, which contain larger multi-family structures that make it more difficult and more expensive to fully comply with resiliency standards but can be protected over time through incremental resiliency improvements. The floodplain also hosts different types of commercial corridors and industrial areas that need to be protected. These areas play an important role in providing services to residents in the floodplain, and in serving critical functions that support the city's overall population and economy. However, businesses face challenges to incorporate resiliency improvements while keeping a functional operation that largely depends on being at grade. These uses will therefore have to explore incremental resiliency improvements and creative solutions to increase the building's safety over time.

Through its public outreach efforts and analyses, DCP has identified that the current zoning regulations are predominantly focused on low-density residential areas – which were heavily impacted by Hurricane Sandy – and they less effectively address the wider variety of conditions found in the city's floodplain. This makes it less likely that other areas, such as retail corridors, can become resilient over time. In addition, some of the regulations themselves have been found to be not always well calibrated, sometimes hampering the ability to conduct resiliency improvements while at other times leading to buildings out of scale with their surroundings or with unwelcoming blank walls at street level. These inconsistencies sometimes even occur along the same streets. This is an outcome of the necessarily fast-paced nature of the response to the 2012 hurricane, with DCP and other agencies making their best attempt to create zoning regulations to address situations never before seen in the city. With more than seven years of experience under the current floodplain regulations, some of these inconsistencies have become clear and must be addressed so that buildings and, by extension, neighborhoods in the city's floodplain can become resilient.

It will take time for New York City's building stock to adapt to climate change because only a small portion of these buildings currently meet the requirements of Appendix G of the Building Code. Nevertheless, the city believes that resilient construction should become the new normal in the floodplain. By making the current regulations permanent and addressing the various identified issues with them, the Proposed Action would facilitate this goal and make for more resilient neighborhoods, since places with a resilient building stock would be able to bounce back more quickly from a coastal flood event. In conjunction with coastal protection strategies and infrastructure improvements that are being pursued by the City collectively with other state and federal agencies, this will help the City to fully realize the vision of a more resilient New York City.

Finally, the City's experience recovering from Hurricane Sandy and the current COVID-19 pandemic makes clear that zoning should include rules that can help facilitate long-term disaster recovery. While the storm pointed out the need for provisions that make it easier to reconstruct damaged buildings after a disaster like a hurricane, there is also a need for zoning regulations to address the associated economic effects from disasters like the pandemic, even if they do not cause physical damage. All rules should be able to be made applicable quickly after a disaster strikes the city, as with the COVID-19 pandemic, but should last no longer than necessary to facilitate the recovery. Beyond this, the city can be made less susceptible to future disasters by undertaking zoning changes that keep vulnerable populations in nursing homes out of harm's way and by allowing for a more resilient energy grid.

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 current and future floodplains.
All building owners in areas at risk of being flooded should have the option to proactively incorporate resiliency standards into their buildings, even when these standards are not required by FEMA and Appendix G of the New York City Building Code.

Goal 2. Support long-term resilient design of all building types.
Zoning rules in the floodplain should facilitate protection from coastal flooding in the near and long-term future, independently of the building's age, typology or specific location.

Goal 3. Allow for adaptation over time through partial resiliency strategies.
Building owners should be able to incrementally incorporate resiliency improvements into all buildings and waterfront sites, including existing structures that are not able to fully meet Appendix G.

Goal 4. Facilitate future recovery by reducing regulatory obstacles.
Zoning rules should assist vulnerable populations and the recovery process after a future storm or other type of disaster, including the ongoing COVID-19 pandemic.

While the Proposed Action includes a range of zoning changes to meet these four goals, it would continue the overarching goal of the 2013 Flood Text to maintain prevailing land uses and the planned density in neighborhoods across the floodplain, while helping buildings and neighborhoods of all types to be resilient in the long-term. The following section gives an overview of the proposed text amendment, categorized by the four goals outlined above.

E. DESCRIPTION OF THE PROPOSED ACTION

Like the 2013 Flood Text and the 2015 Recovery Text, the Proposed Action would generally provide optional zoning rules in the floodplain for buildings to fully incorporate "flood-resistant construction standards,"[15] but also for those who may want to incorporate incremental resiliency improvements to protect their buildings against flooding over time, as described in more detail below. Given the scale and variety of the city's floodplain, the Proposed Action necessarily includes modifications to many existing zoning regulations. These changes generally allow habitable spaces and other building support features to be better protected and raised out of harm's way and address the effect these elevated spaces can have on the city's streetscape. The Proposed Action also includes provisions with applicability beyond the floodplain to help address a wider variety of situations.

[15] "Flood-resistant construction standards" are the construction standards set forth in Appendix G of the NYC Building Code for "Post-FIRM Construction" (as defined therein) applied up to the flood-resistant construction elevation or higher to aid in protecting buildings in the floodplain from flood damage, governing both buildings that are required to comply with such standards and those that voluntarily comply.

Goal 1. Encourage resiliency throughout the current and future floodplains.

The Proposed Action would modify zoning regulations to allow building owners throughout the floodplain to proactively incorporate resiliency improvements in their buildings by expanding the applicability of the optional rules.

Expanding Beyond the Current 1% Annual Chance Floodplain

The Proposed Action would greatly expand the current availability of optional regulations to allow more building owners to design or retrofit their buildings to meet "flood-resistant construction standards" proactively. The existing 2013 Flood Text only applies in the 1% annual chance floodplain. As a result, for buildings in the 0.2% annual chance floodplain, there are no zoning regulations to facilitate or encourage resiliency improvements. While most uses in this area are not required to comply with Appendix G, the current 0.2% annual chance floodplain will become more vulnerable to flooding in the future as sea-level rise projections show flood risk increasing over time. To address this, the Proposed Action would apply to both the 1% annual chance floodplain and the 0.2% annual chance floodplain.[16] The City believes that the 0.2% annual chance floodplain geography is a valid proxy for the projected 1% annual chance floodplain in the 2050s (**Figure 4**) and that this geographic expansion is a sensible precautionary approach that would allow the city to proactively adapt to future flood risk. Eligibility within these two geographies would be determined at the time of a building permit application.

Expanding to Lots

The Proposed Action would simplify the design process and encourage more building owners to proactively meet "flood-resistant construction standards" by determining applicability based on their zoning lot. The 2013 Flood Text provisions are currently applicable only to buildings located wholly or partially within the 1% annual chance floodplain. For example, in a residential campus with multiple buildings where only some of which are in the 1% annual chance floodplain, the 2013 Flood Text zoning allowances and flood protection standards cannot be applied to all buildings, making the design process more complex—and ultimately costly—since each building would have to follow different zoning rules. Along streets, this standard produces inconsistent results where only some specific buildings touch the floodplain edge. By determining eligibility based on whether the zoning lot is both wholly or partially within the floodplain, the Proposed Action would produce a more consistent outcome and be more in line with applicability requirements in the rest of the ZR.

Goal 2. Support long-term resilient design for all building types.

The Proposed Action would include optional zoning regulations that better enable building owners to make their buildings more resilient by physically elevating habitable spaces and other building support features above expected flood elevations. These would generally modify existing regulations for building envelopes and ground floors, as well as address more unique situations. When these allowances are used, buildings would have to comply with "flood-resistant construction standards" and a new set of streetscape requirements meant to improve the relationship between the raised building and its surroundings.

[16] In the proposed text amendment, the 1% annual chance floodplain is defined as the "high-risk flood zone" and the 0.2% annual chance floodplain is defined as the "moderate-risk flood zone."

Accommodating Current and Future Flood Risk in the Building Envelope

The Proposed Action includes optional modifications of various building envelope regulations to better allow habitable spaces to be raised above flood levels.

Flood-Resistant Construction Elevation

The Proposed Action would continue to provide additional building height where building owners are required or are opting to meet Appendix G floodproofing standards.

All zoning districts have height and setback regulations that govern the size and shape of buildings. Their heights are measured from different starting points depending on the type of building and the zoning district. For example, the maximum height of a single-family residence in a lower-density contextual Residence District (typically 35 feet) is measured from the "base plane," which is generally located between the elevation of the curb and the average natural grade along the building facade.

Since 1989, in the 1% annual chance floodplain, required heights in the ZR can be measured from the BFE to allow building owners to construct habitable space above the elevations which FEMA projects would be inundated by flooding without losing buildable space. However, it has been identified that pre-1989 buildings could utilize this extra height for enlargements without providing any floodproofing, as long as the improvement did not trigger compliance with Appendix G.

In the aftermath of Hurricane Sandy, DOB changed the Building Code to require that buildings in the 1% annual chance floodplain locate all living spaces at or above the DFE which, depending on building type, requires an extra one or two feet above the BFE as an extra measure of safety. The 2013 Flood Text embedded this rule into the ZR by allowing heights in all zoning districts to be measured from the "flood-resistant construction elevation" (FRCE), which is generally synonymous with the DFE in the current rules. The underlying building envelope associated with building types and zoning districts did not change; the only change was to the height from where the envelope was measured. With this modification, building owners can meet the requirements of Appendix G without sacrificing living space.

The Proposed Action would continue to allow building envelopes across all zoning districts to be measured from the FRCE. In addition, such term would be revised to add certain clarifications. The FRCE will be required to not be lower than two feet above lowest adjacent grade to ensure a minimum level of floodproofing. In the 0.2% floodplain, where compliance with Appendix G is voluntary and no DFEs exist, this two foot minimum level of protection would also apply. Coupled with required compliance with the "flood-resistant construction standards," this would mean that no living space would be located below the FRCE, and below grade basements and cellars would not be built in residences. In addition, essential facilities (such as hospitals) would be able to measure height from the 500-year flood elevation, which is required by Appendix G. Finally, the allowance to measure height from the BFE would be removed to ensure a consistent framework and any additional height would be tied to flood-resistant improvements.

Reference Plane

The Proposed Action would include a consistent framework for additional building height to encourage building owners to address long-term climate change, lower insurance costs and provide usable spaces at grade.

Acknowledging that there may be situations where the FRCE height could result in spaces with awkward heights that could deleteriously impact the streetscape, the 2013 Flood Text allows the reference point at which heights are measured to be adjusted upwards to create more practical and viable ground floor spaces. This alternate reference plane is available in areas where the BFE equals or exceeds four feet, and the plane's maximum height (ranging from 9 to 12 feet) is dependent on the zoning district and building use.

While the notion of an alternative reference plane has proven sensible, there are issues with the specific ways it is applied. First, varying the reference point based on the building type and zoning district creates a highly complex framework that benefits some buildings more than others. This leads to inconsistent outcomes, sometimes even along the same street due to minor changes in the topography. Additionally, the BFE height necessary to use the reference plane limits its applicability since most of the buildings in the 1% annual chance floodplain are subject to a lower BFE. This means that most building owners in the floodplain can only measure building height from the FRCE, whose lower height only encourages compliance with the minimum construction standards set forth in Appendix G, making it difficult for building owners to over-elevate their buildings without sacrificing living space. This means that building owners cannot easily incorporate sea level projections into their building design (the NPCC projects that New York City would be subject to approximately 30 inches of sea level rise by the 2050s)[17] or maximize their flood insurance reduction (which is generally achieved when the first occupiable floor is placed four feet above the BFE).

To create a consistent framework for height measurement that addresses these issues, the Proposed Action would allow building heights to be measured from a new "reference plane" that is up to 10 feet above the base plane or curb level in the 1% annual chance floodplain and up to five feet in the 0.2% annual chance floodplain. To ensure that the additional height is tied to actual improvement in the building's resiliency, the building would have to comply with "flood-resistant construction standards" and its "first story above the flood elevation" (FSAFE) would have to be located at or above the chosen "reference plane" height. The FSAFE would be defined as the level of the finished floor of the first story located at or above the level to which the building complies with "flood-resistant construction standards." In areas where the FRCE is higher than 10 feet, the higher FRCE could continue to be used.

Other Envelope Modifications

To help offset the effects of the proposed additional height that would allow construction at or above the FRCE, the Proposed Action would include several allowances intended to break down the building massing in the upper portions of buildings.

For lower-density residential areas, the Proposed Action would continue to encourage sloped roof design in areas where that type of roof is the prevailing context. However, there would be a minor modification to the existing "attic allowance," which allows a 20 percent floor area bonus in exchange for a sloped roof in R2X, R3, R4, R4A and R4-1 Districts. The current regulations require that the additional floor area be located directly under the roof, which often results in taller roofs and building heights to accommodate a usable attic. If these rules were applied to the floodplain, the height of these buildings could be exacerbated, as building heights would be measured from the FRCE or the "reference plane." To address this, the Proposed Action would instead allow the additional floor area to be located in any portion of the building which would encourage a lower roof slope and overall building height. In Lower Density Growth Management Areas (LDGMA) the rule would not change, since the ability to locate the additional floor area is already permitted (albeit with a steeper roof pitch). However, "cottage envelope" buildings, described below, would be able to use the lower pitch in LDGMAs since it is more reminiscent of bungalow homes.

In medium- and high-density contexts, the Proposed Action would make two modifications to promote lower building scale. First, while maximum base heights and overall heights in Quality Housing buildings may be measured from the FRCE or the "reference plane," the Proposed Action would allow minimum base heights to continue to be measured from the base plane. This would allow setbacks in buildings to be made closer to the ground and keep the base heights lower. The provision was adopted as part of the 2013

[17] "Climate Resiliency Design Guidelines – Version 3.0." New York City Mayor's Office of Recovery and Resiliency (March 2019). Appendix 2.

Flood Text and would be maintained in the Proposed Action. Additionally, the Proposed Action would modify the underlying dormer allowances to provide an alternative that could break up the bulk in the upper portion of the building. The underlying dormer allowance permits 60 percent of the width of the building as a permitted obstruction in the building setback above the maximum base height, but this must diminish in width as the building rises. The Proposed Action would allow a dormer that extends up to 40 percent of the building width without any diminishing.

Accommodating Flood-Resistant Construction Standards on Ground Floors

The Proposed Action includes a series of regulations intended to incentivize the floodproofing of ground floors, encourage active uses to be kept at the street level to promote more resilient neighborhoods, and encourage internal building access. These regulations build on the standards included in the 2013 Flood Text but aim to provide more consistent outcomes throughout the floodplain. These are described below under five categories: wet-floodproofed spaces, dry-floodproofed spaces, cellars, street wall location, and ground floor use requirements.

Wet-Floodproofed Spaces

The Proposed Action would provide a consistent floor area exemption for wet-floodproofed ground floor spaces for all buildings to promote long-term resiliency improvements.

"Flood-resistant construction standards" require the ground floor of residential buildings to be wet-floodproofed, thereby limiting the use of this ground floor space solely to parking, storage and/or building access. While accessory parking is generally not counted toward zoning floor area calculations, spaces used for storage or building access typically count and therefore can act as a severe disincentive to floodproofing. The 2013 Flood Text addressed this by allowing all existing structures to fully exempt a wet-floodproofed ground floor. For new buildings, the exemptions are limited to entryway areas used for enclosed ramps and stairs to encourage access to be kept within the building.

The Proposed Action would provide the full ground floor exemption for wet-floodproofed spaces to new and existing buildings. This would provide more consistent results and incentivize internal access at grade, while encouraging living spaces to be elevated above the FRCE in new and existing buildings, including those that cannot be physically elevated.

Dry-Floodproofed Spaces

To promote a safe and lively pedestrian environment, the Proposed Action would encourage active dry-floodproofed ground floor spaces along the city's retail corridors.

"Flood-resistant construction standards" allow non-residential ground floor uses to be dry-floodproofed. While this method allows active uses to be kept close to grade, which is beneficial in maintaining retail continuity along the city's commercial streets, this method has proven to be quite costly. The 2013 Flood Text attempted to incentivize dry-floodproofing by allowing up to 10,000 square feet of non-residential uses in existing buildings to be exempted from floor area calculations if they are dry-floodproofed. However, this provision has seen limited use to date due to both the high cost of dry-floodproofing as well as existing restrictions on the use of relocated space that make the resiliency investment less viable. But if the 2013 provision was utilized, the large size of the floor area exemption could lead to out-of-scale development on small lots. For new buildings, the exemptions are limited to entryway areas used for enclosed ramps and stairs, to encourage access to be located within the building.

The Proposed Action would modify these incentives to better encourage dry-floodproofed spaces in appropriate locations. The provision would be available for both new and existing buildings facing "primary street frontages" (as defined in the ZR) in Commercial Districts and M1 Districts paired with Residence

Districts. The floor area exemption would only be available for the first 30 horizontal feet of the non-residential floor space as measured from the street wall of the building, since this is the most critical space to maintaining retail continuity. The exemption would come with design requirements to ensure quality ground floors. These would require the ground floor level be within two feet of the adjacent sidewalk and follow transparency requirements. In addition, the Proposed Action would maintain the existing floor area exemption for access, to encourage ramps and stairs be located within the building.

Cellars

The Proposed Action would ensure that floor area exemptions are given only when buildings are floodproofed and remove incentives to build low-quality ground-floors.

The 2013 Flood Text included some limited modifications to the definition of "cellar" to help ensure that buildings with moderate and high FRCE levels (especially those that equal or exceed four and a half feet above grade) can achieve their fully permitted floor area. However, this provision has unexpectedly resulted in low-quality spaces, since it encourages low ground floor heights to obtain the floor area exemption, and the outcome can be out of scale with the neighborhood context, since an entire floor can be discounted from floor area calculations even when the space is used for active uses. In addition, where allowed, this provision has also encouraged the construction of sunken retail ground floors. While these floors would have to be dry-floodproofed, they could become vulnerable as sea levels rise, making it harder to further retrofit these buildings in the future.

The Proposed Action would limit these exemptions by not allowing the FRCE to be used as the measurement threshold for cellars and basements. In addition, as noted in the "flood resistant construction elevation" section above, the Proposed Action would modify the "base plane" definition to remove references to BFE. Taken together, this would restrict the owners of buildings subject to a high BFE from taking significant floor area exemptions for these low-quality below-grade spaces. With this proposed change, floor area exemptions would only be tied to the floodproofing of the building. However, existing buildings would have the option to determine floor area calculations using either the definition prior to or after the change to ensure that significant new non-compliances are not caused for these sites.

Street Wall Location

The Proposed Action would include limited street wall modifications when access or flood protection measures are provided outside of the building.

Many zoning districts have street wall location provisions that ensure new development will be constructed close to the property line to reflect the character of their area. While these regulations promote best practices in streetscape design, they can conflict with the ability to provide sufficient outdoor access from the sidewalk into buildings in the floodplain since stairs and ramps can occupy considerable space and may not fit in the permitted area.

The 2013 Flood Text provided street wall modifications in the highest-density Commercial Districts to allow stairs and ramps in recesses that occupy up to 30 percent of the street wall width. However, this allowance is not applicable to buildings in lower-density districts and does not fully accommodate stairs and ramps serving narrow buildings, or buildings with high flood elevations, because of the limited recess percentage allowance. The 2013 Flood Text also did not provide any street wall location modifications for installing flood protection measures, which has been identified by practitioners as hampering flood resiliency. While the Proposed Action is particularly intended to facilitate interior entrances to improve the streetscape around flood-resilient buildings there are situations where exterior access may be necessary and existing street wall location provisions may make this impossible. Provisions governing these types of locations may also hamper the implementation of flood protection measures such as flood gates.

The Proposed Action would instead allow sufficient space to accommodate exterior stairs and ramps, as well as flood panels, in all zoning districts that require street walls be located on or near the street line. To incorporate these measures, street walls could be located up to eight feet from the property line and, to allow ramps that run perpendicular to the street, up to 50 percent of the street wall could be located beyond eight feet. In acknowledging the access challenges for narrow lots (less than 50 feet), the Proposed Action would allow the remaining 50 percent of the street wall to be recessed at the ground floor level. The possible visual impact of the access measures would be limited by requiring planting if the access extended along 70 percent or more of the street wall.

Ground Floor Level Requirements

The Proposed Action would accommodate resilient buildings and raised first floors by addressing conflicts with existing ground floor level zoning requirements.

To promote walkability and enliven retail corridors, some zoning districts have ground floor use regulations that typically require non-residential uses (i.e., commercial and community facility) on the ground floor level in close proximity to the sidewalk level (often between two and five feet), and that the building facade adjoining these uses would be transparent to promote the feel of shopping districts with large show windows. In the floodplain, that ground floors and transparency be located close to the sidewalk level would often preclude floodproofing strategies, which could become extremely onerous in areas with a high FRCE. In addition, Commercial and Manufacturing Districts include accessory signage regulations to promote businesses on the lot that include size and height limitations measured from grade which may lead to impractical outcomes in the floodplain given the need to sometimes elevate these uses.

To address issues in applying these rules at the sidewalk level in the floodplain, the 2013 Flood Text allowed these ground floor measures to be elevated to the FRCE so that buildings could comply with Appendix G. For example, if the FRCE of the building was five feet above grade, the measurement elevation for required non-residential uses could be elevated to the FRCE along with associated transparency rules. Accessory signage could also be measured from this elevation. With these changes, owners can consider a wide variety of resilient design strategies including ground-floor elevation, dry-floodproofing, or the creation of wet-floodproofed "show pits."

The Proposed Action would continue to allow this, with small additions. In all areas, any blank walls created along retail corridors would now be subject to streetscape rules and would need to be addressed by adding elements such as planting, street furniture, or artwork. Additionally, in V zones and Coastal A zones identified by FEMA, ground floor use regulations would be made optional because dry-floodproofing is prohibited and FRCEs are often extremely high above the sidewalk.

Improving Streetscape in the Floodplain

The Proposed Action would require buildings using any of the regulations provided to comply with "flood-resistant construction standards" to also comply with streetscape requirements meant to help ensure flood-resistant buildings contribute to their surroundings.

Leading up to the 2013 Flood Text, there were concerns that elevating buildings and restricting the use of ground floor space would have deleterious effects on the neighborhood streetscape. To address this, the 2013 Flood Text included ground level design requirements for those buildings that utilized its zoning regulations. These requirements are dependent on the height of the FRCE, the building's use and the applicable zoning district. They require that a minimum number of elements be incorporated into the building's design from a small menu of options. For instance, single- and two-family homeowners that elevate their first occupiable floor five feet above grade must incorporate one of four design treatments, including front yard plantings or a front porch.

While this system laudably attempts to provide design flexibility while ensuring an appropriate level of streetscape consideration, its workability has proven challenging in practice. This has mainly been due to the requirements and thresholds being overly focused on residential buildings, particularly in low-density areas. For example, buildings in Commercial Districts are rarely required to meet any streetscape requirements because their applicable flood elevation threshold is so high, while many buildings in Residence Districts are required to comply because the thresholds there are lower. In addition, the actual design options in the menu are rather limited, particularly for buildings other than single- and two-family residences. For example, while these buildings have four design options to choose from, multi-family buildings typically have only one. In addition, practitioners have identified that some of the options are inadvertently restricted by unrelated zoning regulations, further limiting the number of available design features.

The Proposed Action would continue to require design features to address concerns about building elevation and blank walls but would address the issues raised with the current rules. Specifically, this would create a more consistent framework of requirements, with more design options, to better address the wide variety of building conditions found in the floodplain.

The framework would include a points system, like the 2013 Flood Text. Points would now be available in two broad categories: Building Access and Ground Floor Level. Building Access would be focused on how users reach the building's elevated first story, while Ground Floor Level would be focused on the design of the ground floor itself. Generally, for buildings with a "first story above the flood elevation" (FSAFE) that is less than five feet above grade, one point would be required and may be fulfilled within either category. Where the building's FSAFE is five feet or higher, the building would have to meet a total of three points, with at least one point coming from each of the two categories. These requirements would be applicable in all zoning districts other than M2 and M3 districts. Additionally, in M1 Districts, they would not apply to heavy industrial uses. A much-expanded menu of design options would be available for each category to better address different building types and scales found in the floodplain. For example, the Building Access category would include nine options such as front porches, stair turns, entrances close-to-grade, and multiple entrances along a facade. The Ground Floor Level category would include 14 options, including planting and raised yards (included in the 2013 Flood Text), as well as wall treatments such as decorative latticework, street furniture, and ground floor level transparency. This expanded menu would give designers the toolkit to better reflect conditions found in the floodplain, such as locations along commercial corridors or in higher-density residential neighborhoods.

In addition, the Proposed Action would ensure that these design options can be more easily utilized. It would classify steps and covered porches as permitted obstructions in front yards and modify the maximum height of retaining walls to three feet to address those practical construction constraints caused by the previous maximum height of two and a half feet. In low-density Residence Districts, the Proposed Action would also exempt buildings on narrow lots from existing front yard planting requirements that inadvertently limit the use of the other available design options. Finally, for all buildings subject to these provisions, all group parking facilities provided on the ground floor level would be required to be either wrapped by usable building space, or screened by treatments such as latticework, vertical plantings, or artwork.

Accommodating Current and Future Flood Elevations in Special Conditions

The Proposed Action includes more tailored zoning regulations to address special situations found in the city's floodplain, including small or narrow lots, as well as for existing buildings that do not meet current zoning requirements. While these conditions exist throughout the floodplain, they are often concentrated in certain neighborhoods, such as the bungalow communities often found along the water's edge.

Substandard Lots (Cottage Envelope)

The Proposed Action would expand the availability of the popular cottage envelope option, first created in the 2015 Recovery Text, to small lots throughout the floodplain. This would allow for the construction of resilient buildings that better match their surroundings and accommodate better layouts.

Following the 2013 Flood Text, many neighborhoods with a prevalence of small, high-lot coverage bungalow homes on substandard zoning lots had concerns about the taller heights of recently constructed flood-resistant buildings. This issue was partially a result of zoning regulations that were designed with larger lots in mind. For instance, when traditional yard regulations were applied on narrow and/or shallow lots, the resulting building footprint was extremely small and forced the permitted floor area into a taller building than would have otherwise been expected. To make matters worse, the interiors of these narrow homes were also undesirable and inefficient, so both neighbors and the homeowners themselves were often dissatisfied with the outcome.

To better reflect the scale of surrounding buildings,[18] the 2015 Recovery Text provided an alternative cottage envelope option for single- and two-family detached residences reconstructed in the special Neighborhood Recovery Areas. This envelope came with decreased yard requirements and increased permitted lot coverages on substandard lots, in exchange for a shorter overall building height. The resulting building form mimics the wider and deeper bungalow homes and has provided homeowners the opportunity to create a more practical design and interior layout. While this provision has been well received, it was limited to reconstructions in the specific recovery areas.

The Proposed Action would expand the 2015 Recovery Text provisions by allowing all new and existing single- and two-family detached residences in R1 through R5 Districts in the floodplain to use the cottage envelope option when the building is designed to "flood-resistant construction standards." Specifically, the maximum permitted building height would be reduced to 25 feet, as measured from the "reference plane," instead of the typical maximum height of 35 feet. In exchange for this reduction, the applicable yard and lot coverage requirements would be modified: the minimum front yard would be reduced to the depth of neighboring homes, while minimum side and rear yards would be reduced at a rate proportional to the narrowness and shallowness of the lot (up to a minimum of three and 10 feet respectively). In addition, any applicable lot coverage and open space requirements would not apply because the modified yard regulations effectively control the building's footprint. Corner lots would be able to consider one of their front yards a (narrower) side yard to allow for a more contextual corner building.

Parking on Narrow Lots

The Proposed Action would continue to encourage single- and two-family residences on narrow lots to have parking be located below the building.

Several low-density Residence Districts restrict the location of parking spaces and curb cuts on a property. For instance, in many contextual districts, parking is only allowed within the side lot ribbon on lots less than 35 feet wide, and curb cuts must be at least 16 feet from other curb cuts on the same or an adjoining zoning lot. While the combination of these regulations works well to preserve the streetscape in many neighborhoods, they may be particularly difficult to comply with in the floodplain due to the prevalence of narrow lots found there and the inability to use ground floors for habitable spaces.

[18] 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.

To address these issues, the 2013 Flood Text included modified curb cut spacing and parking location requirements, particularly for narrow lots. These have allowed narrow residences to be elevated and parking to be located below the building provided that at least two parking spaces are located there. The Proposed Action would maintain these allowances, with small modifications to better align the number of parking spaces that may locate under an elevated building to what is required by the zoning district (which may be less than two spaces) and to only allow the curb cut spacing for narrow lots. Specifically, in providing parking spaces beneath the building single and two-family residences in R1 through R5 districts (except R4B and R5B districts) would be able to disregard underlying parking location and curb cut location rules to allow parking spaces be located under the building. On existing zoning lots with widths of less than 35 feet, the curb cut spacing regulations would become optional if four feet of curb space is provided between the new and existing curb cuts. In either case, the site would have to comply with the underlying front yard planting requirements.

Non-Complying and Non-Conforming Buildings

The Proposed Action would promote resiliency for the large number of existing buildings and land uses that do not adhere to the zoning rules that are currently applicable.

These conditions exist because the buildings or uses 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 non-conforming uses can stay in place but there are limits on their reconstruction, enlargement or alteration. Most importantly, if these buildings or uses are demolished or damaged, such that more than a specified amount of floor area is removed— (75 percent for most non-compliances, 50 percent for most non-conformances) —they cannot be put back, although single- and two-family residences located in districts that permit them can be fully demolished and replaced. This longstanding policy was intended to ensure that properties comport with the applicable zoning regulations over time.

However, these restrictions became immediately problematic in the aftermath of Hurricane Sandy. The drafters of the ZR in 1961 did not anticipate the significant destruction of non-conforming uses or non-complying buildings caused by the storm, which meant that many uses and buildings could not be rebuilt since they were damaged beyond the applicable thresholds. Nor did the drafters anticipate that these buildings would need to be elevated to become more resilient, therefore potentially creating, or increasing, non-compliance with several bulk regulations.

To ensure that building owners could rebuild and get their properties out of harm's way, the 2013 Flood Text allowed non-conforming uses and non-complying buildings damaged in Hurricane Sandy beyond the applicable thresholds to be reconstructed while still retaining their previous non-conformances or non-compliances. It also encouraged buildings to be elevated or reconstructed up to the FRCE by permitting new and increasing existing non-compliances. Subsequently, the 2015 Recovery Text created two additional allowances to address situations that building owners encountered when rebuilding their homes. First, it permitted non-conforming two-family residences in single-family Residence Districts and single- and two-family residences in Manufacturing Districts to rebuild or vertically enlarge if they were in Neighborhood Recovery Areas, neither of which had been permitted under the 2013 Flood Text. Additionally, it allowed all habitable space in existing single- and two-family residences, including space in basements, to be elevated above the FRCE and accommodated all associated non-compliances.

These special rules have facilitated reconstruction of properties damaged by Hurricane Sandy, but building owners and practitioners have identified issues that deterred some owners from making their buildings more resilient. For example, the non-compliance allowances only permitted buildings to be elevated to the FRCE, which limited the ability to over-elevate to lower insurance premiums or plan for projected sea level rise. Additionally, buildings being elevated have to keep within their existing footprint to maintain existing yard and open space non-compliances, which has proven to be challenging for those on small or awkwardly

configured lots. Finally, many of the provisions were only applicable in the Neighborhood Recovery Areas for a limited time period, even though similar issues are found throughout the floodplain.

In response, the Proposed Action would allow nearly all non-conforming uses and non-complying buildings to be elevated, retrofitted, or reconstructed to meet "flood-resistant construction standards" and measure height from the "reference plane" while retaining existing non-conformances and non-compliances. This allowance would come with the condition that less than 75 percent of the floor area be damaged or demolished (single- and two-family residences in districts that permit them would maintain their higher threshold). Relief beyond this threshold would be available for non-conforming uses and non-complying buildings damaged in any future disaster, as described in the "Disaster Recovery Rules" section of Goal 4 below.

In addition, non-compliances could be created or increased as long as the change to the building does not exceed specified parameters. For example, it would be possible to retain and relocate non-complying floor area (often located in basements) above the "reference plane," provided that the floor area does exceed the maximum allowed in the applicable zoning district by 20 percent. Similarly, it would be possible to increase the height of a building with non-complying height (as measured from the lowest floor to the highest point of the roof), provided that the elevated building does not exceed the maximum height allowed by the applicable zoning district by 10 percent or 10 feet, whichever is less, as measured from the "reference plane." Non-compliances could also be created or increased for open areas (yards, courts, and open spaces, including minimum distance between buildings) to accommodate resiliency measures on constrained sites. For instance, a building's previous footprint could be shifted or altered provided that the building's lot coverage is not increased and that any new encroachment into required yards does not get too close to surrounding lot lines (five feet from the rear lot line and three feet from the front and side lot lines).

Building on the provisions of the 2015 Recovery Text, the Proposed Action would also allow non-conforming residential buildings in heavy Commercial (C8) Districts and in all Manufacturing Districts throughout the floodplain to be elevated, retrofitted, or reconstructed to meet "flood-resistant construction standards" and measure height from the "reference plane" as long as the buildings are located within predominantly residential areas in these districts. In addition, the residential floor area in these buildings could not be increased and the maximum height for single- and two-family residences would be 35 feet (multi-family buildings, generally rare in these areas, would be able to use the applicable zoning district height).

Providing Discretionary Actions to Address Special Situations

The Proposed Action would modify the existing special permit that can be granted by the New York City Board of Standards and Appeals (BSA) to facilitate resiliency improvements in unique conditions and also create a new BSA special permit to allow alternative uses on ground floors in Residence Districts.

BSA Resiliency Special Permit

The Proposed Action would expand upon the existing BSA special permit to allow it to better fulfill its original mission of promoting compliance with Appendix G. The Proposed Action would also move the text to ZR Section 73-71.

There are often building or site conditions that cannot be fully addressed by modifications to zoning regulations and therefore require review on a case-by-case basis. The 2013 Flood Text recognized this by including a resiliency special permit (ZR Section 64-81, "Special Permit for Modification of Certain Zoning Resolutions") whereby the BSA could modify zoning regulations (predominantly related to the building envelope) if it found that the existing rules created practical difficulty in complying with Appendix G. While this special permit has proven necessary in many situations, some of the limits placed on the possible modifications available have made it difficult to undertake resiliency improvements. For example,

maximum height regulations could not be increased by more than 10 percent or 10 feet (whichever is lower), which proved inconsequential in many low-density zoning districts given their low maximum height. Additionally, regulations for use, parking or floor area were not available for modification even though these were found to be necessary in many situations, particularly through the City's *Build It Back* program.

The modifications in the Proposed Action would change the maximum height limitations to 10 percent or 10 feet (whichever is higher) to help accommodate different retrofitting needs, which often require a building's ground floor to be evacuated and the floor space relocated to the top of the structure. While continuing to allow yard and permitted obstruction modifications, a wider range of zoning regulations could also be modified through the special permit. For example, floor area regulations could be modified to encourage below-grade spaces (typically exempted from floor area calculations) to be raised above the FRCE (where they would not be exempted). This allowance would be limited to a maximum increase of 20 percent above what is permitted in the zoning district or 10,000 square feet, whichever is less. In addition, some parking and use regulations could also be requested. For all these modifications, the BSA would have to find that there would be practical difficulty in meeting "flood-resistant construction standards" absent the modifications. The special permit would also be moved to ZR Section 73-71.

BSA Ground Floor Use Special Permit

The Proposed Action would create a new discretionary action to permit ground floor offices in Residence Districts, where appropriate, to encourage dry-floodproofing and benefit the streetscape in these areas.

While the Proposed Action includes strategies to encourage buildings to become more resilient, public input has noted the limited options available for residential buildings, since Appendix G requires their ground floors to be wet-floodproofed and therefore limited solely to parking, storage or access. This is a particular issue in Residence Districts, where the only permitted option for dry-floodproofed ground floors are community facility uses.

The Proposed Action would therefore create a separate BSA special permit for buildings located in Residence Districts in the floodplain. This special permit would allow office uses (Use Group 6B) on the ground floor if the space is dry-floodproofed and meets certain conditions focused on ensuring that the use fits into its residential context. Parking and signage regulations typically applicable to doctor's office would apply to the use. The new special permit would be found in ZR Section 73-72, "Special Permit for Ground-Floor Uses in Residence Districts."

Goal 3. Allow for adaptation over time through incremental retrofits.

While the proposal is primarily focused on encouraging all buildings in the floodplain to fully meet "flood-resistant construction standards," there are situations where specific conditions, such as regulatory obstacles or cost constraints, may prevent a building from reaching that level of resiliency. The Proposed Action includes optional modifications that would encourage buildings to become more resilient over time without having to comply with those standards. These modifications, which would also be available to buildings that meet flood-resistant construction standards, include provisions to facilitate location of mechanical equipment and other critical spaces above the flood-resistant construction elevation (FRCE), allowances for some specific flood protection measures, and parking design modifications in low-density Residence Districts.

Locating Mechanical Equipment Above Flood Elevation

The Proposed Action would help protect mechanical equipment from flood damage by facilitating its elevation above flood levels, which is often the first and most cost-effective resiliency strategy for existing buildings since it requires few changes to the building's structure or floor elevations.

The 2013 Flood Text allowed mechanical equipment, typically found in basements and cellars, to be relocated to other areas within buildings or in required open areas. In some instances, these have been found to be insufficient and have therefore hampered resiliency improvements. For example, owners of residential campuses who are looking to construct a new separate structure to house mechanical equipment above expected flood levels have been hindered by zoning regulations that require minimum distances between buildings. The Proposed Action would improve upon these existing 2013 Flood Text provisions for mechanical equipment by promoting an expanded set of resiliency improvements.

Within and On Top of Buildings

The Proposed Action would facilitate the relocation of mechanical equipment from basements and cellars to locations higher in or on top of buildings.

The 2013 Flood Text included allowances for larger bulkheads on the top of multi-family buildings and for existing commercial or manufacturing buildings. It also included modifications in lower-density Residence Districts to facilitate the relocation of equipment from below-grade spaces to elsewhere within the building. Bulkheads were already considered permitted obstructions and permitted to extend above any required maximum heights or sky exposure planes if they remained within certain size limitations. The 2013 Flood Text increased these dimensions in the floodplain to encourage mechanical equipment to be moved onto roofs where they are more protected from flooding. For example, for buildings in R5 through R10 districts, and in Commercial and Manufacturing Districts, these changes permitted a 10 percent increase in bulkhead coverage. Alternatively, for existing buildings, it allowed an approximately 30 percent increase of their permitted height. Bulkheads in R3 and R4 Residence Districts were permitted smaller increases given their smaller scale. Screening was required for all bulkheads. The Proposed Action would maintain these provisions, while increasing their applicability for all new and existing buildings in Residence, Commercial and Manufacturing Districts. While there are no prohibitions on locating mechanical equipment in the cellars of non-residential structures, in the long-term it is safer to locate such equipment above the flood level.

In addition, the 2013 Flood Text also exempted buildings in the floodplain from limitations on interior mechanical space found in many lower-density Residence Districts, as this tended to force mechanical equipment into basements and cellars. This exemption would continue in the Proposed Action to ensure that mechanical equipment can be placed above the FRCE.

In Open Areas

The Proposed Action would also facilitate the placement of mechanical equipment above the FRCE outside of buildings to address situations where the structures cannot physically sustain additional loads or where centralizing this equipment in a single structure would be more efficient.

The 2013 Flood Text included allowances for mechanical equipment in various open areas regulated by zoning. The equipment can be considered permitted obstructions within yards, courts and other open areas if it stays within certain coverage and height limitations. These measures offered alternative locations for necessary mechanical equipment in lieu of basements and cellars. The provisions are available for existing single- and two-family residences as well as all other new and existing buildings.

The Proposed Action would consistently apply these allowances to all buildings regardless of whether they are new or existing. It would also modify some of the dimensional limitations to provide more rational standards to address various design challenges that have been identified since 2013. Mechanical equipment would have to be placed a minimum of five feet from property lines (though this could be reduced to three feet for substandard lots). Coverage would be limited to 25 percent of the minimum required open space, but the coverage would be restricted to 25 square feet if the equipment is located between the building and the front lot line, to minimize its effect on the street. The height would be limited to certain heights above

the "reference plane" depending on the zoning district (10 feet in low-density Residence Districts, 15 feet in other Residence Districts, and 23 feet in Commercial and Manufacturing Districts). All equipment would be required to be screened by vegetation when located in front yards or between the street line and the street wall and when placed in other locations, if more than one piece of equipment is provided, it would have to be screened by materials that are at least 50 percent opaque.

Finally, to allow for the construction of new utility structures on larger campus-style housing sites, the Proposed Action would permit buildings used predominantly for mechanical equipment to be considered permitted obstructions on properties larger than 1.5 acres. The structure's coverage would similarly be limited to 25 percent of the minimum required open space, and it would be required to be located at least 30 feet from any legally required windows with the exhaust stacks located above adjacent residential buildings. The structures would be subject to underlying height and setback controls.

Locating Important Spaces Out of Harm's Way

Beyond mechanical equipment, there are some situations where elevating key support spaces would improve the long-term resiliency of buildings and their uses. The Proposed Action therefore includes modifications to address three of these situations.

Many retail stores rely on basement and cellar space to support their at-grade retail, but zoning regulations often restrict these spaces from being located on the second floor, which limits the stores' ability to become more resilient. The Proposed Action would therefore include two modifications to address this issue.[19] In low- and medium-density C1 and C2 local Commercial Districts, where underlying zoning regulations limit commercial uses to the first story in mixed-use buildings, the Proposed Action would allow commercial uses on the second story in buildings in the floodplain. This would give businesses an opportunity to move key spaces out of basements or cellars. The space within the second floor would still be counted towards floor area regulations.

In Commercial and Manufacturing Districts with a low maximum floor area ratio (FAR), buildings may have little available floor area to raise key spaces above the flood elevation.[20] To remedy this, the Proposed Action would add a floor area exemption of up to 500 square feet to provide businesses the option of elevating important spaces, such as offices or storage rooms, above the FRCE in Commercial and Manufacturing Districts where the permitted commercial or manufacturing FAR is less than or equal to 1.0.

Lastly, existing residential buildings in low-density Residence Districts are often hindered by underlying zoning regulations when attempting to fill in their basements or cellars and relocate the required parking found there to other portions of their lot. The 2013 Flood Text included provisions to address this. The Proposed Action would similarly allow below-grade parking in existing residential buildings in R1 through R5 districts (except R4B and R5B districts) to be relocated to front, side or rear yards. To be granted this allowance, below-grade spaces would have to be removed and filled, in compliance with "flood-resistant construction standards." In addition, the Proposed Action would continue to allow parking spaces and driveways to be covered with dustless gravel for all single- and two-family residences in R1 through R5 districts.

[19] This recommendation came from the 2016 *Resilient Retail* report.
[20] This recommendation came from the 2018 *Resilient Industry* report.

Flood Protection Measures

The Proposed Action would allow more flood protection measures as permitted obstructions to accommodate their installation when required for compliance with "flood-resistant construction standards" and in situations where alternate flood protection strategies may be warranted.

The 2013 Flood Text allowed several flood protection measures, such as flood barriers and associated emergency egress, as permitted obstructions in various required open areas in recognition that they are required in front of building entrances. However, practitioners and other City agencies have subsequently identified additional viable measures that are not included and have noted the difficulty in finding on-site storage within buildings for temporary measures such as flood panels, both of which have limited the use of these measures.

The Proposed Action would therefore maintain the existing flood protection measures listed as permitted obstructions but add items which were not previously listed: landscaped berms and their associated floodgates. The Proposed Action would also allow space used for the storage of temporary flood panels to be exempted from floor area calculations, up to a maximum exemption of 15 square feet for each linear foot of protection and no more than 1,000 square feet of exemption per zoning lot. These standards account for the space that panels, trolleys and deployable access take up in a typical building configuration).

Accommodating Current and Future Flood Elevations on Waterfront Sites

The Proposed Action would modify provisions applicable in waterfront areas to better allow for coastal flood resilient design.

In 1993 DCP enacted comprehensive waterfront rules that, at their core, required developments on the waterfront to provide public access in the form of esplanades and ancillary spaces. The zoning text set forth minimum amounts and dimensions for these spaces and stipulates necessary amenities that must be provided, including circulation paths, planting, seating, lighting, and several other elements to help ensure that these are successful public spaces.

However, practitioners have noted how some of these requirements make it difficult, if not impossible, to integrate contemporary resiliency measures into the waterfront spaces and address sea level rise. The 2013 Flood Text provided some limited allowances for the grading of waterfront yards and visual corridors to increase flood resilience, but practitioners have identified other rules that could also be improved. These include limits on site grading and height for waterfront yards, open spaces and paths.

The Proposed Action would permit the construction of bi-level esplanades that facilitate waterfront public access both close to the shoreline at the water level and at a higher elevation to meet flood design elevations at the building level. To facilitate these bi-level designs, the Proposed Action would also allow for increased retaining wall heights (generally up to three feet), provide new planting design options (including terraced planting), and provide slight reductions to the minimum required planting areas, and screening buffers so that access requirements can be satisfied.

The Proposed Action would facilitate the elevation of waterfront public access areas while maintaining visual connectivity to the water by raising the required level of visual corridors on upland streets from three feet above curb level to five feet. In addition, flood protection measures such as temporary flood control devices and associated permanent fixtures, structural landscaped berms, flood gates, and associated emergency egress systems would be permitted as obstructions in both waterfront yards and visual corridors subject to dimensional limitations (up to the FRCE or five feet above the lowest adjacent grade, whichever is higher).

Finally, to encourage waterfront sites to include soft shorelines (such as natural aquatic grasses) as a resiliency measure, the Proposed Action would allow the width of the required waterfront yard and shore public walkway to be reduced for soft shorelines by up to seven feet along up to 30 percent of the shoreline length of such yard.

Goal 4. Facilitate future recovery by reducing regulatory obstacles.

The Proposed Action would include modifications to expedite future recovery processes. Hurricane Sandy showed that areas affected by the storm went beyond the floodplain and that the regulations which would facilitate recovery would be useful for other types of disasters. Thus, these select rules would be applicable citywide. Topics addressed in this section include mechanical equipment, vulnerable populations, as well as zoning rules available after a disaster occurs.

Power Systems and Other Mechanical Equipment

The Proposed Action would allow appropriately scaled power systems on lots throughout the city to make it easier to provide back-up energy, especially in the event of a disaster. Recovery efforts from Hurricane Sandy also identified issues with existing zoning regulations for mechanical equipment both within and outside of the floodplain. As described below, both of these issues extend beyond the floodplain and therefore modifications to address them are required on a citywide basis.

The 2012 hurricane caused a wide array of power system disruptions well beyond the floodplain, and the city's power grid has seen other recent disruptions through events like blackouts. Allowing power systems to be more easily located around the city would help support back-up energy needs and the overall energy grid. The 2013 Flood Text took the first step by allowing back-up systems, such as emergency generators, to be considered permitted obstructions in the required yards and open spaces for single- and two-family residences in the floodplain.

The Proposed Action would expand this approach citywide in a more consistent fashion. Power systems (including, but not limited to, generators, solar energy systems, fuel cells, batteries, and other energy storage systems) would be added as a permitted obstruction, subject to dimensional limitations, that could encroach in any required open area in all zoning districts citywide. Similar to the limitations for the broader mechanical equipment category in the floodplain, power systems would have to be placed a minimum of five feet from property lines. Coverage would be limited to 25 percent of the minimum required open space, although the coverage would be restricted to 25 square feet if the equipment is located between the building and the front lot line to minimize its effect on the street. The height would be limited to certain heights above adjoining grade, or the "reference plane" for lots in the floodplain, depending on the zoning district (10 feet in low-density Residence Districts, 15 feet in other Residence Districts, and 23 feet in Commercial and Manufacturing Districts). Exempted equipment would be subject to requirements for enclosure or screening, depending on the equipment type and applicable zoning district.

In addition, recovery efforts after Hurricane Sandy have highlighted shortcomings with the floor area exemptions provided for mechanical equipment in the ZR that have hampered resiliency projects. Space used for mechanical equipment is exempted from floor area calculations in all zoning districts citywide. However, it has not been clear whether the space necessary for routinely accessing and servicing the equipment is also exempted, which has led to inconsistent outcomes. This has also, in some situations, made it difficult to retrofit buildings in the floodplain by moving mechanical equipment from below-grade locations, where they are fully exempted from floor area calculations, to upper areas where they may not be. To address this situation in a comprehensive manner across the city, the Proposed Action would clarify that the floor area exemption for mechanical equipment applies to mechanical, electrical, plumbing equipment, as well as to fire protection and power systems, and necessary maintenance and access areas. This is consistent with the general practice at the Department of Buildings (DOB) but would ensure that buildings across the city would be treated consistently.

Ramps and Lifts

The Proposed Action would provide rules for accessible design that are consistent throughout the city.

The 2013 Flood Text classified ramps and lifts as permitted obstructions in various forms of required open areas to help facilitate the elevation of living spaces. But in areas beyond the floodplain, these elements are permitted in required open areas in a piecemeal fashion. For example, lifts are classified as permitted obstructions in residential courts, yet they are not considered permitted obstructions in required yards. While DCP has been gradually adding them to the ZR as permitted obstructions through different text amendments, the Proposed Action would provide full consistency across the city by classifying both ramps and lifts as permitted obstructions in all required open areas.

Vulnerable Populations

The Proposed Action would limit the growth of vulnerable populations in nursing homes in high-risk areas of the floodplain.

Hurricane Sandy and other storms across the nation have exposed the difficulties facing nursing home residents in high-risk areas. Nursing homes are licensed to house populations that require continual medical care, but research shows that this dependency can be strained whether nursing homes shelter in place or evacuate prior to a coastal storm event. While all nursing homes in hurricane evacuations zones in the city are subject to mandatory evacuations during a declared emergency, the City believes it would be appropriate to limit the growth of nursing homes in high-risk areas to lessen the health consequences and logistical challenges of evacuating the residents of these facilities.

The Proposed Action would therefore prohibit the development of new nursing homes and restrict the enlargement of existing facilities within the 1% annual chance floodplain and other selected geographies (shown in **Appendix C**) likely to have limited vehicular access because of the storm event. The modification would restrict the enlargement of existing nursing homes in this geography to a maximum of 15,000 square feet to allow for improvements, including those related to resiliency. These restrictions would also apply to the nursing home portions of Continuing Care Retirement Communities (CCRCs). The CPC special permit (ZR Section 74-901) that permits nursing homes in areas where they are not allowed as-of-right (i.e., R1 and R2 districts and certain community districts) would not be available in this geography.

Disaster Recovery Rules

The Proposed Action would include rules that could be made available to facilitate the recovery process from future disasters, some of which would be implemented now to help address the COVID-19 pandemic and its associated economic effects.

The need to adopt the 2013 Flood Text and 2015 Recovery Text as temporary zoning rules on an emergency basis after Hurricane Sandy demonstrated that a lengthy process to update zoning regulations can present obstacles to the necessarily fast-paced disaster response. In addition, while the Mayor can issue Emergency Orders to temporarily remove legislative obstacles to facilitate recovery efforts, including rules from the ZR, that process is limited in time (the duration of the disaster), which may not be enough for a longer-term recovery. That became clear post-Sandy and now during the COVID-19 pandemic disaster response.

Given this, the Proposed Action would include a series of disaster recovery provisions that could be made available through a text amendment when a disaster occurs. Adding these provisions to the ZR would offer a useful roadmap for the public, planners, and decision-makers when working to recover from a disaster. Applicable recovery provisions would be selected based on the issues caused by the disaster and would be available for a limited time period (set at the time of the text amendment). The provisions could be limited

to designated recovery areas whose extent would be determined based on the disaster's impacts and the City's recovery plans.

The recovery provisions would include a range of rules that could facilitate the recovery process from disasters which cause physical impacts. The 2013 Flood Text and the 2015 Recovery Text included a set of rules that facilitated the reconstruction and retrofit of Hurricane Sandy-damaged buildings, and therefore could also be useful after any other disasters that lead to a concentration of physical damage in the city. The Proposed Action would build upon this set of provisions and include modifications to the damage and destruction thresholds set forth in the underlying zoning rules to allow the reconstruction of non-complying buildings and non-conforming uses. It would also include modifications to building envelope rules to allow non-compliances to be increased, or even created, in the event new regulations would require damaged buildings be replaced in a slightly different shape and form. (For example, after Hurricane Sandy, new Building Code regulations were adopted and required buildings to elevate beyond the minimum level required prior to the storm.) These provisions would also include an allowance for property owners to use their tax lot as their zoning lot when applying zoning rules, which was found necessary in many waterfront communities. Lastly, it would allow the documentation process for obtaining DOB permits to be simplified for disaster-damaged buildings.

The recovery provisions would also facilitate the recovery process from a wider range of disasters including those that do not involve physical impacts, such as pandemics. This set of provisions is mostly drawn from the lessons learned during the COVID-19 pandemic response. The provisions would provide a framework to allow uses in zoning districts where they are not typically permitted to better respond to the situation then at hand. This framework would also allow possible relief from zoning rules that require permits to be sought with a specific timeframe, and those that require a certain level of construction and operation be completed to vest a project. It would also include possible relief from provisions that only allow non-conforming uses to remain inactive for a limited period of time (generally two years) before they can no longer legally reopen.

The Mayor's Executive Order No. 98 (March 12, 2020), which provided short-term relief from regulations hindering the pandemic recovery effort, included relief from construction timeframe and non-conforming use provisions. However, these allowances will cease when the Executive Order expires. Consistent with the general intent of the disaster recovery rules and the Mayor's Executive Order, the Proposed Action would extend the available timeframe for non-conforming uses to reactivate by an additional two years. In addition, the Proposed Action would allow for the extension of the timeframe required for substantial construction to take place under City Planning Commission (CPC) special permits and authorizations for an additional term. These changes would provide greater certainty to residents, business and building owners, and therefore support the city's recovery from the ongoing pandemic.

Uses in Waterfront Recreation Districts

Lastly, the Proposed Action would modify the zoning requirements that have made it difficult for eating or drinking establishments in some lower-density waterfront areas from making long-term resiliency improvements.

In C3 and C3A Waterfront Recreation zoning districts, which are mapped along the city's waterfront in limited locations, these businesses are required to obtain a BSA special permit to operate, renewable every five years. Local elected officials and business owners have noted how this short timeframe adds uncertainty that makes it difficult for these establishments to invest in resiliency. Therefore, the Proposed Action would extend the initial special permit term from five to 10 years for new applicants. Additionally, for existing establishments with a previously approved special permit, the permit would allow the BSA to determine the required term moving forward.

Overlap with Special Districts

While special purpose districts cater to a range of locally specific conditions, the 2013 Flood Text allowed the optional provisions in the 1% annual chance floodplain to supersede their special regulations and further modified select special purpose district rules that overlap with the floodplain. The Proposed Action would allow the optional provisions to supersede regulations applicable in all areas within any special purpose district that geographically overlaps with the 1% and 0.2% annual chance floodplains. Additionally, select provisions in these special purpose districts would be modified to align with the Proposed Action's ground floor use, street wall, and building envelope regulations, as well as the proposed streetscape rules. This would allow all buildings in the floodplain to have a consistent zoning framework for resiliency.

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:

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 wide. 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 reference plane. Building to these higher flood-resistant construction standards will reduce vulnerability to future floods.

The *Draft Scope of Work* described an additional local action for New Dorp Beach. Based on further analysis of existing conditions in the New Dorp Beach neighborhood, recent capital commitments by the New York City Department of Environmental Protection (DEP) and the New York City Department of Transportation (DOT) to upgrade sewer and street infrastructure in the surrounding area, and progress being made by the U.S. Army Corps of Engineers on the Line of Protection, DCP is no longer pursuing a local rezoning at this time for this area. The proposed Zoning for Coastal Flood Resiliency initiative would provide flexibility in zoning to allow property owners the ability to make proactive investments in resiliency.

F. ANALYTIC FRAMEWORK

Consistent with 2*014 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, reconstructions, 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, a 14th

representative prototypical site has been identified to demonstrate the proposed modifications to waterfront regulations.

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 would mirror recent development patterns. The Proposed Action is not expected to change the rate of construction in the floodplain, which is controlled primarily by local real estate conditions.

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 permitted height of the reference plane. 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 lower reference plane height 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 conditions 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 both 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 **Appendix A** for illustrative purposes. As illustrated in **Table 3**, 14 sites were selected as prototypes for environmental analysis for the No-Action and With-Action scenarios. Illustrative renderings and descriptions of all 14 Prototypical Analysis Sites are provided in **Appendix A**.

In addition, as discussed above, the Proposed Action would also have select provisions that would be applicable citywide, such as the allowance for power systems to be considered permitted obstructions in open areas. Other citywide provisions would be a series of disaster recovery rules that could be made available in the event of a future disaster through a zoning text amendment (and requisite environmental review). However, two of those provisions would be made available upon adoption of the Proposed Action to facility the city's long-term recovery from the COVID-19 pandemic and its associated economic effects. These two provisions would provide more time for existing nonconforming uses to reopen and for builders to undertake certain construction projects.

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.

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	Reconstruction	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
14	C2-4/R8	Waterfront site	Site Modification	50,000	250	200

Note: Refer to **Appendix A** for illustrative renderings and descriptions of the Prototypical Analysis Sites.

Most provisions for the Proposed Action would affect the 1% annual chance and 0.2% annual chance floodplains, which include 14 building types in a total of 97 zoning districts, including 34 residential districts, 48 commercial districts, and 15 manufacturing districts. It would also allow for resiliency improvements in the open areas on sites subject to waterfront regulations. In this overall 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 Appendix G, 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 Appendix G 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 regulations in the floodplain.

- 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 Prototypical Analysis Sites 1 to 13 to illustrate the impact of the Proposed Action in both the 1% annual chance floodplain and the 0.2% annual chance floodplain. Site 14 will have one With-Action scenario to illustrate the impact of the action on waterfront sites. The With-Action conditions 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.

- New developments would meet flood-resistant construction standards, exceeding the minimum flood-resistant construction standards of Appendix G for buildings in both the 1% annual chance and 0.2% annual chance floodplains by elevating habitable spaces to the permitted reference plane.
- Existing buildings would retrofit to either meet flood-resistant construction standards or the minimum flood elevation requirements of Appendix G, 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 incremental resiliency improvements do not need to meet the flood-resistant construction standards while a prototype scenario of the waterfront site does not show changes to the building and only focuses on proposed modifications specific to waterfront regulations in open areas.

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 lower reference plane in the 0.2% annual chance floodplain does not allow for it.

Detailed descriptions and illustrative renderings of the existing, No-Action, and With-Action conditions on each of the 14 Prototypical Analysis Sites in the 1% and 0.2% annual chance floodplains are provided in **Appendix A**.

Conceptual Analysis

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.

As the Proposed Action would modify and create new discretionary actions, including BSA special permits, 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. 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. 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.

It should be noted that any future discretionary actions resulting from the Proposed Action would be submitted to the New York City Landmarks Preservation Commission (LPC) for review on a case-by-case basis. These actions would be reviewed by LPC under the terms of the *CEQR Technical Manual*.

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 2029 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 **Appendix A** for all 14 Prototypical Analysis Sites detailed in this *Final Scope of Work*.

H. FINAL 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 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, 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.

APPENDIX A

Prototypical Analysis Site Descriptions and Illustrative Renderings

Prototypical Analysis Site
Narratives & Illustrations: Overview

As detailed further in **Chapter 1, "Project Description,"** owing to the generic nature of the Proposed 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, 14 representative prototypical sites containing either new developments, infill, reconstructions, 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. The existing, No-Action, and With-Action conditions of each Prototypical Analysis Site are illustrated and discussed below.

Additionally, for illustrative purposes, diagrams and charts of the 2013 Flood Text (also known as "Flood Text 1" or "FT1") regulations in the 1% annual chance floodplain are provided below for each Prototypical Analysis Site. However, as the FT1 regulations are not analyzed in this Environmental Impact Statement (EIS), narratives of the FT1 regulations are not included below.

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	Reconstruction	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	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
14	C2-4/R8	Waterfront site	Site Modification	50,000	250	200

Prototype 1

R3-1 Residence District, 40-foot x 100-foot Interior Lot
Single-Family Detached Residence, Retrofit

Introduction

Prototypical Analysis Site 1 utilizes a generic 40-foot by 100-foot interior lot (4,000 square feet [sf]) in an R3-1 contextual residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 1 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) "reference planes" for retrofits; and
- Floor area exemption for wet-floodproofed ground floors.

Existing Condition

The existing condition on Prototypical Analysis Site 1 is a single-family detached residence with two stories and a cellar, which complies with all underlying zoning regulations. The zoning lot is built with 1,800 sf of zoning floor area, less than the maximum permitted within an R3-1 zoning district, which allows a maximum floor area ratio (FAR) of 0.50 (Zoning Resolution Section [ZR] 23-142). The building's gross floor area is 2,900 sf. Floor spaces used for an enclosed garage (200 sf) in the rear yard, along with that used for mechanical equipment (135 sf) and storage within the cellar (765 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

This existing building on Prototypical Analysis Site 1 does not meet the minimum Appendix G requirements in the New York City Building Code, as it was constructed prior to the adoption of these regulations. The total building height is 28 feet above grade, with a perimeter wall of 20 feet, fitting within the permitted building envelope of an R3-1 zoning district, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-63). The building's mechanical, electrical, and plumbing (MEP) equipment is located in the cellar. Prototypical Analysis Site 1 contains one parking space in detached garage in the rear yard, connected to the street via a driveway; one parking space would be required for one dwelling unit at this density (ZR 25-22, 25-621).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario does not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. The permitted building envelope of an R3-1 residence district measured from the "base flood elevation" (BFE) (ZR 12-10 Definition of a Base Plane) allows for a maximum building height of 40 feet (35 feet plus five feet BFE) and a maximum perimeter wall height of 26 feet (21 feet plus five feet BFE) (ZR 23-631 and ZR 12-10 Definition of Floor Area), as measured above grade.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 1 would be retrofitted to elevate the habitable portions of the existing home above the "flood-resistant construction elevation"

(FRCE). A horizontal enlargement would be added to relocate mechanical space from the cellar. The single-family detached residence on the site would contain three stories. Under With-Action conditions, the below-grade cellar space would be filled-in to comply with Appendix G requirements. The zoning lot would continue to contain 1,800 sf of zoning floor area, less than the maximum 0.50 FAR permitted within an R3-1 zoning district (ZR 23-142). The building's gross floor area would be 2,835 sf. As a result of the Proposed Action, floor spaces used for MEP equipment in the horizontal enlargement (135 sf) and the wet-floodproofed ground floor (900 sf), which contains garage/storage space, would be exempted from the zoning floor area.

Prototypical Analysis Site 1 is mapped with a BFE of five feet above grade, according to the Federal Emergency Management Agency's (FEMA's) flood maps, resulting in a FRCE of seven feet above grade. In order to floodproof the building for the long term and exceed minimum Appendix G requirements, the home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, which results in the "first story above flood elevation" (FSAFE) being located 10 feet above grade in the future with the Proposed Action. Everything below this floor would be wet-floodproofed. In the future with the Proposed Action, the total building height on Site 1, as measured from grade, would be 36 feet with a perimeter wall of 28 feet, fitting within the permitted building envelope of an R3-1 zoning district as measured from a reference plane of 10 feet above grade, which allows for a maximum building height of 45 feet (35 feet plus 10 feet) and a maximum perimeter wall height of 31 feet (21 feet plus 10 feet) (ZR 23-631). Additionally, in the future with the Proposed Action, the MEP equipment would been relocated from the cellar to the rear yard and would be elevated 10 feet above grade to match the first occupiable floor. The MEP equipment room would be attached to the building.

The With-Action scenario on Prototypical Analysis Site 1 would relocate the parking from the rear yard to underneath the elevated building; containing one parking space in the enclosed garage within the building. As new dwelling units would not be created on Site 1 in the future with the Proposed Action, the parking spaces on Prototypical Analysis Site 1 would continue to meet the underlying zoning requirements of the site (ZR 25-22). The building would continue to comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be a reduction of 65 sf of gross floor area due to the removal of the detached garage and exempted floor area on Prototypical Analysis Site 1 in the 1% annual chance floodplain. The Proposed Action would permit horizontal and vertical enlargements to the building. The With-Action building would have an additional eight feet of building height as compared to the No-Action building on the site. No additional zoning floor area, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action. In the future with the Proposed Action, lot coverage on Prototypical Analysis Site 1 would increase from 23 percent to 24 percent.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 1 is the same as the existing condition because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an R3-1 residence district allows for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-631). Since there is no BFE in the 0.2% flood zone, this is measured from grade.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 1 would be retrofitted to elevate the habitable portions of the existing home. A horizontal enlargement would be added to relocate mechanical space from the cellar. The site would accommodate a single-family detached residence with three stories. The below-grade cellar space would be filled-in to comply with Appendix G requirements. The floor area lost due to the filled-in cellar would be added as a horizontal enlargement in the rear yard and as a partial story to the top of the building. The zoning lot would continue to contain 1,800 sf of zoning floor area, less than the maximum permitted within an R3-1 zoning district, which allows for an FAR of 0.50 (ZR 23-142). The building's gross floor area would be 2,835 sf. As a result of the Proposed Action, spaces used for MEP equipment in the horizontal enlargement (135 sf) and the wet-floodproofed ground floor (900 sf), which contains garage/storage space, would be exempted from the zoning floor area.

In order to floodproof the building for the long term, the home is utilizing the reference plane allowance of five feet in the 0.2% flood zone and the FSAFE would be located 8 feet above grade in the future with the Proposed Action. The total building height on Prototypical Analysis Site 1, as measured from grade, would be 34 feet with a perimeter wall of 26 feet, fitting within the permitted building envelope of an R3-1 zoning district measured from a reference plane of five feet above grade, which allows for a maximum building height of 40 feet (35 feet plus five feet) and a maximum perimeter wall height of 26 feet (21 feet plus five feet) (ZR 23-631). In the future with the Proposed Action, the MEP equipment on Prototypical Analysis Site 1 would be relocated from the cellar to the rear yard and would be elevated five feet above grade to match the first occupiable floor. The MEP equipment room would be attached to the building.

The With Action scenario on Prototypical Analysis Site 1 would relocate the parking from the rear yard to underneath the elevated building; containing one parking space in an enclosed garage within the building. As new dwelling units would not be created as a result of the Proposed Action, the provided parking spaces would continue to meet the underlying zoning requirements in the future with the Proposed Action (ZR 25-22). The building on Site 1 would continue to comply with all other underlying zoning regulations in the future with the Proposed Action.

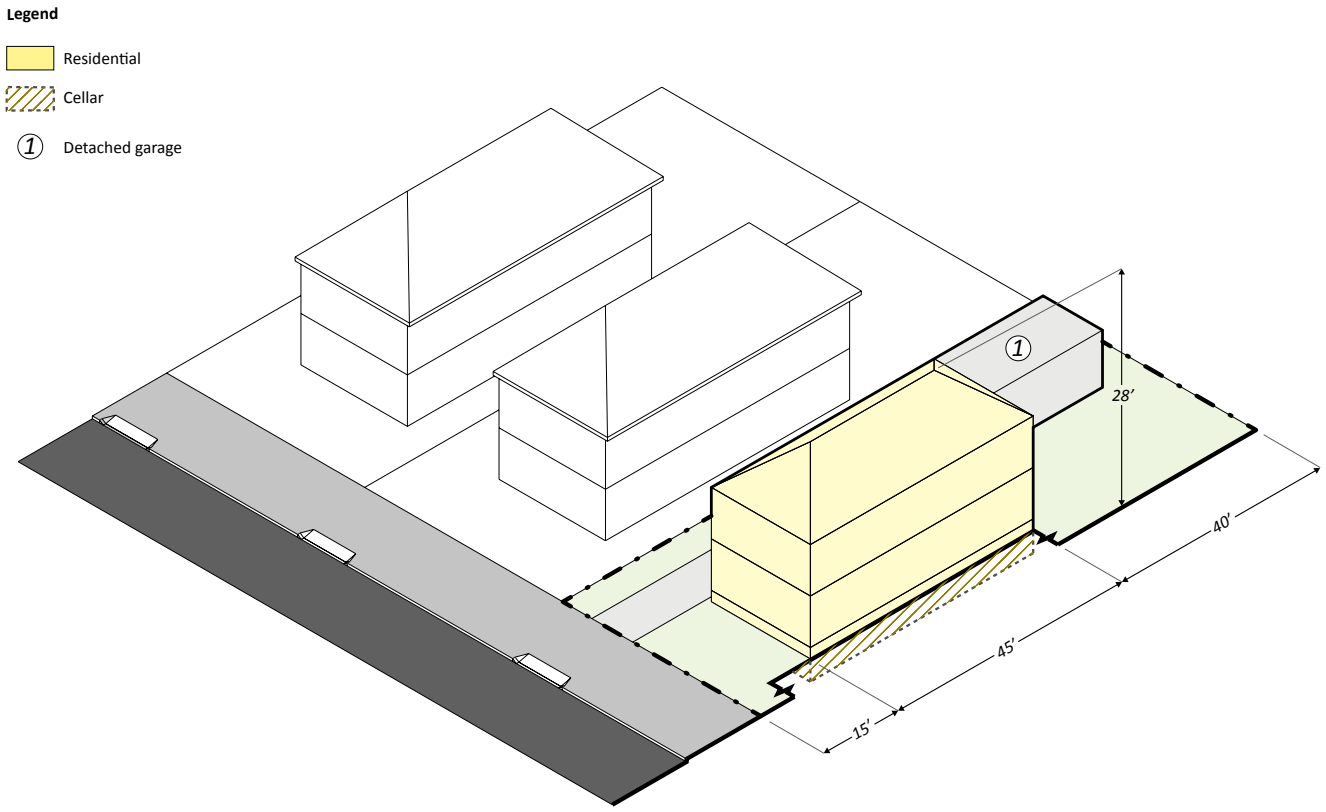
Increment

As a result of the Proposed Action, there would be a reduction of 65 sf of gross floor area and exempted floor area on Prototypical Analysis Site 1 in the 0.2% annual chance floodplain. The Proposed Action would permit horizontal and vertical enlargements to the building. In the future with the Proposed Action, there would be an increase of six feet of building height and a horizontal enlargement on Prototypical Analysis Site 1 in the 0.2% annual chance floodplain as compared to the No-Action condition. Lot coverage on the site would increase from 23 percent to 24 percent between No-Action and With-Action conditions on Site 1. No additional zoning floor area, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action.

R3-1 Residence District

Prototype 1

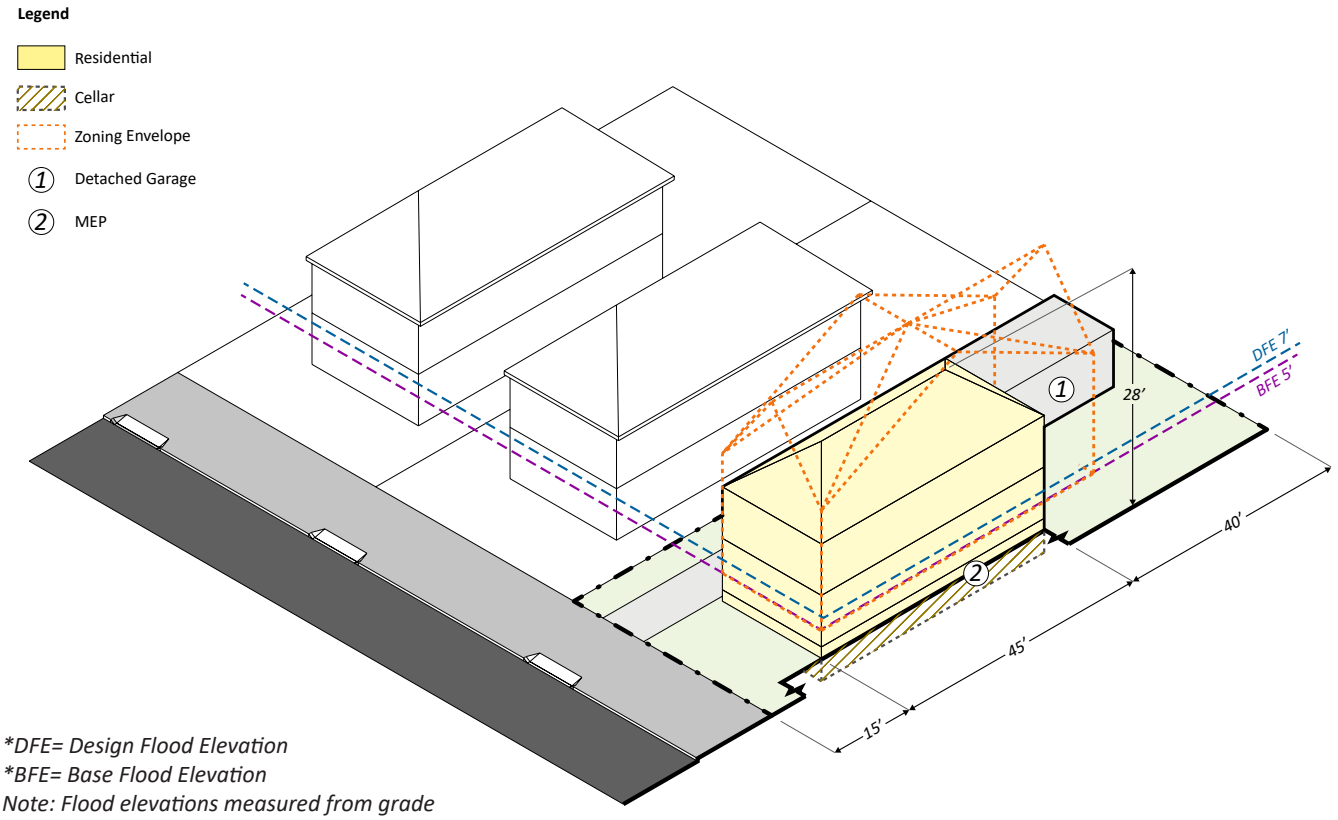
Existing Condition



R3-1 Residence District

Prototype 1

1% Annual Chance Floodplain: No-Action Condition



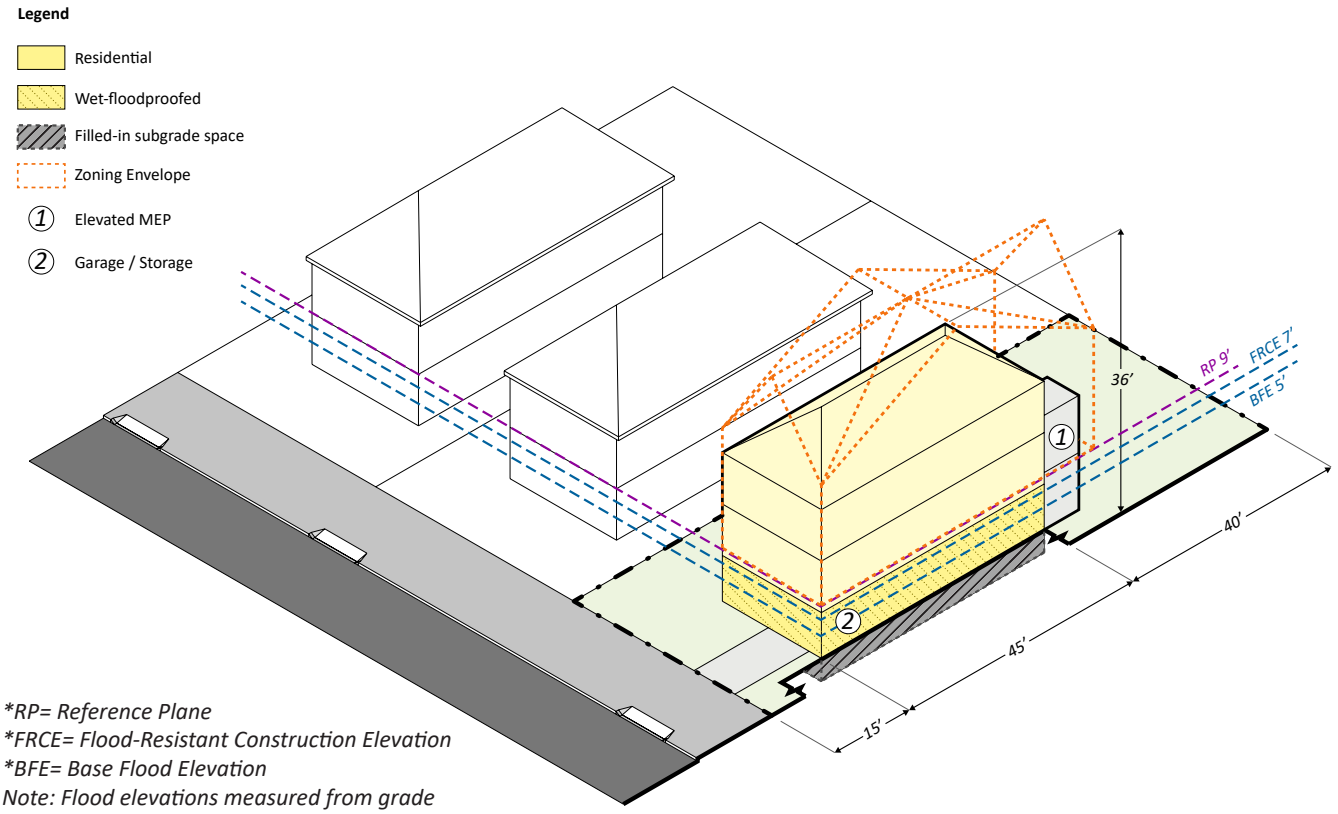
**DFE= Design Flood Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	4,000 sf	4,000 sf	0
Zoning Floor Area	1,800 sf	1,800 sf	0
Zoning Residential Floor Area	1,800 sf	1,800 sf	0
Gross Floor Area	2,900 sf	2,835 sf	- 65 sf
Gross Residential Floor Area	2,900 sf	2,835 sf	- 65 sf
Exempted Floor Area	1,100 sf	1,035 sf	- 65 sf
Provided Perimeter Wall/Baseheight	20 ft	28 ft	+ 8 ft
Provided Overall Height	28 ft	36 ft	+ 8 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	23 % / 77 %	24 % / 76 %	+ 1% / - 1%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 1

1% Annual Chance Floodplain: FT1



**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

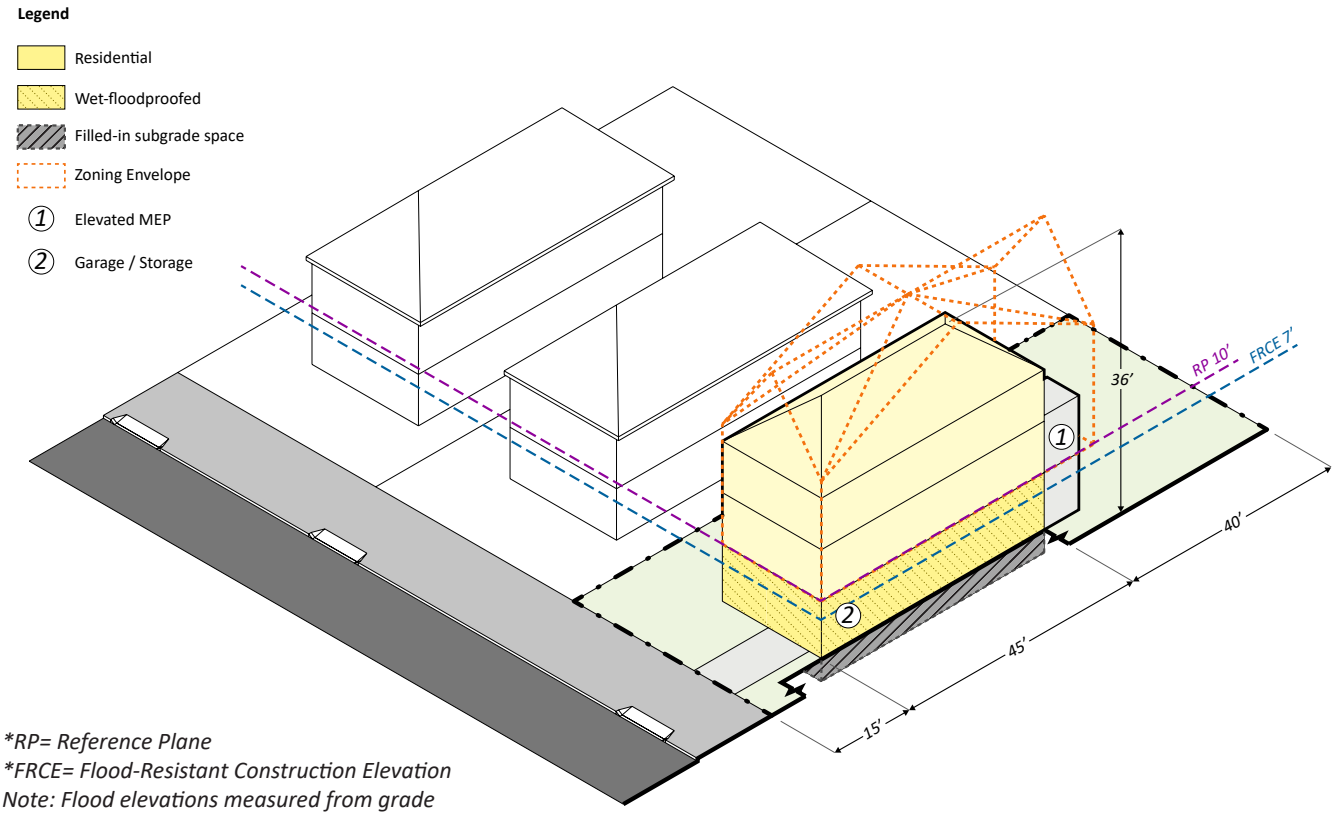
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	4,000 sf	4,000 sf	4,000 sf	0	0	0
Zoning Floor Area	1,800 sf	1,800 sf	1,800 sf	0	0	0
Zoning Residential Floor Area	1,800 sf	1,800 sf	1,800 sf	0	0	0
Gross Floor Area	2,900 sf	2,835 sf	2,835 sf	- 65 sf	0	- 65 sf
Gross Residential Floor Area	2,900 sf	2,835 sf	2,835 sf	- 65 sf	0	- 65 sf
Exempted Floor Area	1,100 sf	1,035 sf	1,035 sf	- 65 sf	0	- 65 sf
Provided Perimeter Wall/Baseheight	20 ft	28 ft	28 ft	+ 8 ft	0	+ 8 ft
Provided Overall Height	28 ft	36 ft	36 ft	+ 8 ft	0	+ 8 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	3 *(No Cellar)*	+ 1	0	+ 1
Lot Coverage / Open Space	23 % / 77 %	24 % / 76 %	24 % / 76 %	+ 1% / - 1%	0 / 0	+ 1% / - 1%
Dwelling Units	1	1	1	0	0	0
Parking Spaces	1	1	1	0	0	0

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

R3-1 Residence District

Prototype 1

1% Annual Chance Floodplain: With-Action Condition



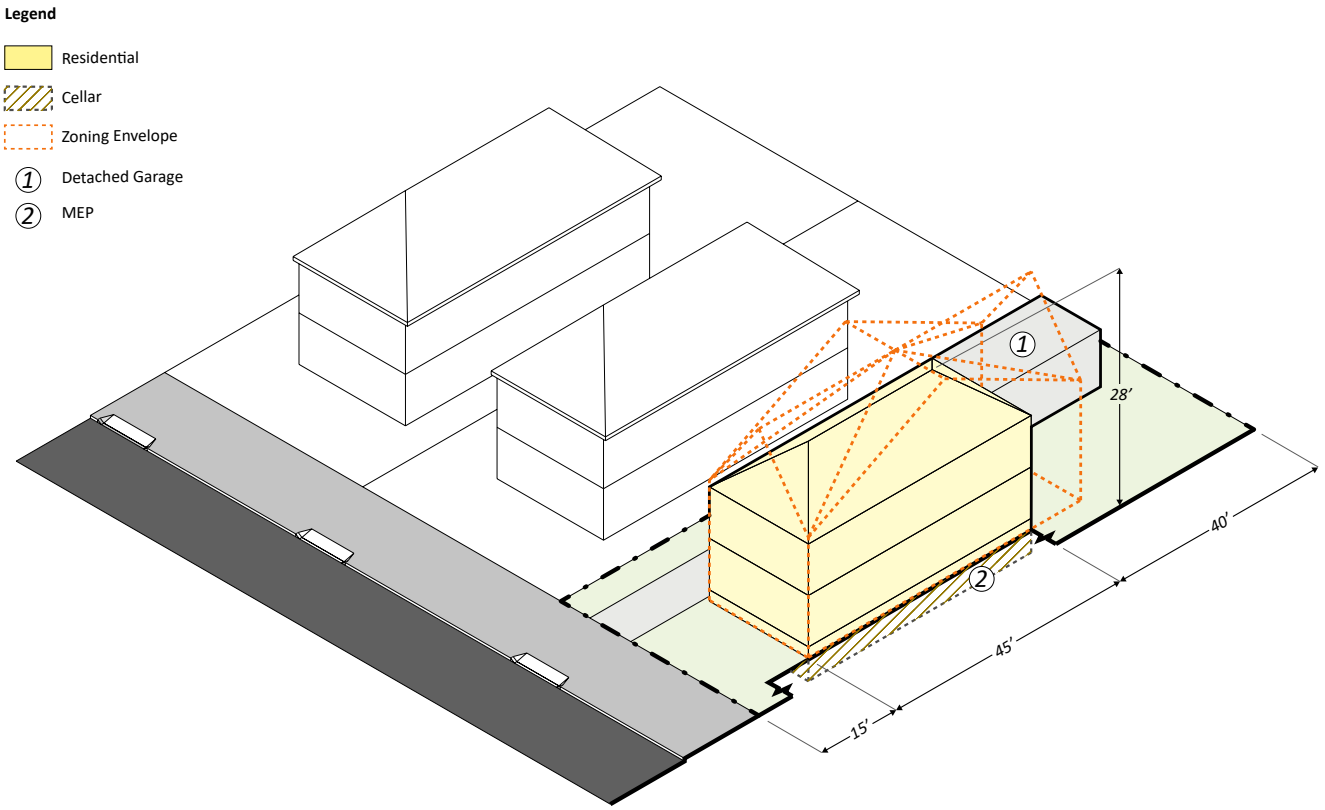
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	4,000 sf	4,000 sf	0 sf
Zoning Floor Area	1,800 sf	1,800 sf	0 sf
Zoning Residential Floor Area	1,800 sf	1,800 sf	0 sf
Gross Floor Area	2,900 sf	2,835 sf	- 65 sf
Gross Residential Floor Area	2,900 sf	2,835 sf	- 65 sf
Exempted Floor Area	1,100 sf	1,035 sf	- 65 sf
Provided Perimeter Wall/Baseheight	20 ft	28 ft	+ 8 ft
Provided Overall Height	28 ft	36 ft	+ 8 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	23 % / 77 %	24 % / 76 %	+ 1% / - 1%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 1

0.2% Annual Chance Floodplain: No-Action Condition

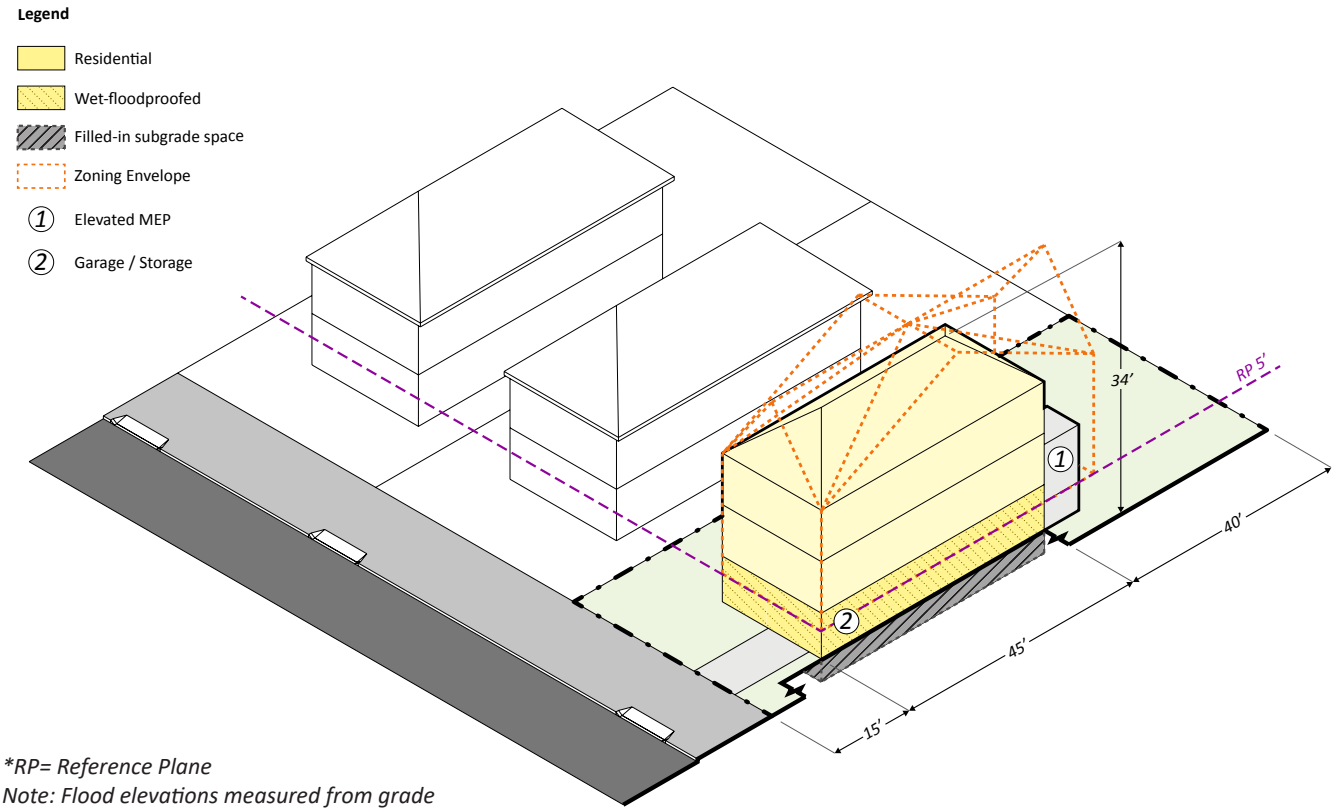


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	4,000 sf	4,000 sf	0
Zoning Floor Area	1,800 sf	1,800 sf	0
Zoning Residential Floor Area	1,800 sf	1,800 sf	0
Gross Floor Area	2,900 sf	2,835 sf	- 65 sf
Gross Residential Floor Area	2,900 sf	2,835 sf	- 65 sf
Exempted Floor Area	1,100 sf	1,035 sf	- 65 sf
Provided Perimeter Wall/Baseheight	20 ft	26 ft	+ 6 ft
Provided Overall Height	28 ft	34 ft	+ 6 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	23 % / 77 %	24 % / 76 %	+ 1% / - 1%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 1

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	4,000 sf	4,000 sf	0 sf
Zoning Floor Area	1,800 sf	1,800 sf	0 sf
Zoning Residential Floor Area	1,800 sf	1,800 sf	0 sf
Gross Floor Area	2,900 sf	2,835 sf	- 65 sf
Gross Residential Floor Area	2,900 sf	2,835 sf	- 65 sf
Exempted Floor Area	1,100 sf	1,035 sf	- 65 sf
Provided Perimeter Wall/Baseheight	20 ft	26 ft	+ 6 ft
Provided Overall Height	28 ft	34 ft	+ 6 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	23 % / 77 %	24 % / 76 %	+ 1% / - 1%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

Prototype 2

R3-1 Residence District, 25-foot x 100-foot Interior Lot
Single-Family Semi-Detached Residence, New Construction

Introduction

Prototypical Analysis Site 2 utilizes a generic 25-foot by 100-foot interior lot (2,500 sf) in an R3-1 contextual residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 2 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) "reference planes;"
- Floor area exemption for wet-floodproofed ground floors; and
- Minor FAR exemption allowance for MEP equipment.

Existing Condition

Under existing conditions, Prototypical Analysis Site 2 is a 2,500 sf vacant lot.

1% Annual Chance Floodplain Scenario

No-Action Condition

Under No-Action conditions, Prototypical Analysis Site 2 would be developed with a new, single-family semi-detached residence with two stories and a detached garage. The zoning lot would be built with 1,250 sf of zoning floor area (0.5 FAR), the maximum permitted within an R3-1 zoning district, which may be increased by up to 300 square feet for the inclusion of a detached garage (ZR 23-142). Under No-Action conditions, the building's gross floor area would be 1,600 sf. Floor spaces used for the MEP equipment (50 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). While the total space used for MEP equipment is 75 sf, only 50 sf would be exempt.

Prototypical Analysis Site 2 is mapped with a BFE of two feet above grade, according to FEMA's flood maps resulting in a DFE of four feet. In order to meet the minimum Appendix G requirements in the future without the Proposed Action, the crawlspace of Prototypical Analysis Site 2 would be wet-floodproofed, and the first occupiable floor of the residence would be placed at four feet above grade. The total building height would be 29 feet with a perimeter wall height of 13 feet, fitting within the permitted building envelope of an R3-1 zoning district as measured from the BFE, which allows for a maximum building height of 37 feet (35 feet plus two feet BFE) and a maximum perimeter wall height of 23 feet (21 feet plus two feet BFE) (ZR 23-63 and ZR 12-10 Definition of a Base Plane).

Under No-Action conditions, Prototypical Analysis Site 2's MEP equipment would be located in the building above the DFE. The No-Action scenario would provide one parking space in detached garage in the rear yard, connected to the street via a driveway, complying with the number of parking spaces required in the underlying zoning (ZR 25-22, 25-621). The building on Prototypical Analysis Site 2 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 2 would be developed with a new single-family, semi-detached residence with three stories and an attic. Under With-Action conditions, the first floor of the building would be a wet-floodproofed garage and storage space to comply with Appendix G requirements. The zoning lot would be built with 1,500 sf of zoning floor area (0.6 FAR), the maximum permitted within an R3-1 zoning district with an attic allowance for the inclusion of space beneath a pitched roof (ZR 23-142). The building's gross floor area would be 2,231 sf. As a result of the Proposed Action, floor spaces used for MEP equipment in the horizontal enlargement (106 sf) and the wet-floodproofed ground floor (625 sf), which contains garage/storage space, would be exempted from the zoning floor area. The floor space used for the MEP equipment for the With-Action is larger because the MEP is calculated based on the gross floor area of the building and the With-Action MEP equipment is also servicing the wet-floodproofed ground floor space.

Under With-Action conditions, Prototypical Analysis Site 2 would have a FRCE of four feet. In order to floodproof the building for the long term and exceed the minimum Appendix G requirements, the home is utilizing the "reference plane" allowance of 8 feet in the 1% flood zone, which results in the FSAFE being located 8 feet above grade and everything below would be wet-floodproofed. In the future with the Proposed Action, the total building height on Site 2 would be 34 feet with a perimeter wall of 26 feet, fitting within the permitted building envelope of an R3-1 zoning district as measured from a "reference plane" of 8 feet above grade, which allows for a maximum building height of 43 feet (35 feet plus 8 feet) and a maximum perimeter wall height of 29 feet (21 feet plus 8 feet) (ZR 23-631). The ground floor of the building would have a wet-floodproofed garage and storage space with a floor-to-floor height of 10 feet. Additionally, the MEP equipment on Site 2 would be relocated from the basement to the rear yard and would be elevated 8 feet above grade to match the FSAFE. The MEP equipment would be attached to the building.

In the future with the Proposed Action, one parking space would be located on Prototypical Analysis Site 2 in the enclosed garage within the building. As new dwelling units would not be created by the Proposed Action on Site 2, the provided parking spaces would continue meet the underlying zoning requirements (ZR 25-22).

Increment

As a result of the Proposed Action, there would be an increase of 250 sf of zoning floor area, an increase of 631 sf of gross floor area, and an increase of 681 sf of exempted floor area on Prototypical Analysis Site 2 in the 1% annual chance floodplain. The Proposed Action would permit horizontal and vertical enlargements to the building. The With-Action building on Site 2 would have an additional five feet of building height and an additional 13 feet of base height as compared to the No-Action building on the site. No additional zoning floor area, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action. Lot coverage on Prototypical Analysis Site 2 would not change as a result of the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

Under No-Action conditions, a new, single-family, semi-detached residence with two stories, a basement, and a detached garage would be developed on Prototypical Analysis Site 2. The zoning lot would be built with 1,250 sf of zoning floor area (0.5 FAR), the maximum permitted within an R3-1 zoning district, which may be increased by up to 300 square feet for the inclusion of a detached garage (ZR 23-142). The detached garage also allows an additional 300 sf of floor area on the zoning lot (ZR 23-142). The building's gross

floor area would be 1,600 sf. Floor spaces used for the MEP equipment (50 sf total) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). While the total space used for MEP equipment is 78 sf, only 50 sf would be exempt.

Under the No-Action condition, since there is no BFE in the 0.2% flood zone, the total building height on Prototypical Analysis Site 2 would be 26 feet with a base height of 13 feet, as measured from grade, fitting within the permitted building envelope of an R3-1 zoning district, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-63). The building's MEP equipment would be located in the basement of the building. The No-Action scenario would provide one parking space in detached garage in the rear yard, connected to the street via a driveway, complying with the number of parking spaces required in the underlying zoning (ZR 25-22). The building on Prototypical Analysis Site 2 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 2 would be developed with a new single-family, semi-detached residence with three stories and an attic. The first floor of the building would be a wet-floodproofed garage and storage space to comply with Appendix G requirements. The zoning lot would be built with 1,500 sf of zoning floor area (0.6 FAR), the maximum permitted within an R3-1 zoning district, with an attic allowance for the inclusion of space beneath a pitched roof (ZR 23-142). The building's gross floor area would be 2,231 sf. As a result of the Proposed Action, floor spaces used for the MEP equipment (106 sf) and the wet-floodproofed ground floor (625 sf), which contains garage/storage space, would be exempted from the zoning floor area.

In order to floodproof the building for the long term, the home is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone and the FSAFE would be located 8 feet above grade and everything below would be wet-floodproofed. The total building height would be 34 feet with a perimeter wall of 26 feet, as measured from grade, fitting within the permitted building envelope of an R3-1 zoning district as measured from a "reference plane" of five feet above grade, which allows for a maximum building height of 40 feet (35 feet plus five feet) and a maximum perimeter wall height of 26 feet (21 feet plus five feet) (ZR 23-631). Additionally, in the future with the Proposed Action, the ground floor of Site 2 would have a wet-floodproofed garage and storage space, and the MEP equipment would be relocated from the basement to the rear yard and would be elevated 10 feet above grade to match the FSAFE. The MEP equipment would be attached to the building.

The With-Action scenario on Prototypical Analysis Site 2 would provide one parking space in the enclosed garage within the building. As new dwelling units would not be created, the provided parking spaces on Prototypical Analysis Site 2 would continue meet the underlying zoning requirements (ZR 25-22) in the future with the Proposed Action.

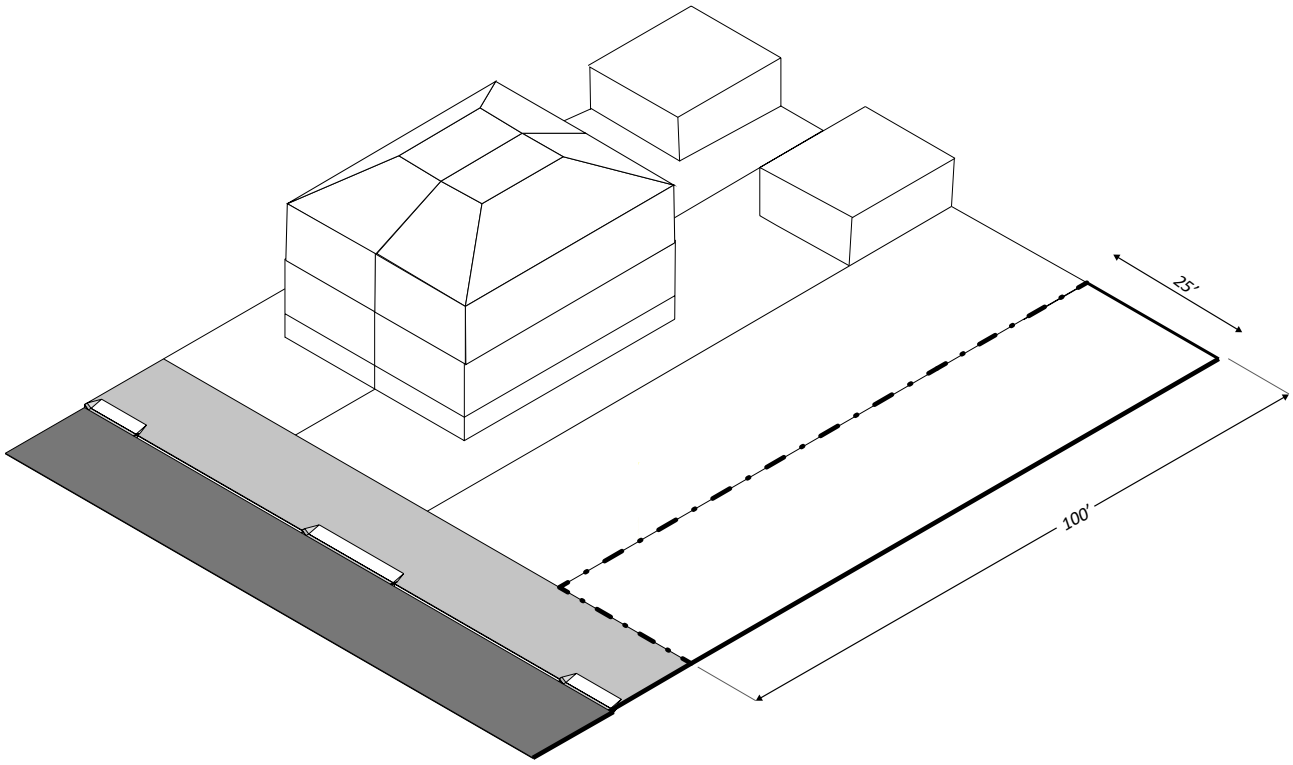
Increment

As a result of the Proposed Action, there would be an increase of 250 sf of zoning floor area, an increase of 631 sf of gross floor area, and an increase of approximately 681 sf of exempted floor area on Prototypical Analysis Site 2 in the 0.2% annual chance floodplain. The Proposed Action would permit vertical and horizontal enlargements to the building. The With-Action building on Site 2 would have an additional eight feet of building height and an additional 13 feet of base height as compared to the No-Action building on the site. No additional dwelling units or parking spaces would be added on the lot as a result of the Proposed Action. Lot coverage on Site 2 would increase by eight percent.

R3-1 Residence District

Prototype 2

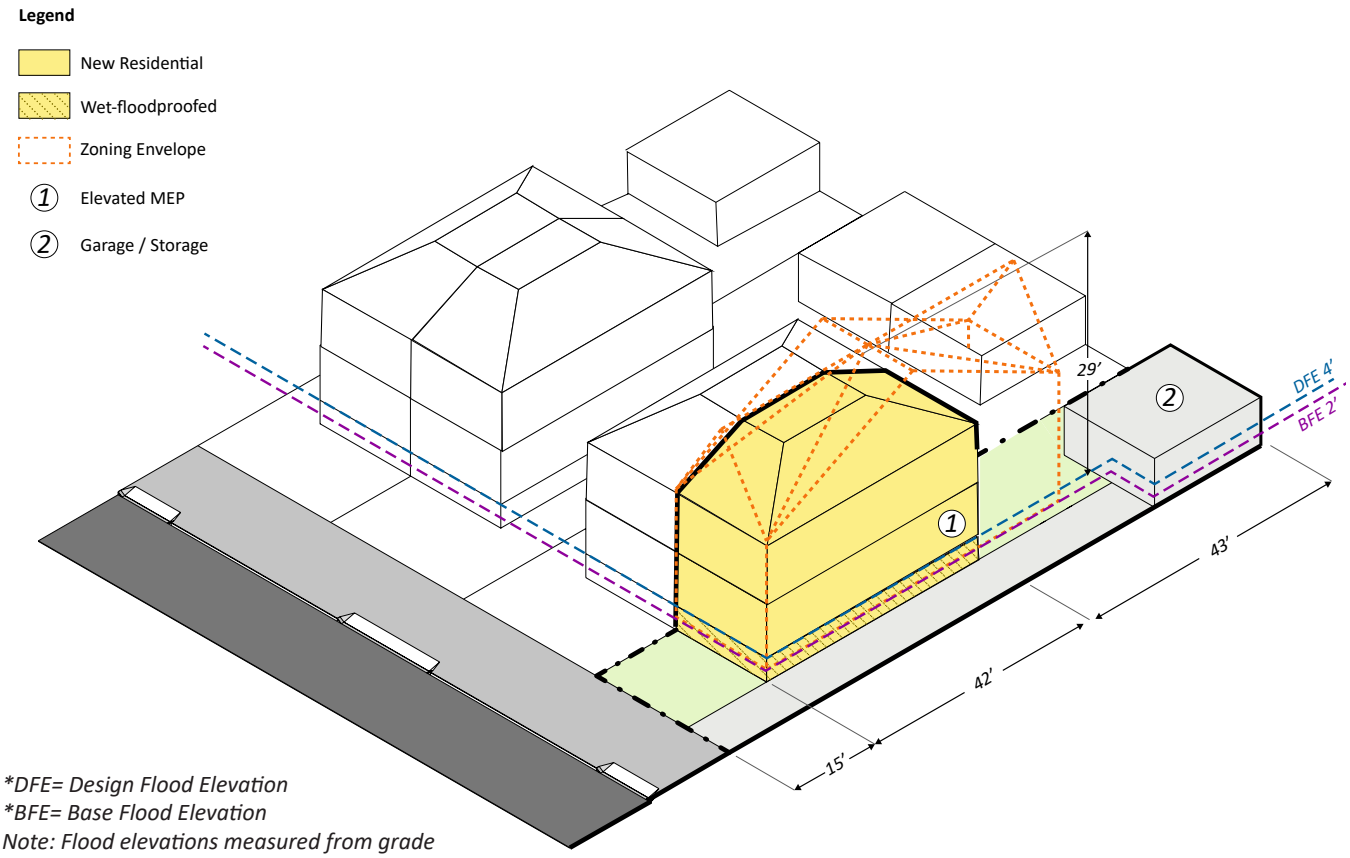
Existing Condition



R3-1 Residence District

Prototype 2

1% Annual Chance Floodplain: No-Action Condition



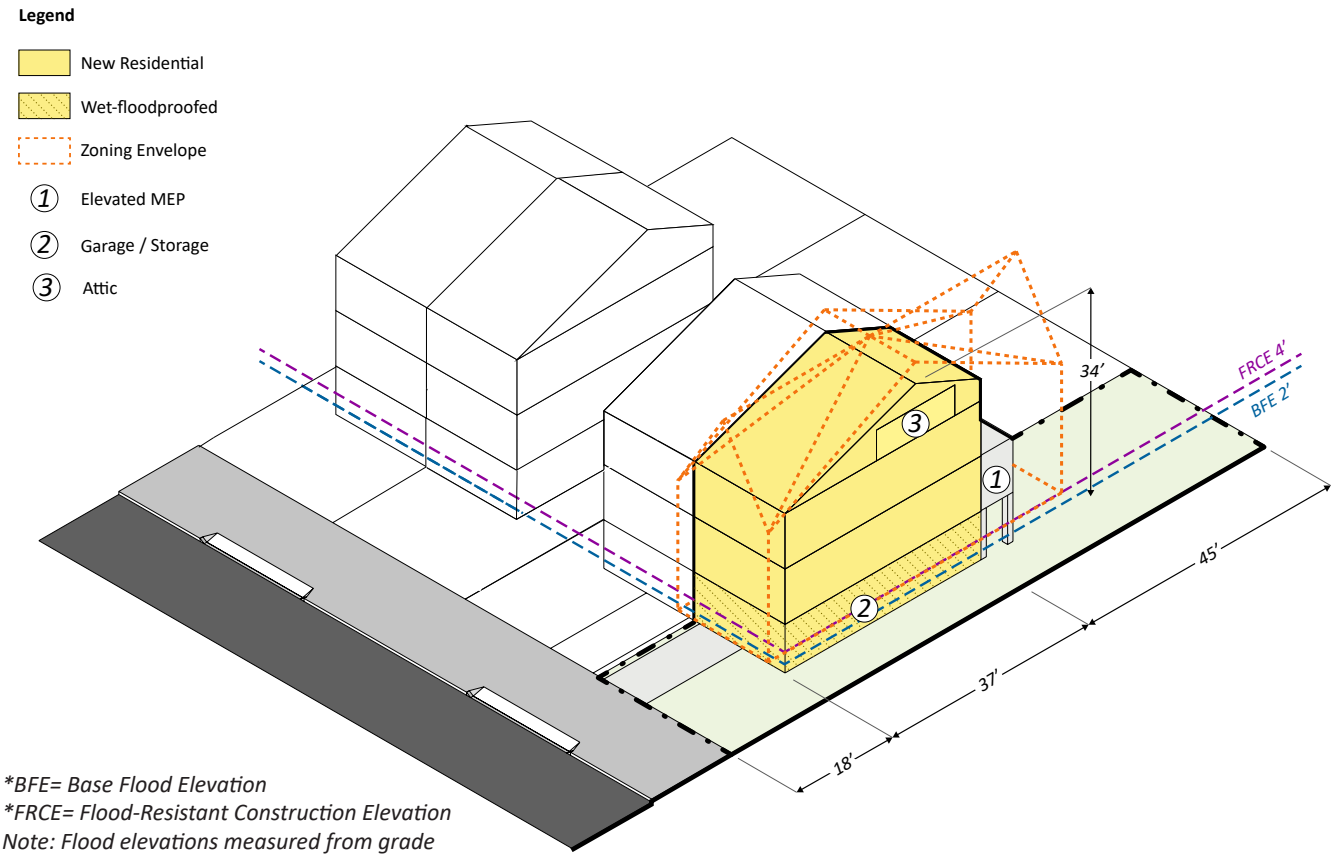
**DFE= Design Flood Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,250 sf	1,500 sf	+ 250 sf
Zoning Residential Floor Area	1,250 sf	1,500 sf	+ 250 sf
Gross Floor Area	1,600 sf	2,231 sf	+ 631 sf
Gross Residential Floor Area	1,600 sf	2,231 sf	+ 631 sf
Exempted Floor Area	50 sf	725 sf	+ 681 sf
Provided Perimeter Wall/Baseheight	13 ft	26 ft	+ 13 ft
Provided Overall Height	29 ft	34 ft	+ 5 ft
Provided Number of Stories	2	3	+ 1
Lot Coverage / Open Space	29 % / 71 %	29 % / 71 %	0 / 0
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 2

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

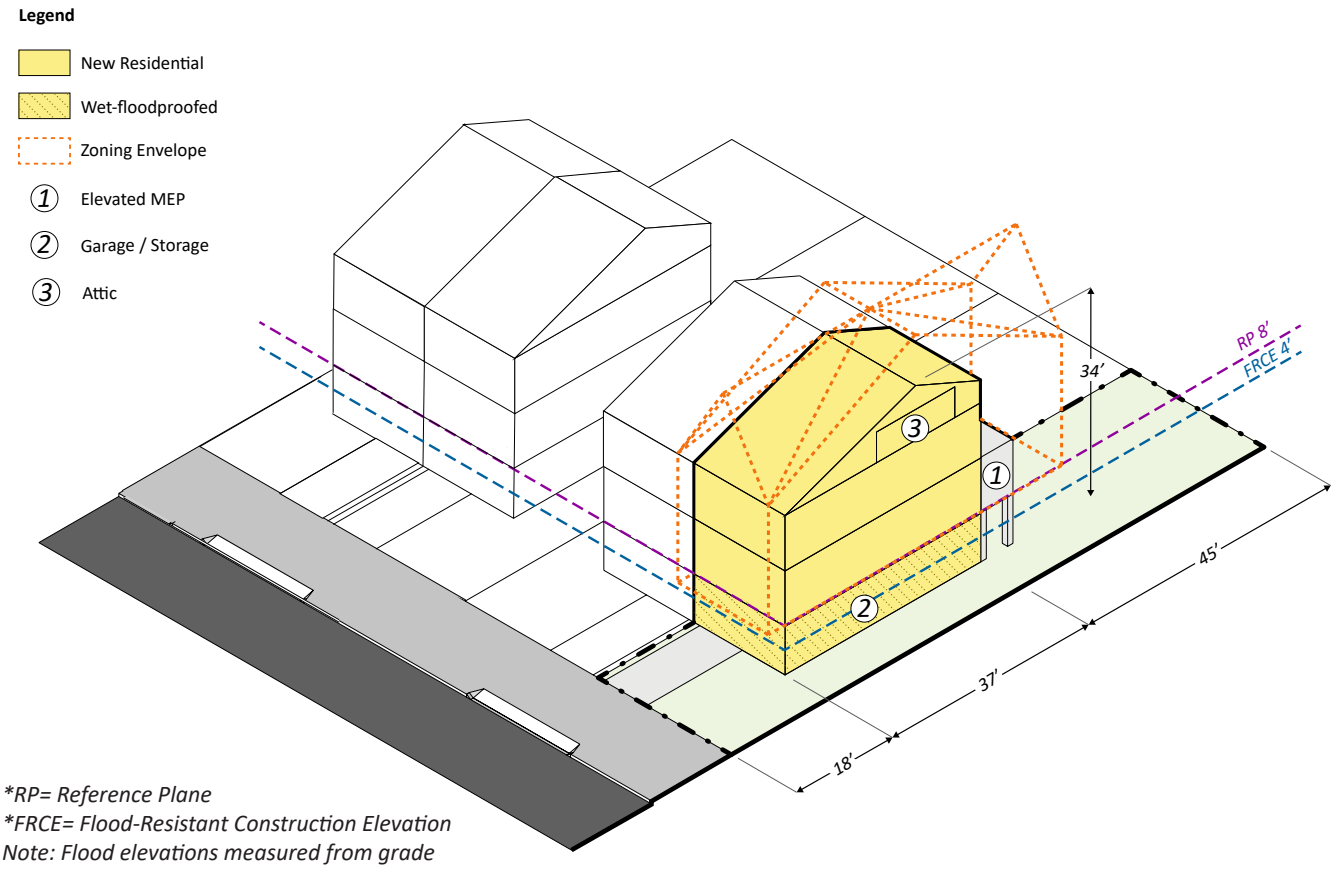
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	2,500 sf	0 sf	0	0 sf
Zoning Floor Area	1,250 sf	1,500 sf	1,500 sf	+ 250 sf	0	+ 250 sf
Zoning Residential Floor Area	1,250 sf	1,500 sf	1,500 sf	+ 250 sf	0	+ 250 sf
Gross Floor Area	1,600 sf	2,231 sf	2,231 sf	+ 631 sf	0	+ 631 sf
Gross Residential Floor Area	1,600 sf	2,231 sf	2,231 sf	+ 631 sf	0	+ 631 sf
Exempted Floor Area	50 sf	731 sf	731 sf	+ 681 sf	0	+ 681 sf
Provided Perimeter Wall/Baseheight	13 ft	26 ft	26 ft	+ 13 ft	0	+ 13 ft
Provided Overall Height	29 ft	34 ft	34 ft	+ 5 ft	0	+ 5 ft
Provided Number of Stories	2	3	3	+ 1	0	+ 1
Lot Coverage / Open Space	29 % / 71 %	29 % / 71 %	29 % / 71 %	0 / 0	0 / 0	0 / 0
Dwelling Units	1	1	1	0	0	0
Parking Spaces	1	1	1	0	0	0

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

R3-1 Residence District

Prototype 2

1% Annual Chance Floodplain: With-Action Condition



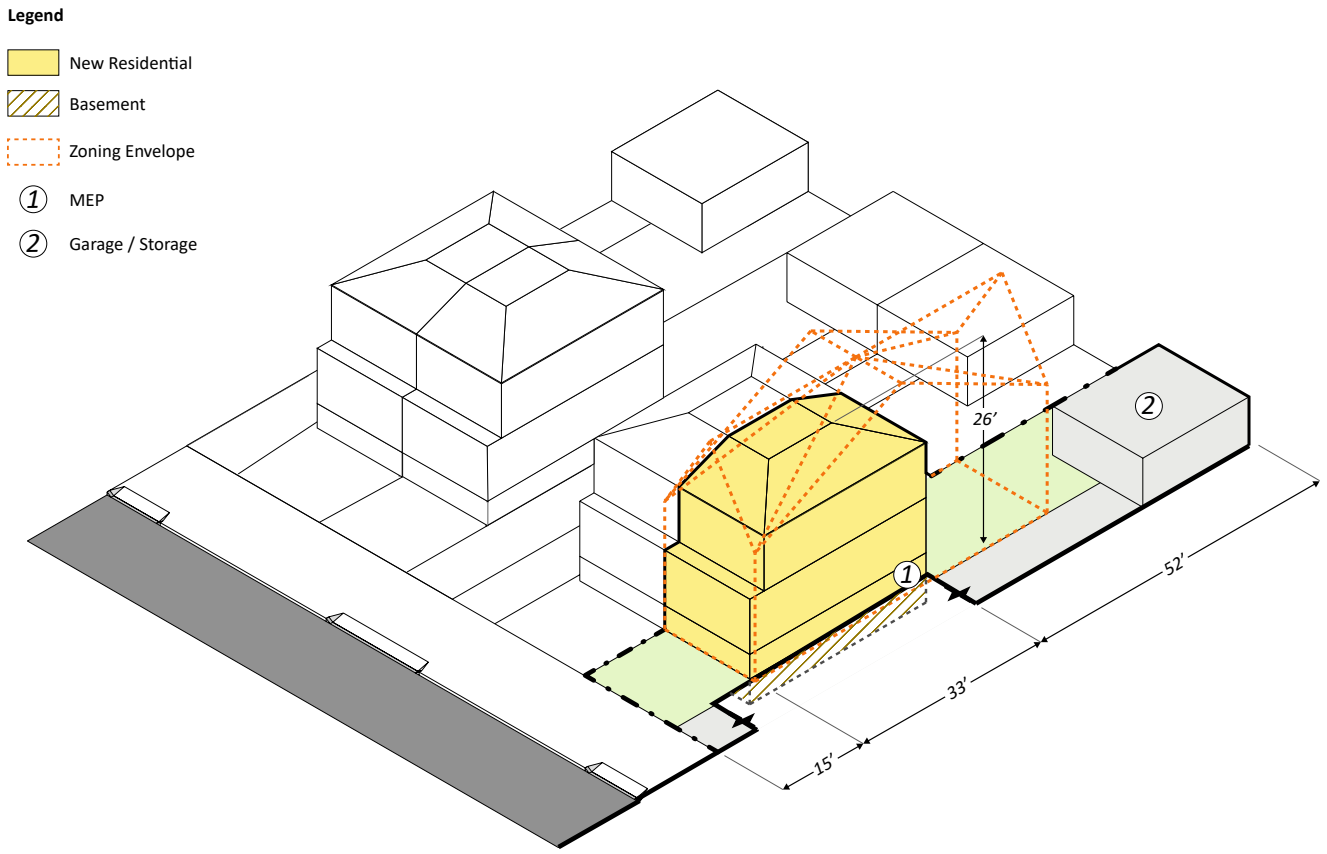
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,250 sf	1,500 sf	+ 250 sf
Zoning Residential Floor Area	1,250 sf	1,500 sf	+ 250 sf
Gross Floor Area	1,600 sf	2,231 sf	+ 631 sf
Gross Residential Floor Area	1,600 sf	2,231 sf	+ 631 sf
Exempted Floor Area	50 sf	731 sf	+ 681 sf
Provided Perimeter Wall/Baseheight	13 ft	26 ft	+ 13 ft
Provided Overall Height	29 ft	34 ft	+ 5 ft
Provided Number of Stories	2	3	+ 1
Lot Coverage / Open Space	29 % / 71 %	29 % / 71 %	0 / 0
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 2

0.2% Annual Chance Floodplain: No-Action Condition

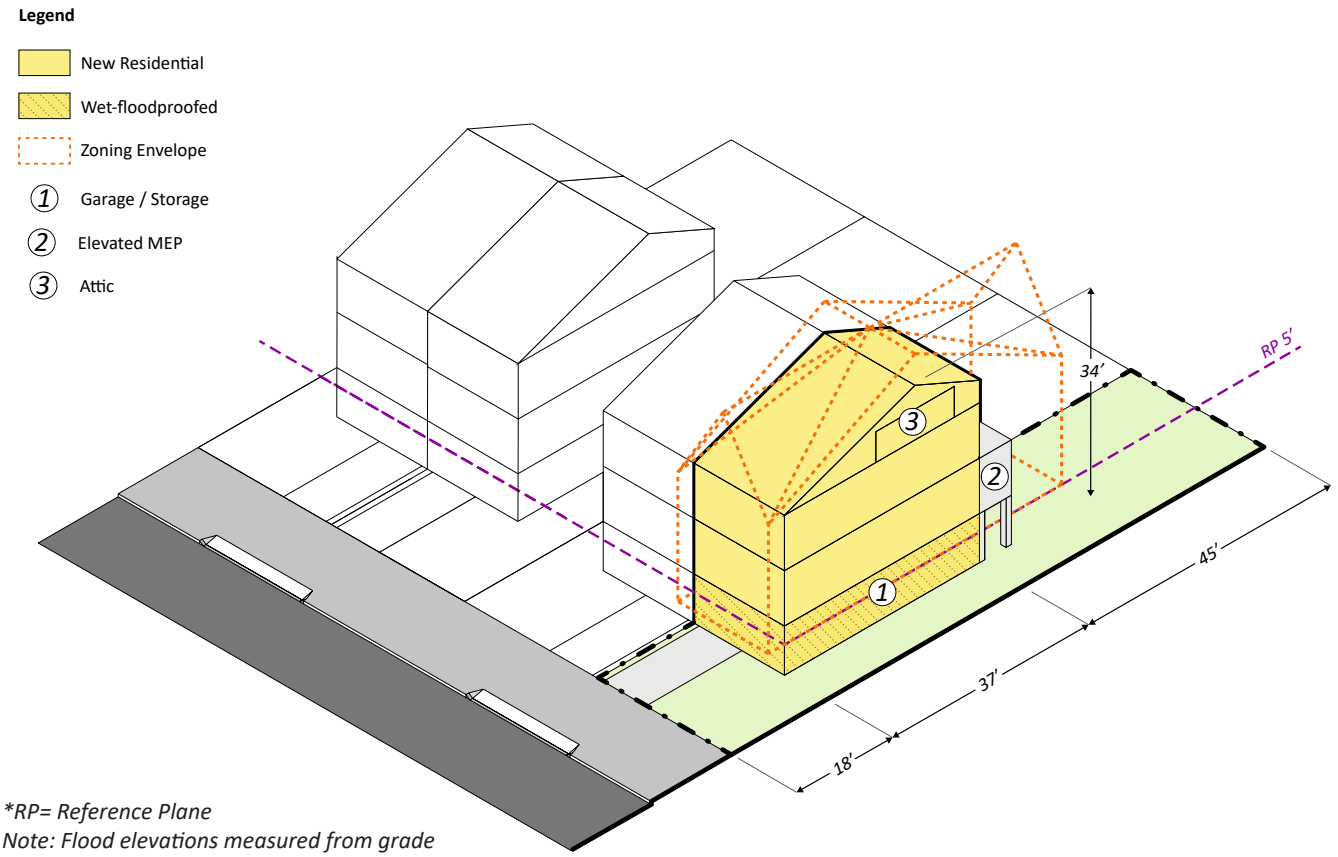


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,250 sf	1,500 sf	+ 250 sf
Zoning Residential Floor Area	1,250 sf	1,500 sf	+ 250 sf
Gross Floor Area	1,600 sf	2,231 sf	+ 631 sf
Gross Residential Floor Area	1,600 sf	2,231 sf	+ 631 sf
Exempted Floor Area	50 sf	731 sf	+ 681 sf
Provided Perimeter Wall/Baseheight	13 ft	26 ft	+ 13 ft
Provided Overall Height	26 ft	34 ft	+ 8 ft
Provided Number of Stories	2 *(+ Basement)*	3 *(+ Attic)*	+ 1
Lot Coverage / Open Space	21 % / 79 %	29 % / 71 %	+ 8% / - 8%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

R3-1 Residence District

Prototype 2

0.2% Annual Chance Floodplain: With-Action Condition



**RP= Reference Plane*
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,250 sf	1,500 sf	+ 250 sf
Zoning Residential Floor Area	1,250 sf	1,500 sf	+ 250 sf
Gross Floor Area	1,600 sf	2,231 sf	+ 631sf
Gross Residential Floor Area	1,600 sf	2,231 sf	+ 631 sf
Exempted Floor Area	50 sf	731 sf	+ 681 sf
Provided Perimeter Wall/Baseheight	13 ft	26 ft	+ 13 ft
Provided Overall Height	26 ft	34 ft	+ 8 ft
Provided Number of Stories	2 *(+ Basement)*	3 *(+ Attic)*	+ 1
Lot Coverage / Open Space	21 % / 79 %	29 % / 71 %	+ 8% / - 8%
Dwelling Units	1	1	0
Parking Spaces	1	1	0

Prototype 3

R4 Infill Residence District, 20-foot x 100-foot Interior Lot
Two-Family Attached Residence, Reconstruction

Introduction

Prototypical Analysis Site 3 utilizes a generic 20-foot by 100-foot interior lot (2,000 sf) in an R4 infill residence zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 3 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 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 equipment in the rear yard; and
- Streetscape improvements.

Existing Condition

The existing condition on Prototypical Analysis Site 3 is a two-family attached residence with two stories and a basement where one residential unit is in the basement. The zoning lot is built with 2,700 sf of zoning floor area, the maximum permitted within an R4 zoning district, which allows a higher maximum FAR of 1.35 (ZR 23-143) for buildings in predominantly built-up areas. The building's gross floor area is 2,835 sf. Floor spaces used for MEP equipment (135 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). The side yard requirement is waived since the buildings are abutting at the lot line (ZR 23-49).

This existing building on Prototypical Analysis Site 3 does not meet the minimum Appendix G requirements, 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. This fits within the permitted building envelope of an R4 zoning 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 on Site 3 have a floor-to-floor height of nine feet, and the building's MEP equipment is located in the basement.

The existing scenario provides one parking space in an unenclosed space in the front yard meeting the one parking space required in the underlying zoning for group parking facilities in predominantly built-up areas (ZR 25-621 and ZR 25-23). The building on Prototypical Analysis Site 3 complies with all other underlying zoning regulations in the existing condition.

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario on Prototypical Analysis Site 3 would not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. The permitted building envelope of an R4 infill residence district is measured from the BFE (ZR 12-10 Definition of a 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) from grade.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 3 would be reconstructed. The site would accommodate a two-family attached residence with four stories and a garage. The basement would be filled-in to comply with Appendix G requirements. The floor area lost due to the filled-in basement would be added as a horizontal enlargement in the rear yard and as a partial story to the top of the building. The zoning lot would be built with 2,700 sf of zoning floor area, the maximum permitted within an R4 zoning district, which allows a higher maximum FAR of 1.35 (ZR 23-143) for buildings in predominantly built-up areas. Under With-Action conditions, the building's gross floor area would be 3,927 sf. As a result of the Proposed Action, spaces used for MEP equipment (187 sf) and the wet-floodproofed ground floor (1,040 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 3.

Prototypical Analysis Site 3 is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a FRCE of seven feet above grade. In order to floodproof the building for the long term and exceed the minimum Appendix G requirements in the future with the Proposed Action, the home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, which results in the FSAFE being located 10 feet above grade, with the below grade filled-in. The total building height would be 37 feet with a perimeter wall of 28 feet, as measured from grade, fitting within the permitted building envelope of an R4 infill zoning district as measured from a "reference plane" of 10 feet above grade, 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 would have a wet-floodproofed garage with a floor-to-floor height of 10 feet, and all residential floors would have floor-to-floor heights of nine feet. In the future with the Proposed Action, the MEP equipment on Site 3 would be relocated from the basement to the rear yard as a permitted obstruction and would be elevated 10 feet above grade to match the FSAFE. Additionally, the MEP equipment room would be attached to the building.

The With-Action scenario on Prototypical Analysis Site 3 would contain two parking spaces, one existing unenclosed parking space in the front yard and one enclosed parking space in a garage within the building. The provided parking spaces would meet the underlying zoning requirements for a reconstruction (ZR 25-23). Under With-Action conditions, the building on Site 3 would comply with all other underlying zoning regulations.

Increment

As a result of the Proposed Action, there would be an additional 1,092 sf of gross floor area and exempted floor area on Prototypical Analysis Site 3 in the 1% annual chance floodplain, allowing for additional building height and a horizontal enlargement. The With-Action building would have an additional 15 feet of building height and an additional six feet of base height as compared to the No-Action building on the site. No additional zoning floor area or dwelling units would be added on the lot as a result of the Proposed Action. The With-Action building on Prototypical Analysis Site 3 would increase lot coverage by six percent as compared to No-Action conditions.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

For conservative analysis purposes, the No-Action scenario on Prototypical Analysis Site 3 would be the same as the existing condition, because buildings in the 0.2% annual chance floodplain don't have to meet

the minimum Appendix G requirements. 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). Since there is no BFE in the 0.2% flood zone, this is measured from grade.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 3 would be reconstructed. The site would accommodate a two-family attached residence with three stories. The basement would be filled-in to comply with Appendix G requirements. The floor area lost due to the filled-in basement would be added as a horizontal enlargement in the rear yard and as a partial story to the top of the building. Under With-Action conditions, the zoning lot would be built with 2,700 sf of zoning floor area, the maximum permitted within an R4 infill zoning district, which allows for an FAR of 1.35 (ZR 23-143) for buildings in predominantly built-up areas. The building's gross floor area would be 2,835 sf. As a result of the Proposed Action, spaces used for MEP equipment (135 sf) would be exempted from the zoning floor area on Site 3.

In order to floodproof the building on Site 3 for the long term, the home is utilizing the "reference plane" allowance of four feet in the 0.2% flood zone, and the FSAFE would be located four feet above grade, keeping the existing structure of the building. The space below would be an unoccupied wet-floodproofed crawl space. Under With-Action conditions, the total building height on Prototypical Analysis Site 3 would be 31 feet with a perimeter wall of 22 feet, as measured from grade, fitting within the permitted building envelope of an R4 infill zoning district measured from a "reference plane" of four feet above grade, 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 on Site 3 would have floor-to-floor heights of nine feet. The MEP equipment would be relocated from the basement to the rear yard as permitted obstruction and would be elevated four feet above grade to match the FSAFE. In addition, the MEP equipment would be attached to the building.

As under No-Action conditions, the With-Action scenario on Prototypical Analysis Site 3 would contain one parking space in an unenclosed space in the front yard, meeting the one parking space required in the underlying zoning for group parking facilities in predominantly built-up areas (ZR 25-621 and ZR 25-23). The building on Prototypical Analysis Site 3 would comply with all other underlying zoning regulations in the future with the Proposed Action.

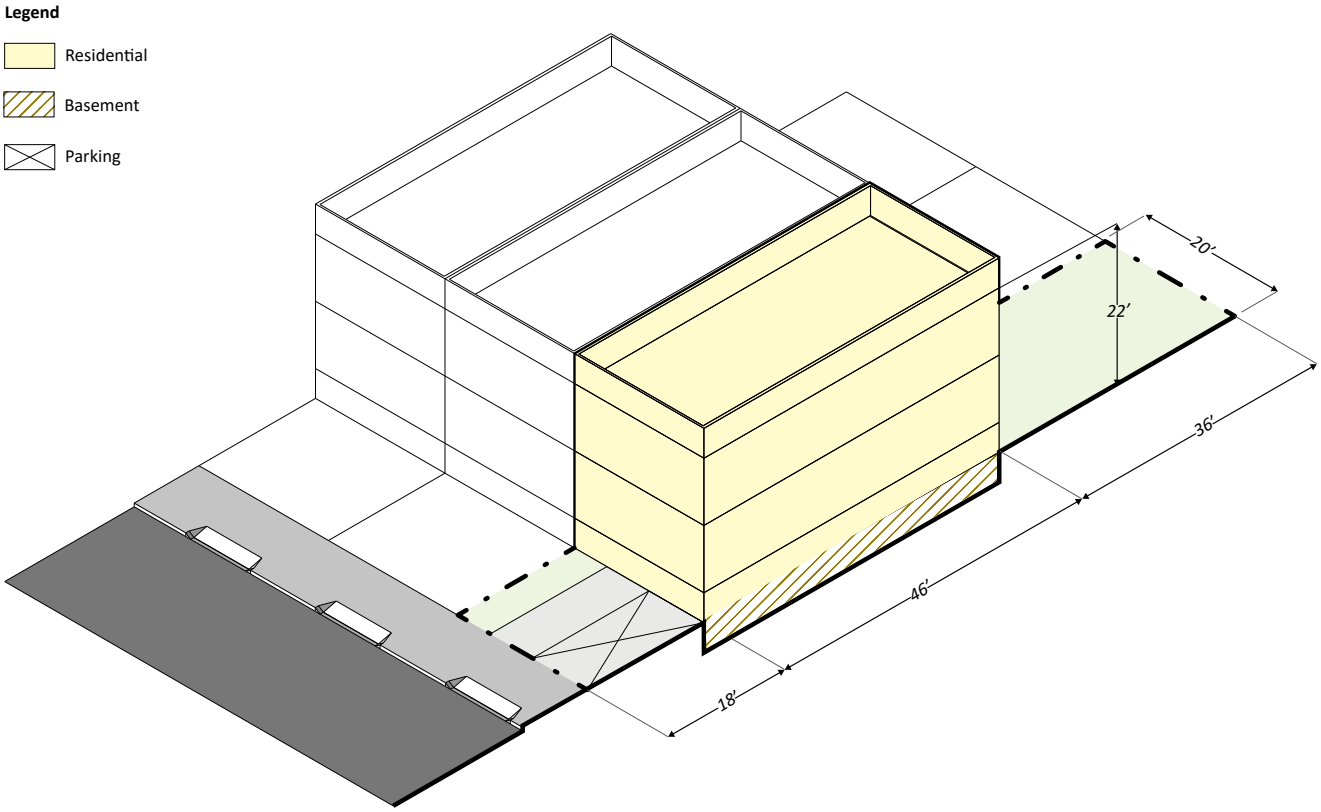
Increment

As a result of the Proposed Action, there would be an increase of nine feet of building height and a horizontal enlargement on Prototypical Analysis Site 3 in the 0.2% annual chance floodplain as compared to No-Action conditions. No additional gross floor area, zoning floor area, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action. The With-Action building on Prototypical Analysis Site 3 would increase lot coverage by six percent over No-Action conditions.

R4 Infill Residence District

Prototype 3

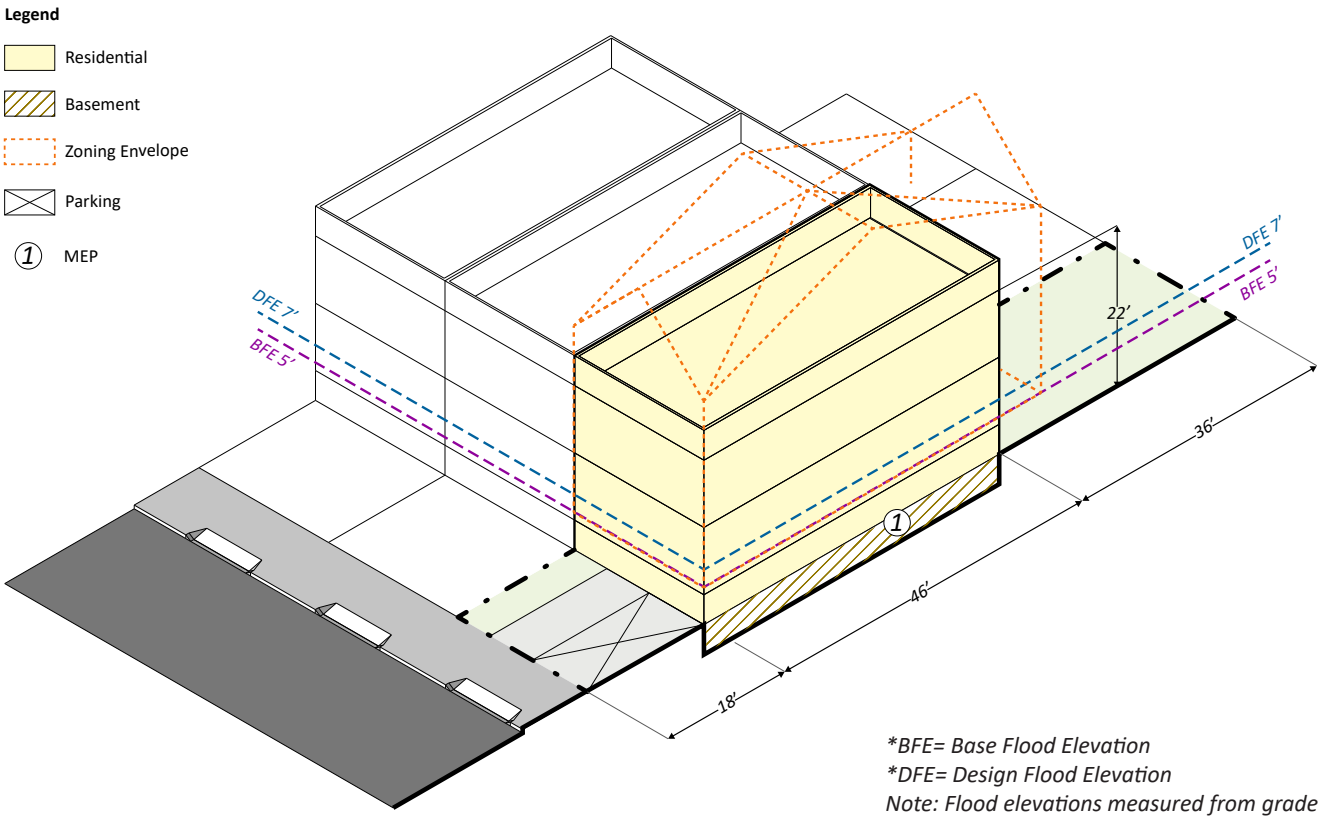
Existing Condition



R4 Infill Residence District

Prototype 3

1% Annual Chance Floodplain: No-Action Condition



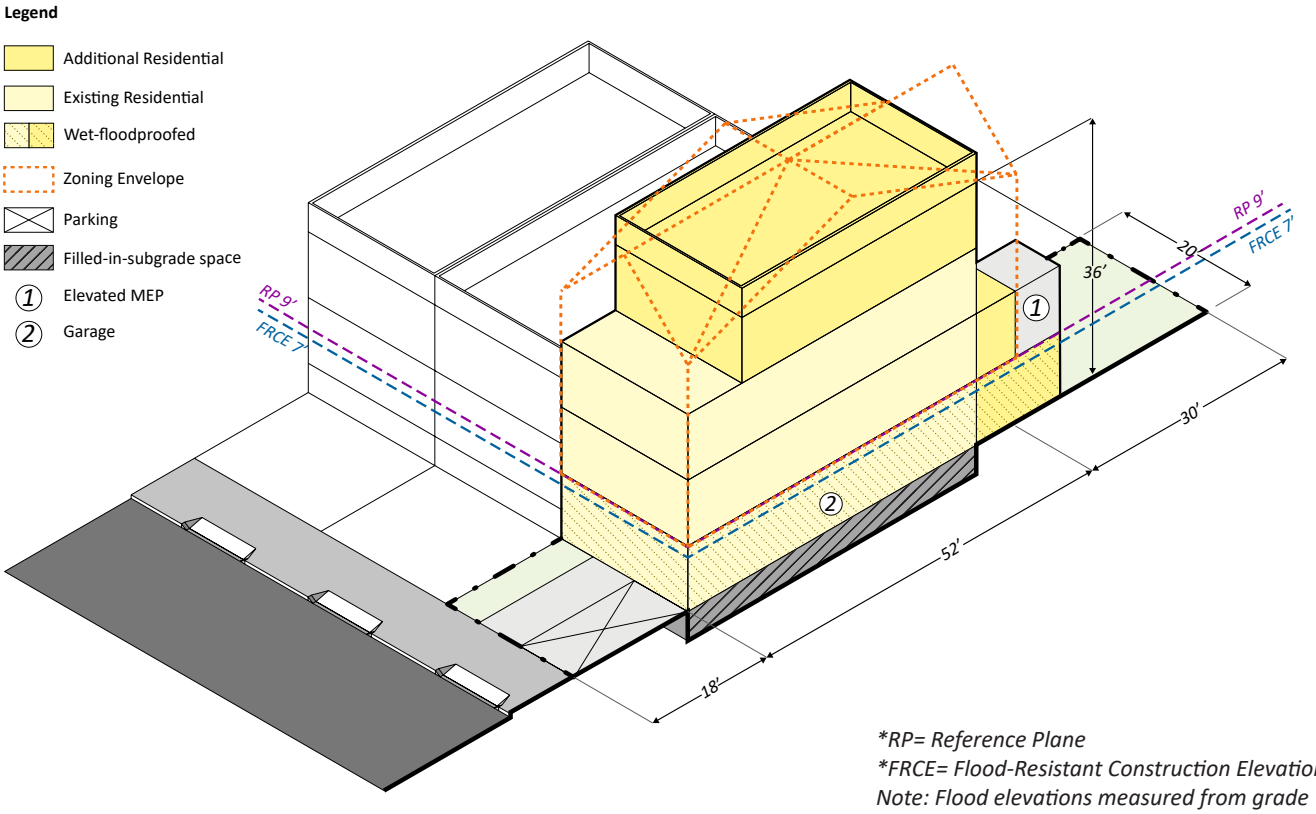
*BFE= Base Flood Elevation
*DFE= Design Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-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	2,835 sf	3,927 sf	+ 1,092 sf
Gross Residential Floor Area	2,835 sf	3,927 sf	+ 1,092 sf
Exempted Floor Area	135 sf	1,227 sf	+ 1,092 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 *(+ 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: FT1



**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

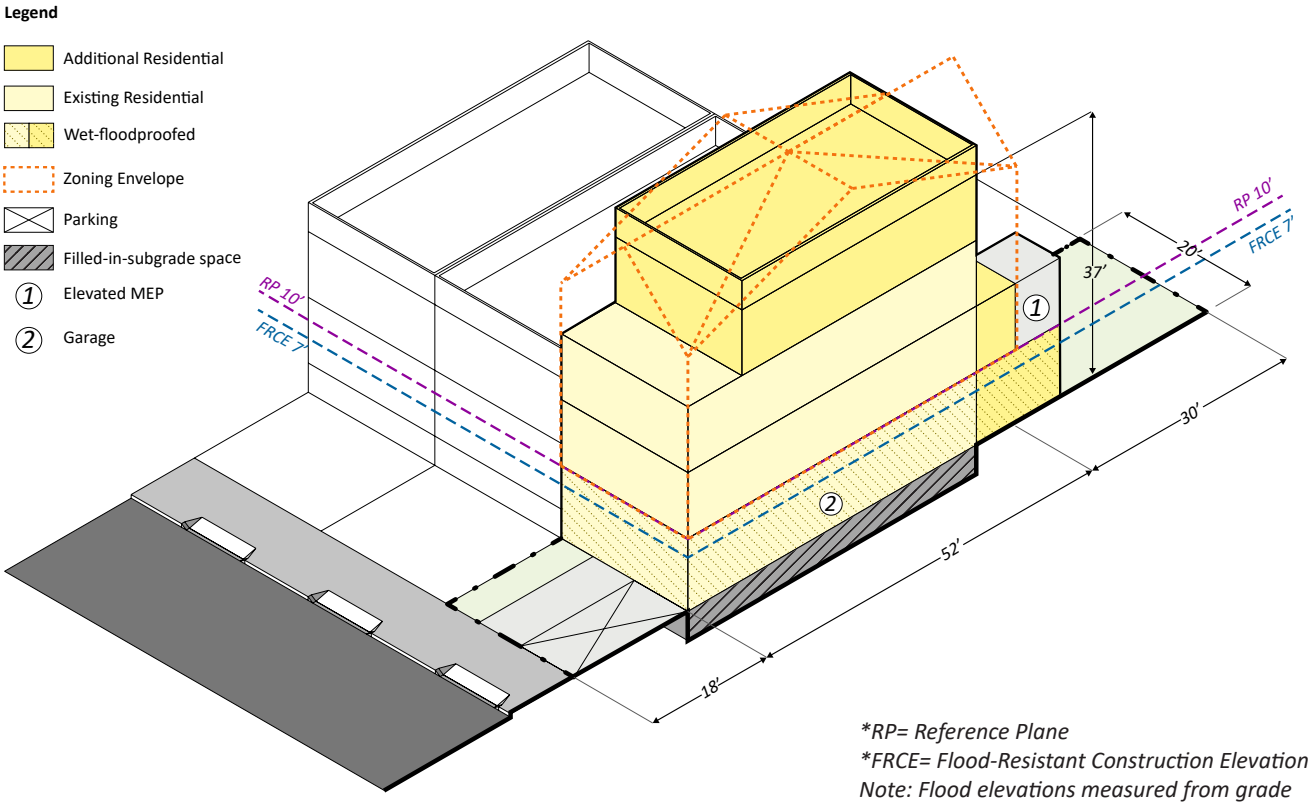
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,000 sf	2,000 sf	2,000 sf	0	0	0
Zoning Floor Area	2,700 sf	2,700 sf	2,700 sf	0	0	0
Zoning Residential Floor Area	2,700 sf	2,700 sf	2,700 sf	0	0	0
Gross Floor Area	2,835 sf	3,927 sf	3,927 sf	+ 1,092 sf	0 sf	+ 1,092 sf
Gross Residential Floor Area	2,835 sf	3,927 sf	3,927 sf	+ 1,092 sf	0 sf	+ 1,092 sf
Exempted Floor Area	135 sf	1,227 sf	1,227 sf	+ 1,092 sf	0 sf	+ 1,092 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 *(+ 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 Condition



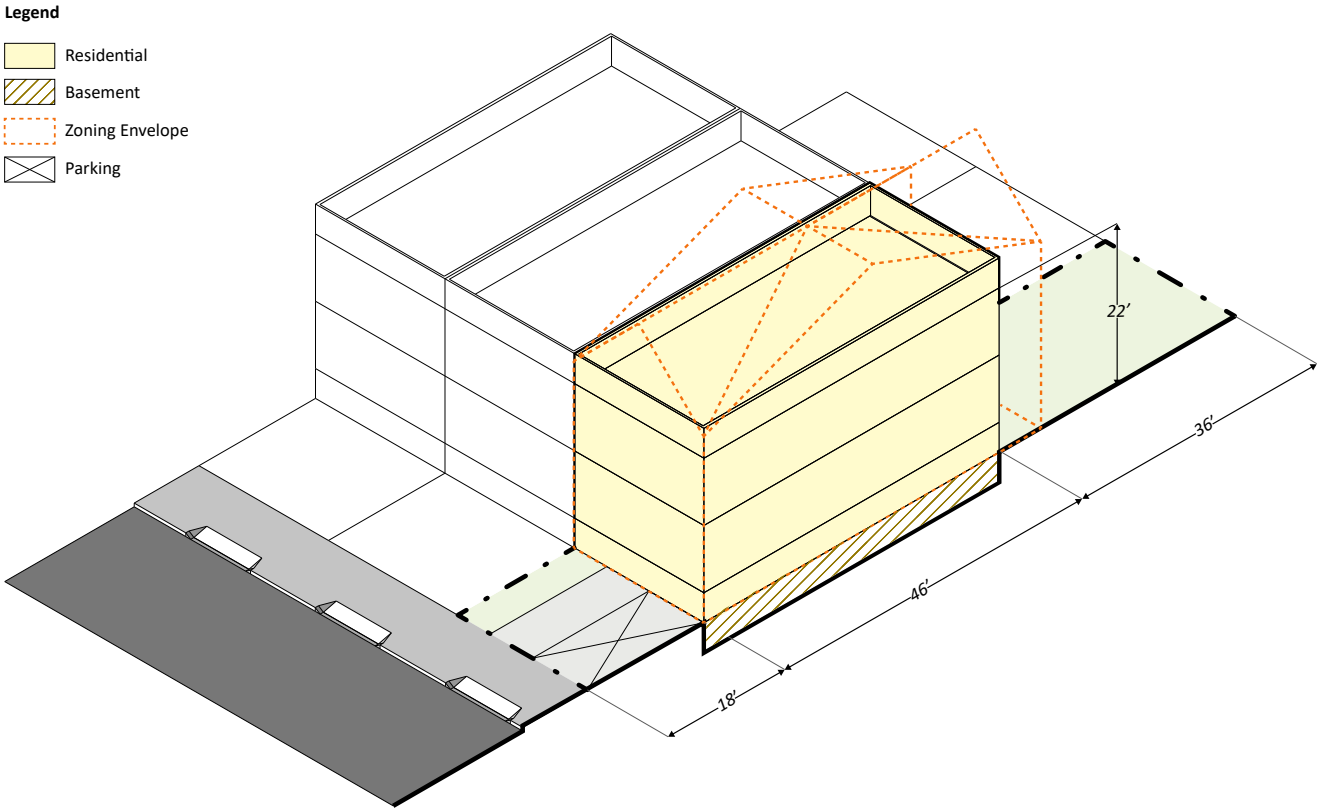
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-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	2,835 sf	3,927 sf	+1,092 sf
Gross Residential Floor Area	2,835 sf	3,927 sf	+1,092 sf
Exempted Floor Area	135 sf	1,227 sf	+1,092 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 *(+ 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

0.2% Annual Chance Floodplain: No-Action Condition

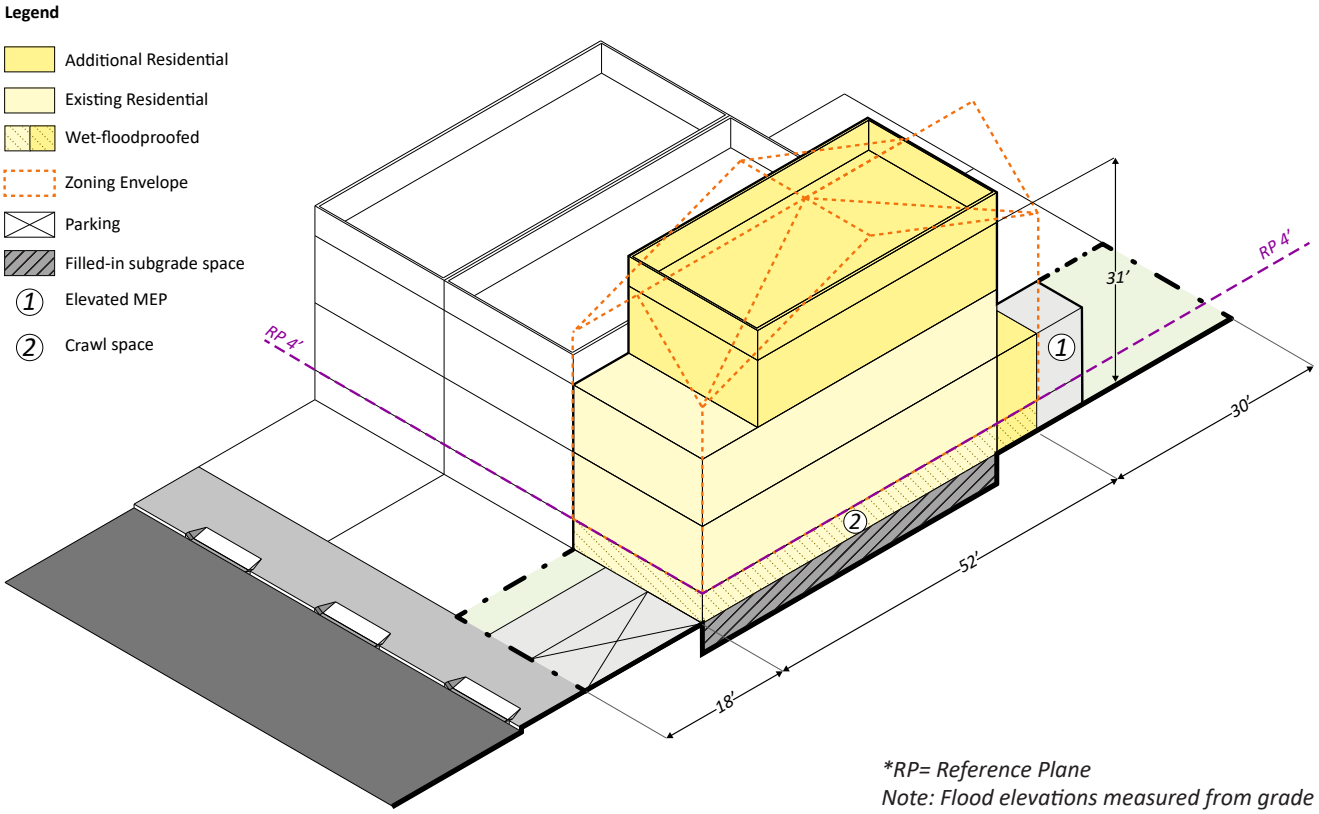


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,000 sf	2,000 sf	0 sf
Zoning Floor Area	2,700 sf	2,700 sf	0 sf
Zoning Residential Floor Area	2,700 sf	2,700 sf	0 sf
Gross Floor Area	2,835 sf	2,835 sf	0 sf
Gross Residential Floor Area	2,835 sf	2,835 sf	0 sf
Exempted Floor Area	135 sf	135 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 *(+ 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

R4 Infill Residence District

Prototype 3

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,700 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	2,835 sf	2,835 sf	0 sf
Gross Residential Floor Area	2,835 sf	2,835 sf	0 sf
Exempted Floor Area	135 sf	135 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 *(+ 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 4

R5 Infill Residence District, 25-foot x 100-foot Interior Lot
Multi-Family Apartment Building, Retrofit

Introduction

Prototypical Analysis Site 4 utilizes a generic 25-foot by 100-foot interior lot (2,500 sf) in an R5 infill residence zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 4 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes for retrofits; and
- Floor area exemption for wet-floodproofed ground floors.

Existing Condition

The existing condition on Prototypical Analysis Site 4 is a small multi-family apartment building with three stories and a cellar. The zoning lot is built with 4,125 sf of zoning floor area, exceeding the maximum permitted within an R5 residence zoning district, which allows a maximum FAR of 1.25 (ZR 23-142). The existing building was built prior to 1961 and thus legally non-complying. The building's gross floor area is 5,500 sf. The cellar used for MEP equipment (130 sf) and storage space (-1,245 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

This existing building on Site 4 does not meet the minimum Appendix G requirements, as it was constructed prior to the adoption of these regulations. The total building height is 29 feet above grade, fitting within the permitted zoning envelope of an R5 residence district, which allows for a maximum building height of 40 feet and a maximum perimeter wall height of 30 feet (ZR 23-631). All residential floors have floor-to-floor heights of nine feet each. The cellar floor has a floor-to-floor height of six feet, with two feet above ground and four feet below.

The existing scenario on Site 4 does not include any parking spaces on the site and does not meet the parking requirements of the underlying zoning (ZR 25-621 and ZR 25-22) as the three existing dwelling units were created prior to December 15, 1961 (ZR 25-21).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario on Prototypical Analysis Site 4 does not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. The permitted building envelope of an R5 residence zoning district is measured from the BFE (ZR 12-10 Definition of a Base Plane), which allows for a maximum building height of 42 feet (40 feet plus two feet BFE) and a maximum perimeter wall height of 32 feet (30 feet plus two feet BFE) (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 4 would be retrofitted. The site would accommodate a small multi-family apartment building with four stories. The cellar of the building would be filled-in to comply with Appendix G requirements. The floor area lost due to the filled-in cellar would be added as a nine-foot floor to the top of the building. The zoning lot would continue to be built with 4,125 sf of zoning floor area, the maximum permitted within an R5 infill district, which allows for a higher FAR of 1.65 for buildings in predominantly built-up areas (ZR 23-143). The building's gross floor area would be 5,630 sf under With-Action conditions. As a result of the Proposed Action, floor spaces used for MEP equipment (130 sf) and the wet-floodproofed ground floor (1,375 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

Prototypical Analysis Site 4 is mapped with a BFE of two feet above grade, according to FEMA's flood maps, resulting in a FRCE of three feet. In order to floodproof the building for the long term and exceed the minimum Appendix G requirements in the future with the Proposed Action, the ground floor of Site 4 would be wet-floodproofed, and everything below-grade would be filled-in. The home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, and the FSAFE would be at 11 feet above grade to keep the existing building structure. The total With-Action building height would be 38 feet, fitting within the permitted building envelope of an R5 infill residence zoning district as measured from a "reference plane" of 10 feet above grade, which allows for a maximum building height of 43 feet (33 feet plus 10 feet) and a maximum perimeter wall height of 40 feet (30 feet plus 10 feet) (ZR 23-631). Under With-Action conditions, the ground floor of Prototypical Analysis Site 4 would have a wet-floodproofed garage, and the MEP equipment would be relocated from the basement to the roof of the building.

The With-Action scenario on Site 4 would contain two enclosed parking spaces in a garage within the ground floor of the building, meeting the underlying zoning requirements (ZR 25-23).

Increment

As a result of the Proposed Action, there would be an additional 130 sf of both gross and incremental floor area on Prototypical Analysis Site 4 in the 1% annual chance floodplain, allowing for a vertical enlargement of the existing building. The With-Action building on Site 4 would have an additional nine feet of building height as compared to the No-Action building on the site. No additional zoning floor area or dwelling units would be added on the lot as a result of the Proposed Action, and the With-Action building would not change lot coverage as compared to the No-Action condition. Additionally, the With-Action building on Prototypical Analysis Site 4 would include two parking spaces as compared to the future without the Proposed Action in the 1% annual chance floodplain.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 4 would be the same as the existing condition, because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an R5 residence district is measured from grade, which allows for a maximum building height of 40 feet and a maximum perimeter wall height of 30 feet (ZR 23-631). Since there is no BFE in the 0.2% flood zone, this is measured the grade.

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 4 would be retrofitted. The site would accommodate a retrofitted small multi-family apartment building with four stories. The cellar would be filled-in to comply with Appendix G requirements. The floor area lost due to the filled-in cellar would be added as a nine-foot-tall story to the top of the building. Under With-Action conditions, Site 4 would contain 4,125 sf of zoning floor area, meeting the maximum permitted within an R5 infill residence zoning district, which allows for a higher FAR of 1.65 for buildings in predominantly built-up areas (ZR 23-143). The building's gross floor area would be 5,630 sf. As a result of the Proposed Action, floor spaces used for MEP equipment (130 sf) and the wet-floodproofed ground floor (1,245 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

In order to floodproof the building for the long term, the cellar would be filled-in and the ground-floor would be wet-floodproofed in the future with the Proposed Action. The home is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone, and the FSAFE would be at 11 feet above grade to keep the existing building structure. The total building height on Prototypical Analysis Site 4 in the With-Action scenario would be 38 feet with a perimeter wall of 29 feet, as measured from grade, fitting within the permitted building envelope of an R5 infill zoning district and a "reference plane" of five feet above grade, which allows for a maximum building height of 38 feet (33 feet plus five feet) and a maximum perimeter wall height of 35 feet (30 feet plus five feet) (ZR 23-631). Under With-Action conditions, the MEP equipment would be relocated from the cellar to the roof.

The With-Action scenario on Prototypical Analysis Site 4 would contain two enclosed parking spaces in a garage within the ground floor of the building meeting the underlying zoning requirements in the future with the Proposed Action (ZR 25-23).

Increment

As a result of the Proposed Action, there would be an additional 130 sf of both gross and incremental floor area on Prototypical Analysis Site 4 in the 0.2% annual chance floodplain, allowing for a vertical enlargement. The With-Action building would have an additional nine feet of building height as compared to the No-Action building on the site. No additional zoning floor area or dwelling units would be added on the lot as a result of the Proposed Action, and the With-Action building would not change lot coverage as compared to the No-Action condition. Additionally, the With-Action building on Prototypical Analysis Site 4 would include two parking spaces as compared to the future without the Proposed Action in the 0.2% annual chance floodplain.

R5 Infill Residence District

Prototype 4

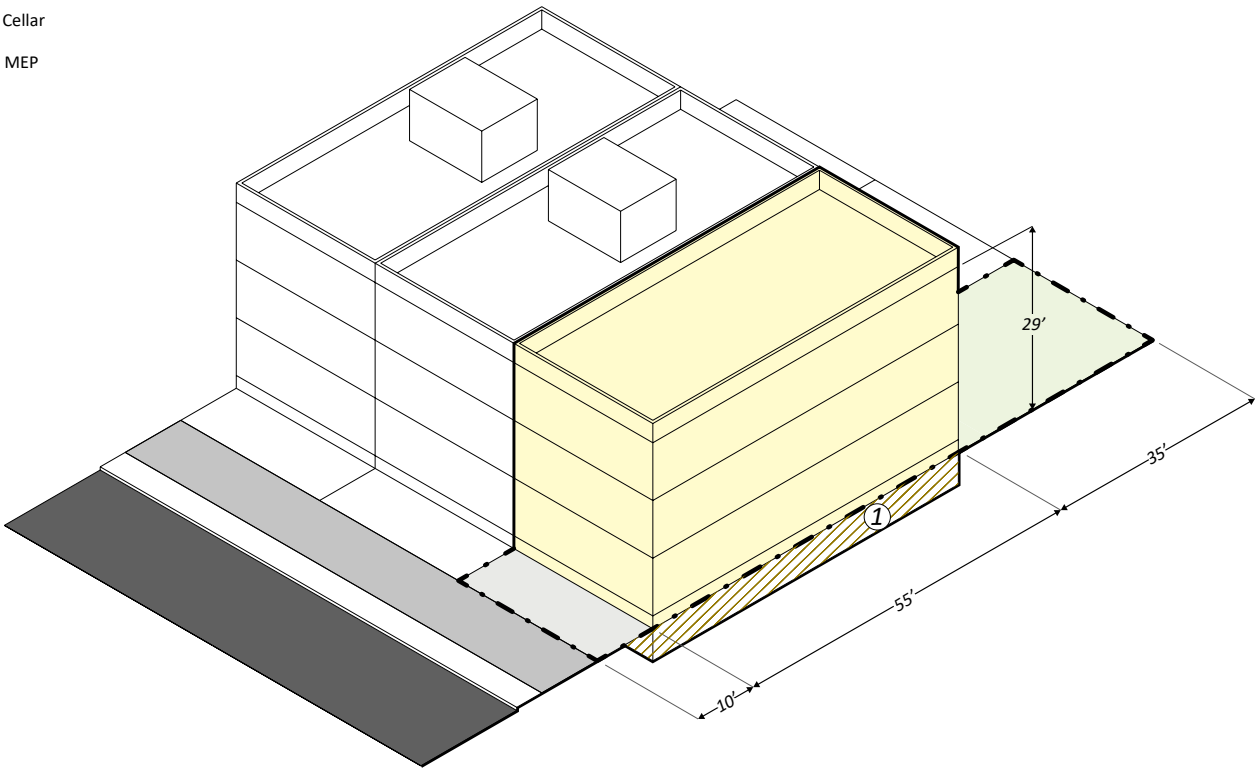
Existing Conditions

Legend

Residential

Cellar

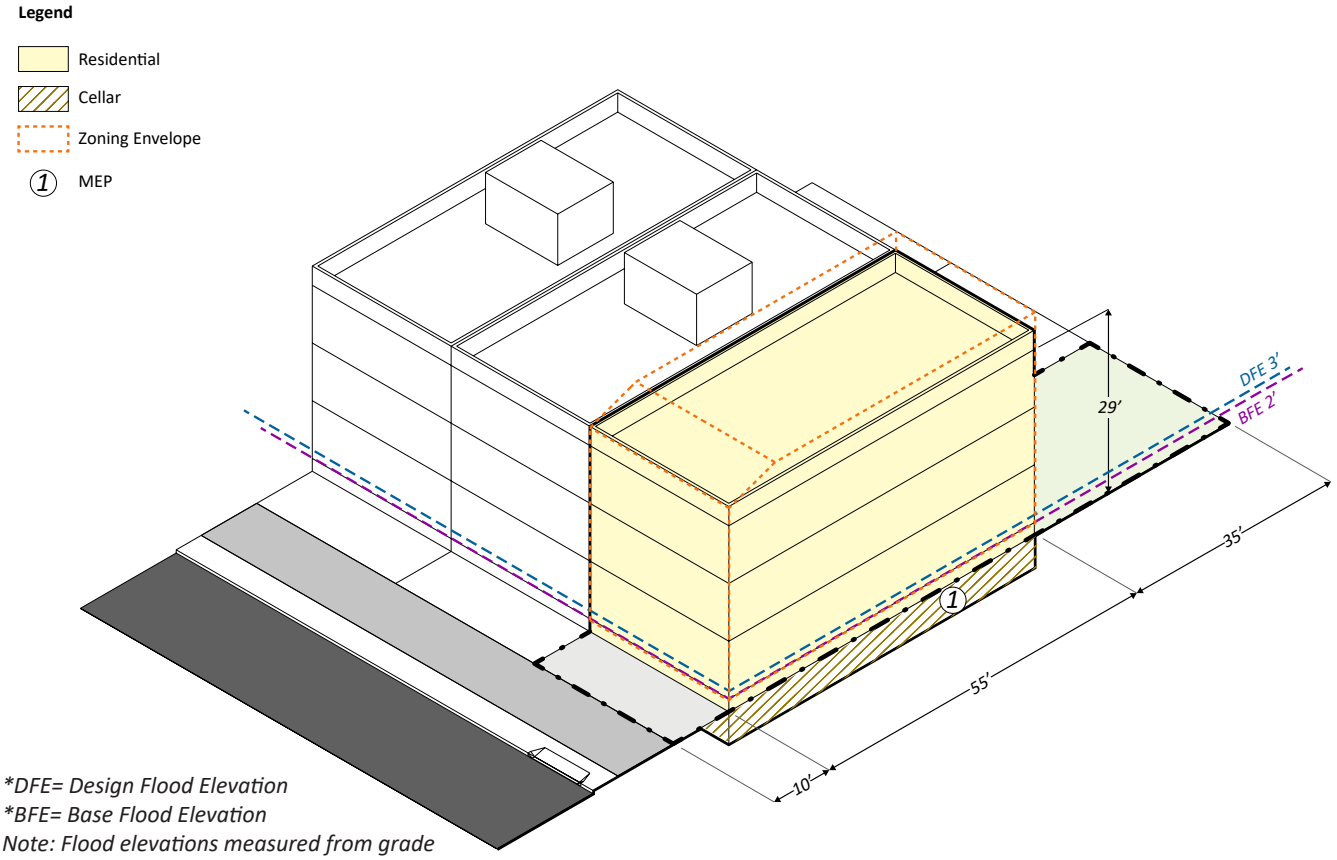
① MEP



R5 Infill Residence District

Prototype 4

1% Annual Chance Floodplain: No-Action Condition



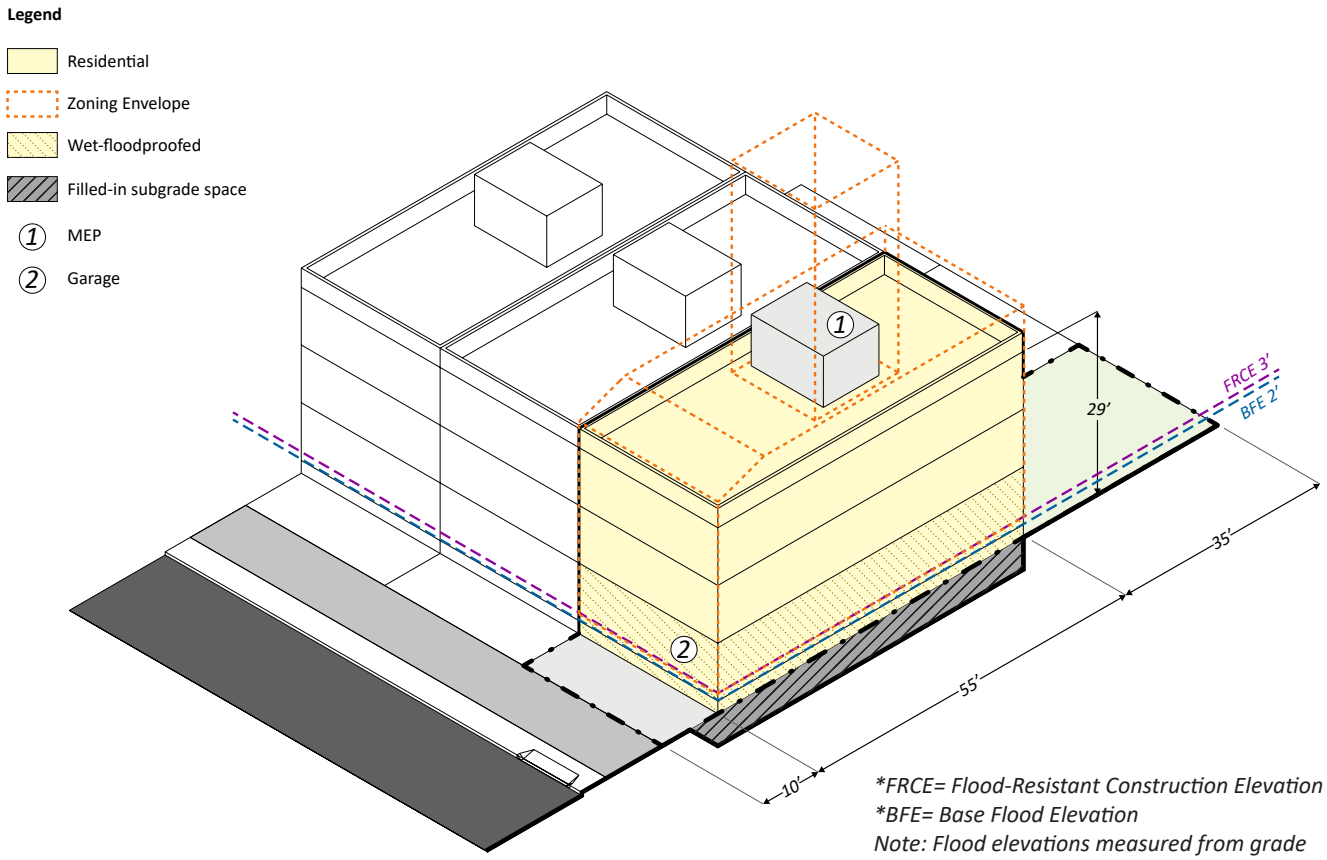
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	4,125 sf	4,125 sf	0 sf
Zoning Residential Floor Area	4,125 sf	4,125 sf	0 sf
Gross Floor Area	5,500 sf	5,630 sf	+ 130 sf
Gross Residential Floor Area	5,500 sf	5,630 sf	+ 130 sf
Exempted Floor Area	1,375 sf	1,505 sf	+ 130 sf
Provided Perimeter Wall/Baseheight	29 ft	38 ft	+ 9 ft
Provided Overall Height	29 ft	38 ft	+ 9 ft
Provided Number of Stories	3 *(+ Basement)*	4 *(No Basement)*	+ 1
Lot Coverage / Open Space	55 % / 45 %	55 % / 45 %	0 / 0
Dwelling Units	3	3	0
Parking Spaces	0	2	+2

R5 Infill Residence District

Prototype 4

1% Annual Chance Floodplain: FT1



*FRCE= Flood-Resistant Construction Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

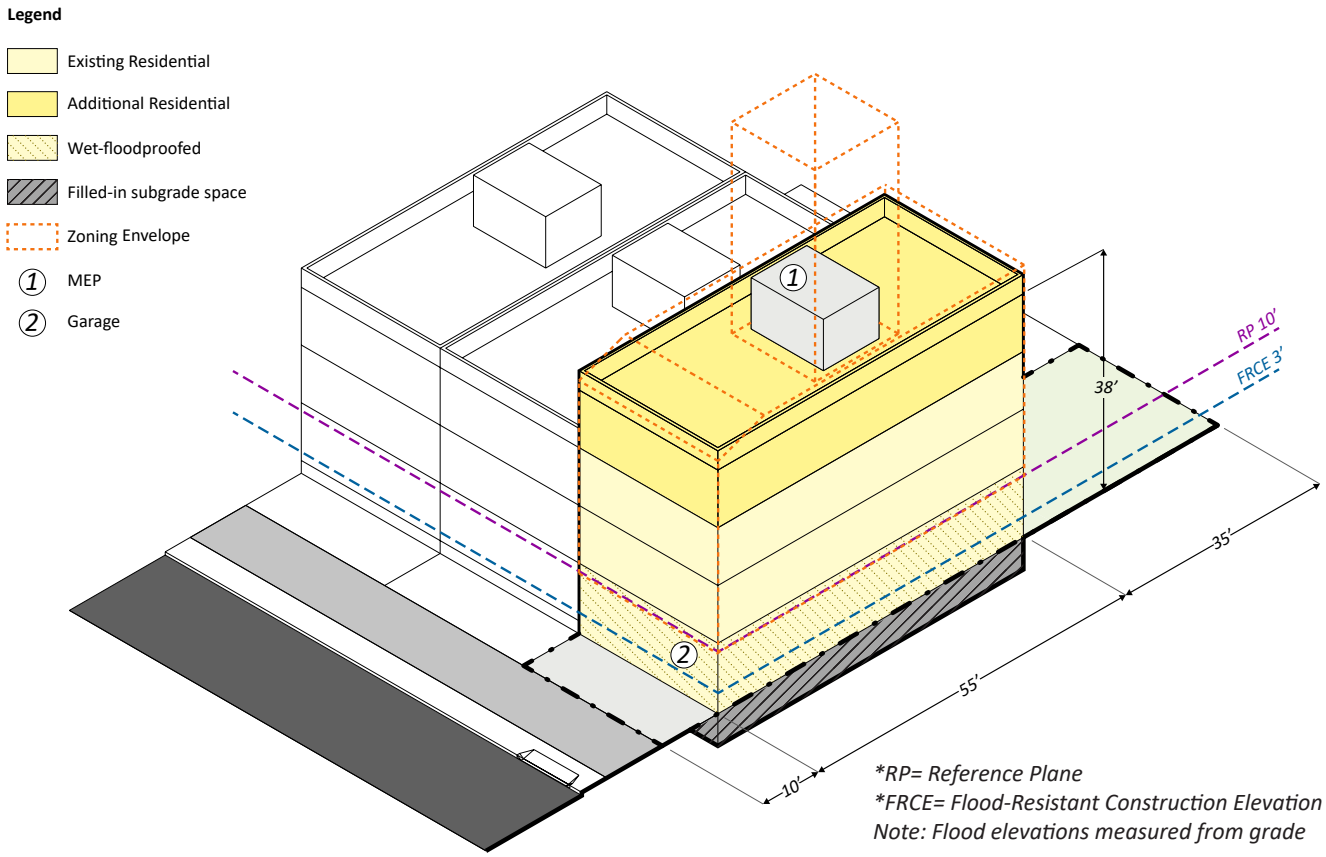
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	2,500 sf	0	0	0 sf
Zoning Floor Area	4,125 sf	2,750 sf	4,125 sf	- 1,375 sf	+ 1,375 sf	0 sf
Zoning Residential Floor Area	4,125 sf	2,750 sf	4,125 sf	- 1,375 sf	+ 1,375 sf	0 sf
Gross Floor Area	5,500 sf	4,125 sf	5,630 sf	- 1,375 sf	+ 1,505 sf	+ 130 sf
Gross Residential Floor Area	5,500 sf	4,125 sf	5,630 sf	- 1,375 sf	+ 1,505 sf	+ 130 sf
Exempted Floor Area	1,375 sf	1,375 sf	1,505 sf	0	+ 130 sf	+ 130 sf
Provided Perimeter Wall/Baseheight	29 ft	29 ft	38 ft	0	+ 9 ft	+ 9 ft
Provided Overall Height	29 ft	38 ft	38 ft	+ 9 ft	0	+ 9 ft
Provided Number of Stories	3 *(+ Basement)*	4 *(No Basement)*	4 *(No Basement)*	+ 1	0	+ 1
Lot Coverage / Open Space	55 % / 45 %	55 % / 45%	55 % / 45 %	0 / 0	0 / 0	0 / 0
Dwelling Units	3	3	3	0	0	0
Parking Spaces	0	2	2	+ 2	0	+2

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

R5 Infill Residence District

Prototype 4

1% Annual Chance Floodplain: With-Action Condition



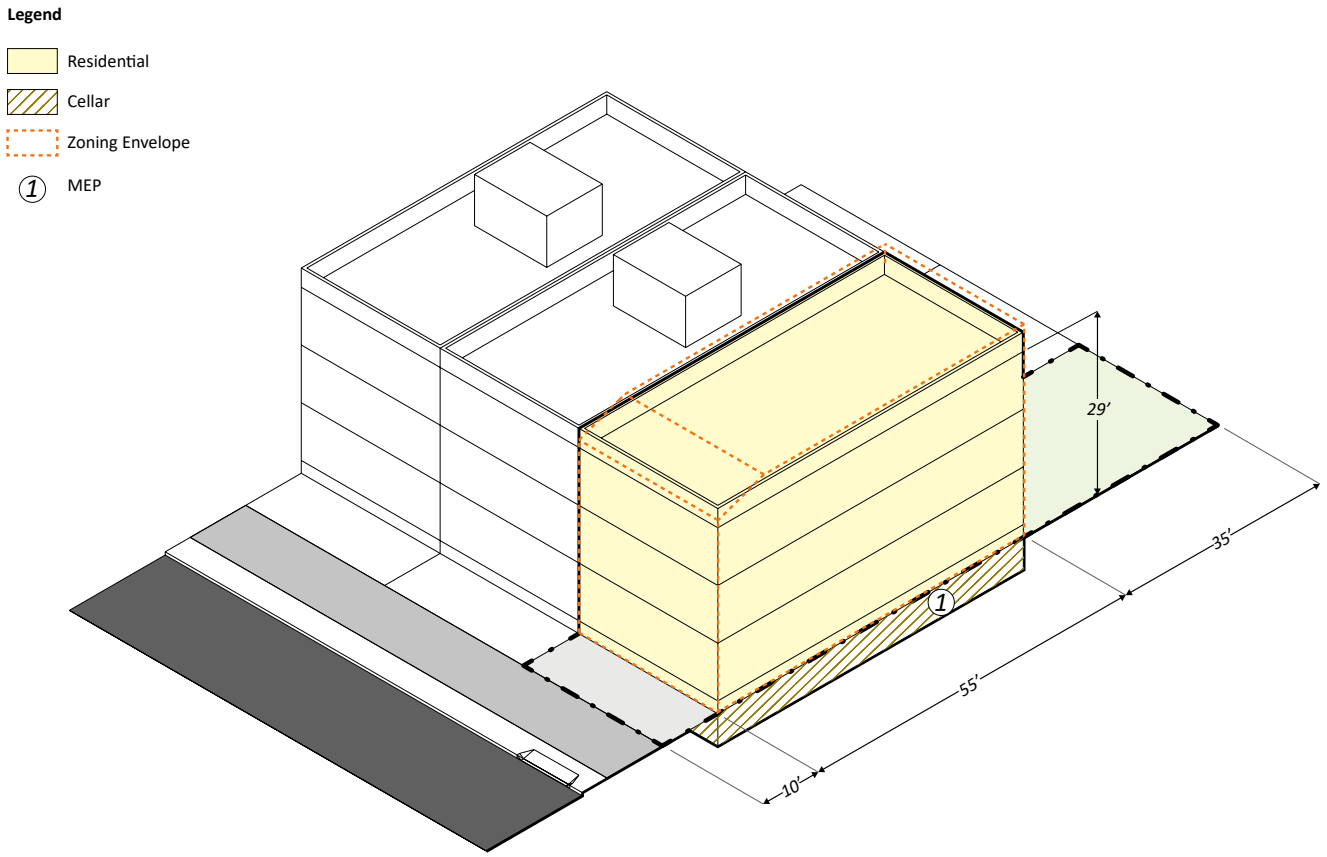
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	4,125 sf	4,125 sf	0 sf
Zoning Residential Floor Area	4,125 sf	4,125 sf	0 sf
Gross Floor Area	5,500 sf	5,630 sf	+ 130 sf
Gross Residential Floor Area	5,500 sf	5,630 sf	+ 130 sf
Exempted Floor Area	1,375 sf	1,505 sf	+ 130 sf
Provided Perimeter Wall/Baseheight	29 ft	38 ft	+ 9 ft
Provided Overall Height	29 ft	38 ft	+ 9 ft
Provided Number of Stories	3 *(+ Basement)*	4 *(No Basement)*	+ 1
Lot Coverage / Open Space	55 % / 45 %	55 % / 45 %	0 / 0
Dwelling Units	3	3	0
Parking Spaces	0	2	+ 2

R5 Infill Residence District

Prototype 4

0.2% Annual Chance Floodplain: No-Action Condition

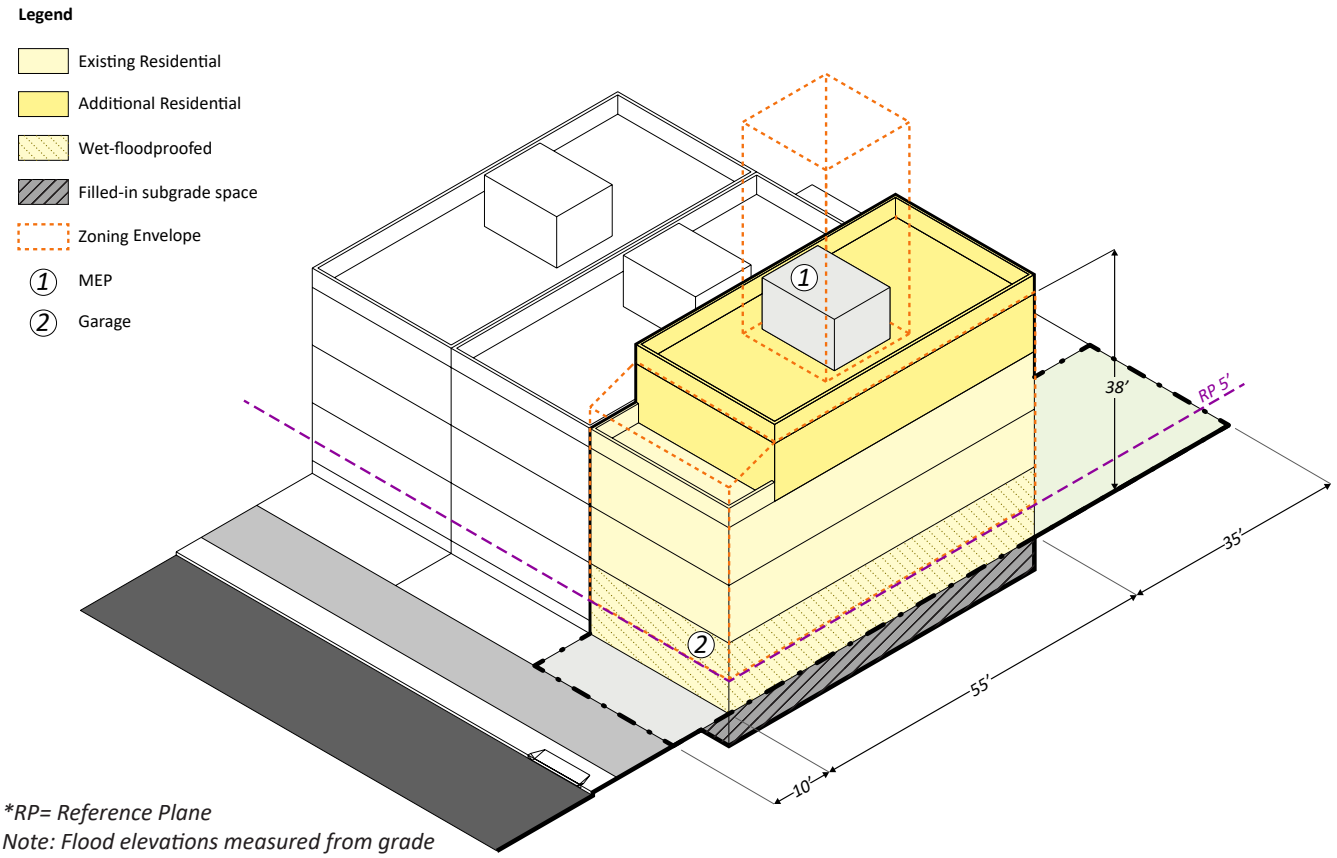


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	4,125 sf	4,125 sf	0 sf
Zoning Residential Floor Area	4,125 sf	4,125 sf	0 sf
Gross Floor Area	5,500 sf	5,630 sf	+ 130 sf
Gross Residential Floor Area	5,500 sf	5,630 sf	+ 130 sf
Exempted Floor Area	1,375 sf	1,505 sf	+ 130 sf
Provided Perimeter Wall/Baseheight	29 ft	38 ft	+ 9 ft
Provided Overall Height	29 ft	38 ft	+ 9 ft
Provided Number of Stories	3 *(+ Basement)*	4 *(No Basement)*	+ 1
Lot Coverage / Open Space	55 % / 45 %	55 % / 45 %	0 / 0
Dwelling Units	3	3	0
Parking Spaces	0	2	+ 2

R5 Infill Residence District

Prototype 4

0.2% Annual Chance Floodplain: With-Action Condition



**RP= Reference Plane*
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	4,125 sf	4,125 sf	0 sf
Zoning Residential Floor Area	4,125 sf	4,125 sf	0 sf
Gross Floor Area	5,500 sf	5,630 sf	+ 130 sf
Gross Residential Floor Area	5,500 sf	5,630 sf	+ 130 sf
Exempted Floor Area	1,375 sf	1,505 sf	+ 130 sf
Provided Perimeter Wall/Baseheight	29 ft	38 ft	+ 9 ft
Provided Overall Height	29 ft	38 ft	+ 9 ft
Provided Number of Stories	3 *(+ Basement)*	4 *(No Basement)*	+ 1
Lot Coverage / Open Space	55 % / 45 %	55 % / 45 %	0 / 0
Dwelling Units	3	3	0
Parking Spaces	0	2	+ 2

Prototype 5

R7A Residence District, 115-foot x 100-foot Interior Lot
Mid-Rise Multi-Family Building, New Construction

Introduction

Prototypical Analysis Site 5 utilizes a generic 115-foot by 100-foot interior lot (11,500 sf) facing a wide street in an R7A contextual residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 5 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Floor area exemption for wet-floodproofed ground floors; and
- Streetscape improvements.

Existing Condition

In the existing condition, Prototypical Analysis Site 5 is an 11,500 sf vacant lot.

1% Annual Chance Floodplain Scenario

No-Action Condition

In the future without the Proposed Action, it is expected that a mid-rise, multi-family building with seven-stories and 54 dwelling units would be constructed on Prototypical Analysis Site 5. The zoning lot would be developed with 46,000 sf of residential zoning floor area, the maximum permitted within an R7A zoning district, which allows for a maximum FAR of 4.0 outside of Inclusionary Housing Designated Areas (IHDA) and Mandatory Inclusionary Housing (MIH) areas (ZR 23-153). The building's gross floor area would be 56,330 sf under No-Action conditions. Additionally, floor spaces used for MEP equipment (630 sf), ground level enclosed parking (6,670 sf), and five percent of the remaining gross floor area (2,990 sf) would be exempted from the zoning floor area on Site 5 in the No-Action condition to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10).

Prototypical Analysis Site 5 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 meet the minimum Appendix G requirements in the future without the Proposed Action, the first occupiable floor of the building on Site 5 would be placed at three feet above grade. The total building height would be 73 feet with a base height of 63 feet, fitting within the permitted zoning envelope of an R7A zoning district as measured from the BFE, which allows for a maximum building height of 82 feet (80 feet plus two feet BFE) and a maximum base height of 67 feet (65 feet plus two feet BFE) without a qualifying ground floor (ZR 23-662 and ZR 12-10 Definition of Base Plane). While the ground floor would have a garage and lobby which does not qualify for Quality Ground Floor, the space still has a floor-to-floor height of 13 feet so that the dwelling units on the ground floor would be above the DFE. Residential units would have floor-to-floor heights of 10 feet under No-Action conditions.

In the future without the Proposed Action, Prototypical Analysis Site 5 would contain 27 enclosed parking spaces within a garage, as required in the underlying zoning (ZR 25-62 and ZR 25-23). The No-Action building on Site 5 would comply with all other underlying zoning regulations.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 5 would be developed with a mid-rise, multi-family building with eight stories and 54 dwelling units. The zoning lot would be developed with 46,000 sf of residential zoning floor area, the maximum permitted within an R7A zoning district, which allows for a maximum FAR of 4.0 outside of IHDA and MIH areas (ZR 23-153). The building's gross floor area would be 60,980 sf in the future with the Proposed Action. As a result of the Proposed Action, floor spaces used for MEP equipment (630 sf) and wet-floodproofed ground level enclosed parking, storage, lobby, and five percent of the remaining gross floor area (total 14,350 sf) would be exempted from the zoning floor area to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10).

In order to floodproof the building for the long term and exceed the minimum Appendix G requirements, the building is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, which results in the FSAFE being placed at 10 feet above grade. As such, the total building height on Prototypical Analysis Site 5 would be 80 feet with a base height of 70 feet, as measured from grade, fitting within the permitted zoning envelope of an R7A zoning district as measured from a "reference plane" of 10 feet above grade, which allows for a maximum building height of 90 feet (80 feet plus 10 feet) and a maximum base height of 75 feet without a qualifying ground floor (65 feet plus 10 feet) (ZR 23-662). The ground floor would have a lobby, storage and garage with a floor-to-floor height of 10 feet, while residential floors two through eight would have floor-to-floor heights of 10 feet each in the future with the Proposed Action.

Under With-Action conditions on Prototypical Analysis Site 5, the garage would contain 27 enclosed parking spaces, as required in the underlying zoning (ZR 25-62 and ZR 25-23). The building on Site 5 would comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be an additional 4,650 sf of total gross floor area and exempted floor area on Prototypical Analysis Site 5 in the 1% annual chance floodplain. The Proposed Action would allow for the ground floor of the building to be wet-floodproofed and used for a lobby and enclosed parking. This would result in an increased building height of seven feet on Site 5. The first floor with dwelling units would be shifted from three feet above grade to the second floor of the building, which would be 10 feet above grade. No additional dwelling units or parking spaces would be added on the lot as a result of the Proposed Action. Additionally, lot coverage on Site 5 would not change in the future with the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 5 illustrates the development of a mid-rise, multi-family building with seven stories and 54 dwelling units. In the future without the Proposed Action, Site 5 is expected to be developed with 46,000 sf of residential zoning floor area, the maximum permitted within an R7A zoning district, which allows for a maximum FAR of 4.0 outside of IHDA and MIH areas (ZR 23-153). The building's gross floor area would be 63,980 sf. Floor spaces used for MEP equipment (630 sf), ground level enclosed parking (6,070 sf), storage in the cellar (6,300 sf), and five percent of the remaining gross floor area (4,920 sf) would be exempted from the zoning floor area to account for other deductions of the Quality Housing Program on Site 5 in the future without the Proposed Action (ZR 12-10 Definition of Floor Area and ZR 28-10).

Under No-Action conditions on Prototypical Analysis Site 5, the first occupiable floor would be placed at grade. The total building height on Site 5 would be 70 feet with a perimeter wall of 60 feet, fitting within the permitted building envelope of an R7A zoning district, which allows for a maximum building height of 80 feet and a maximum perimeter wall height of 65 feet without a qualifying ground floor (ZR 23-662). In the future without the Proposed Action, the ground floor of Site 5 would have lobby and garage spaces with floor-to-floor heights of 10 feet, and residential floors with floor-to-floor heights of 10 feet each.

In the future without the Proposed Action, Site 5 would contain 27 enclosed parking spaces within a garage, as required in the underlying zoning (ZR 25-62 and ZR 25-23). The building on Prototypical Analysis Site 5 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 5 would be developed with a mid-rise, multi-family building with eight stories and 54 dwelling units. In the future with the Proposed Action, Site 5 would be developed with 46,000 sf of residential zoning floor area, the maximum permitted within an R7A zoning district, which allows for a maximum FAR of 4.0 outside of IHDA and MIH areas (ZR 23-153). The building's gross floor area would be 60,980 sf on Site 5 under With-Action conditions. As a result of the Proposed Action, floor spaces used for MEP equipment (630 sf) and wet-floodproofed ground level enclosed parking, storage, lobby, and five percent of the remaining gross floor area (total 14,350 sf) would be exempted from the zoning floor area to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10).

In order to floodproof the building for the long term, the building is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone, and the FSAFE would be placed at 10 feet above grade. The total building height would be 80 feet with a perimeter wall of 70 feet, as measured from grade fitting within the permitted zoning envelope of an R7A zoning district as measured from a "reference plane" of five feet, which allows for a maximum building height of 85 feet (80 feet plus five feet) and a maximum perimeter wall height of 70 feet (65 feet plus five feet) without a qualifying ground floor (ZR 23-662). In the future with the Proposed Action, the ground floor of Site 5 would have a lobby, storage, and garage space with floor-to-floor heights of 10 feet, while residential floors two through eight would have floor-to-floor heights of 10 feet each.

Under With-Action conditions, Prototypical Analysis Site 5 would contain 27 enclosed parking spaces within a garage, as required in the underlying zoning (ZR 25-62 and ZR 25-23). The building on Site 5 would comply with all other underlying zoning regulations in the future with the Proposed Action.

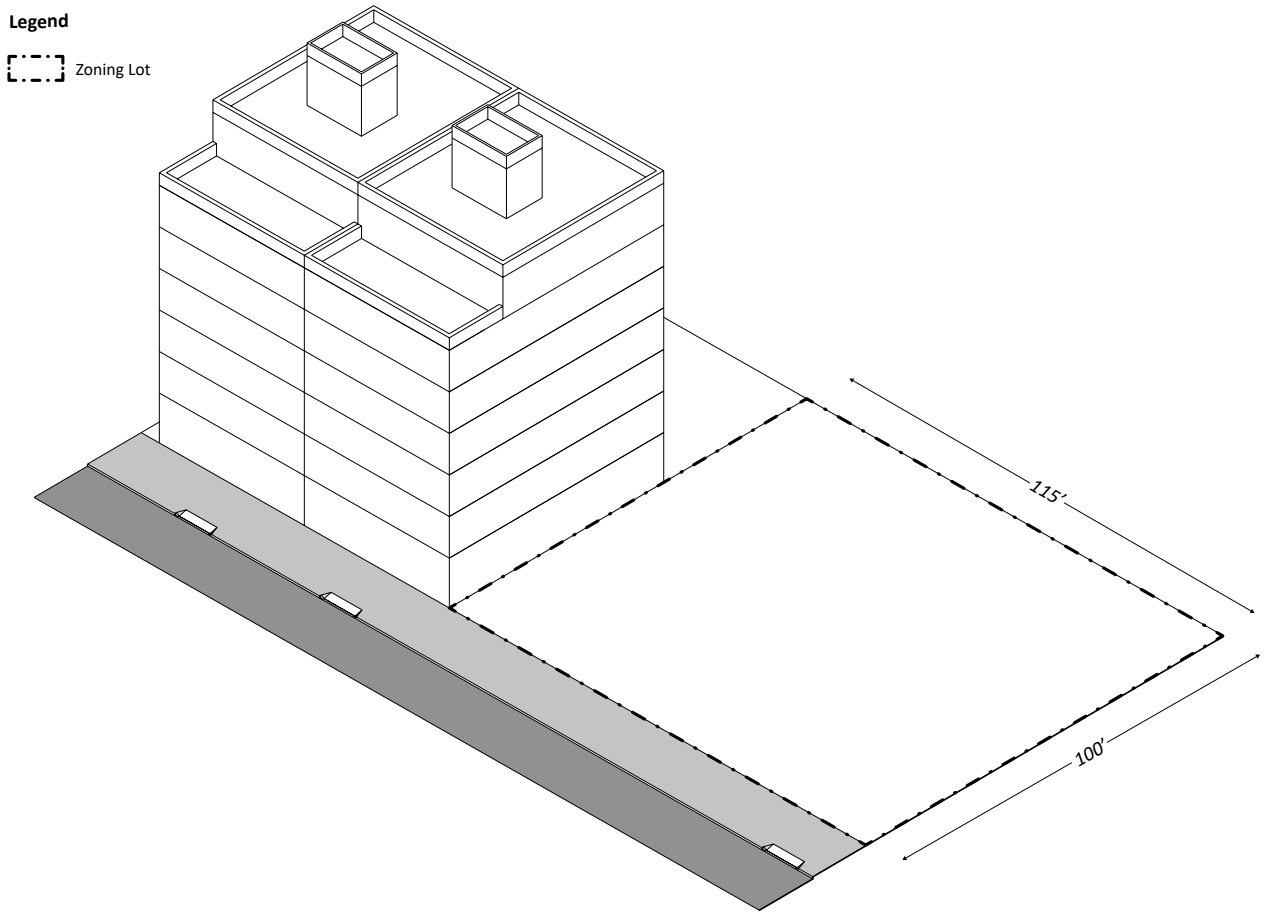
Increment

As a result of the Proposed Action, there would be a reduction of 2,940 sf of total gross floor area and exempted floor area on Prototypical Analysis Site 5 in the 0.2% annual chance floodplain. The Proposed Action would allow for the ground floor to be wet-floodproofed and used for a lobby and enclosed parking. This would result in an increased building height of 10 feet on Site 5. The first floor with dwelling units would be shifted from ground level to the second floor of the building, which would be 10 feet above grade. No additional dwelling units or parking spaces would be added to Prototypical Analysis Site 5 as a result of the Proposed Action. Additionally, lot coverage on Site 5 would not change in the future with the Proposed Action.

R7A Residence District

Prototype 5

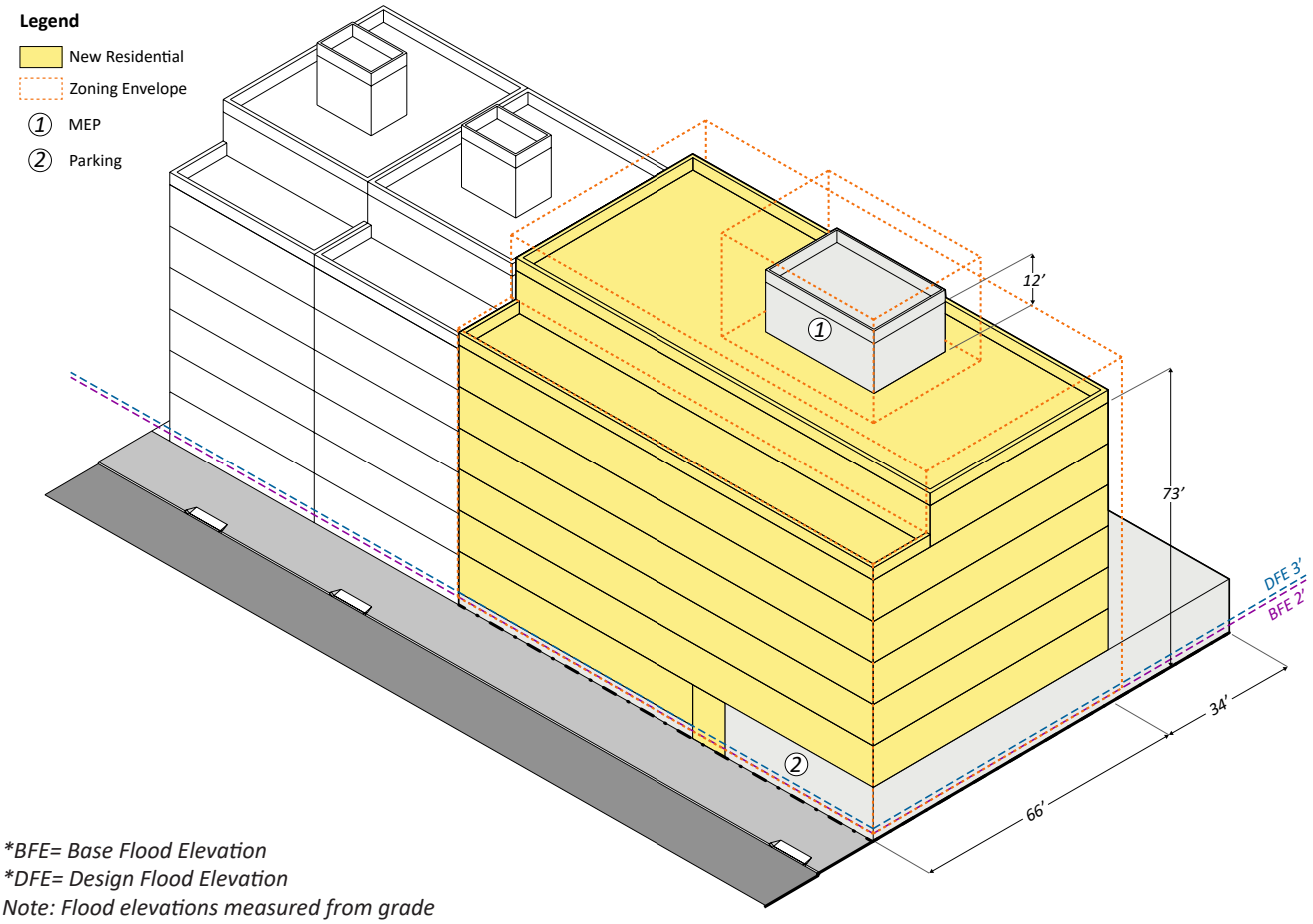
Existing Condition



R7A Residence District

Prototype 5

1% Annual Chance Floodplain: No-Action Condition



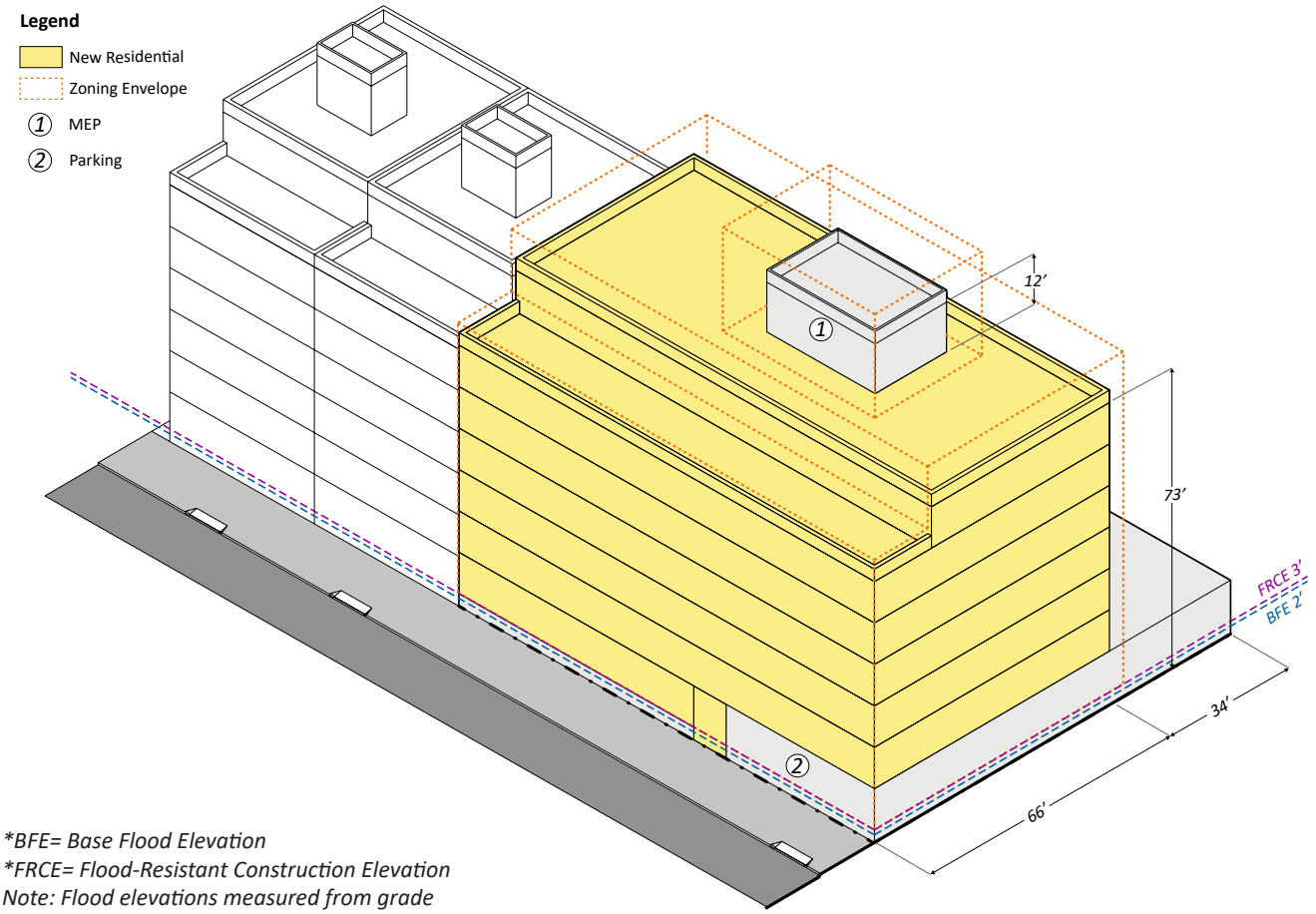
**BFE= Base Flood Elevation*
**DFE= Design Flood Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	11,500 sf	11,500 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	+ 7 ft
Provided Overall Height	73 ft	80 ft	+ 7 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	65 % / 35 %	65 % / 35 %	0 / 0
Dwelling Units	54	54	0
Parking Spaces	27	27	0

R7A Residence District

Prototype 5

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

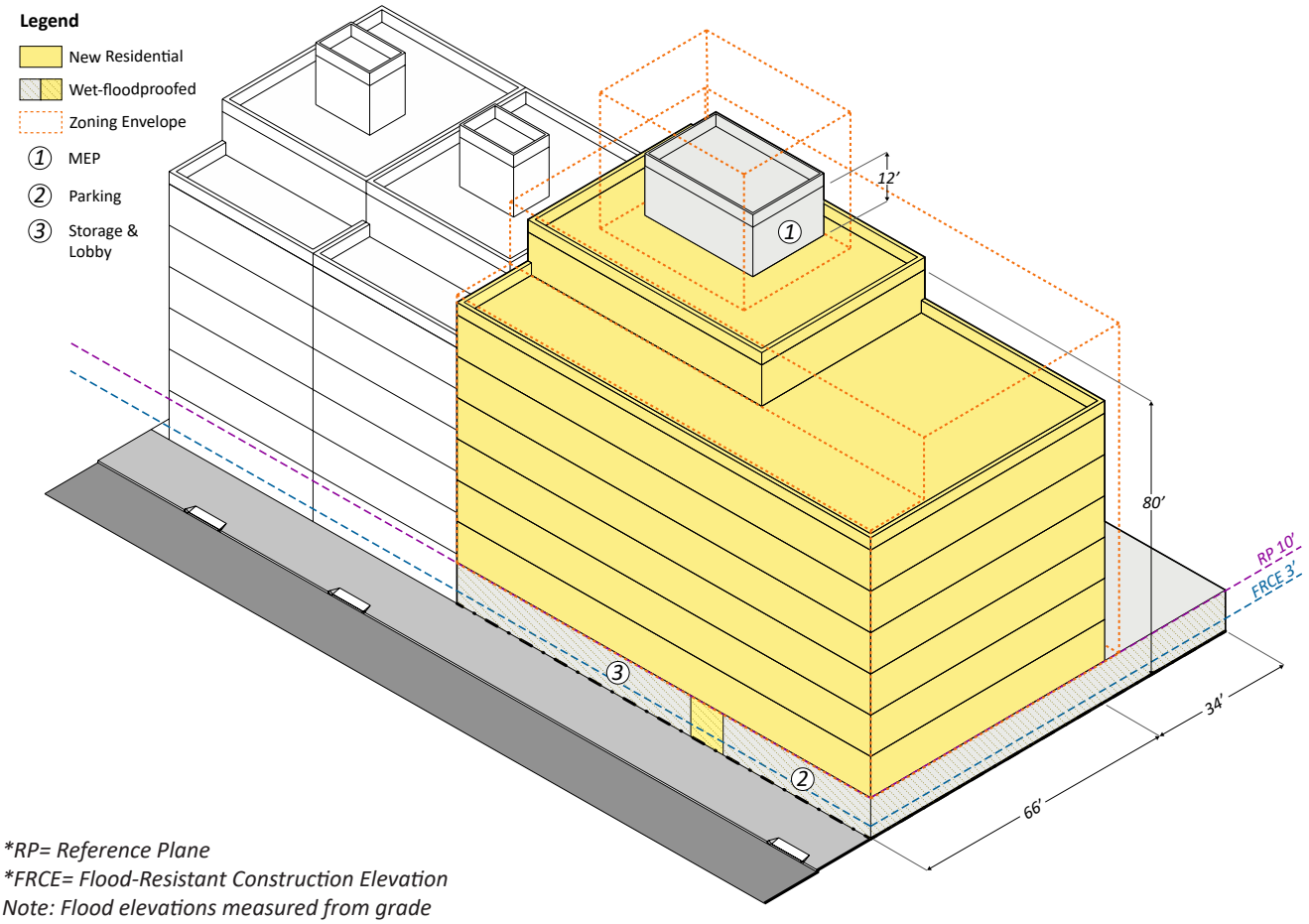
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	11,500 sf	11,500 sf	11,500 sf	0	0	0
Zoning Floor Area	46,000 sf	46,000 sf	46,000 sf	0	0	0
Zoning Residential Floor Area	46,000 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 / Open Space	65 % / 35 %	65 % / 35 %	65 % / 35 %	0 / 0	0 / 0	0 / 0
Dwelling Units	54	54	54	0	0	0
Parking Spaces	27	27	27	0	0	0

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

R7A Residence District

Prototype 5

1% Annual Chance Floodplain: With-Action Condition



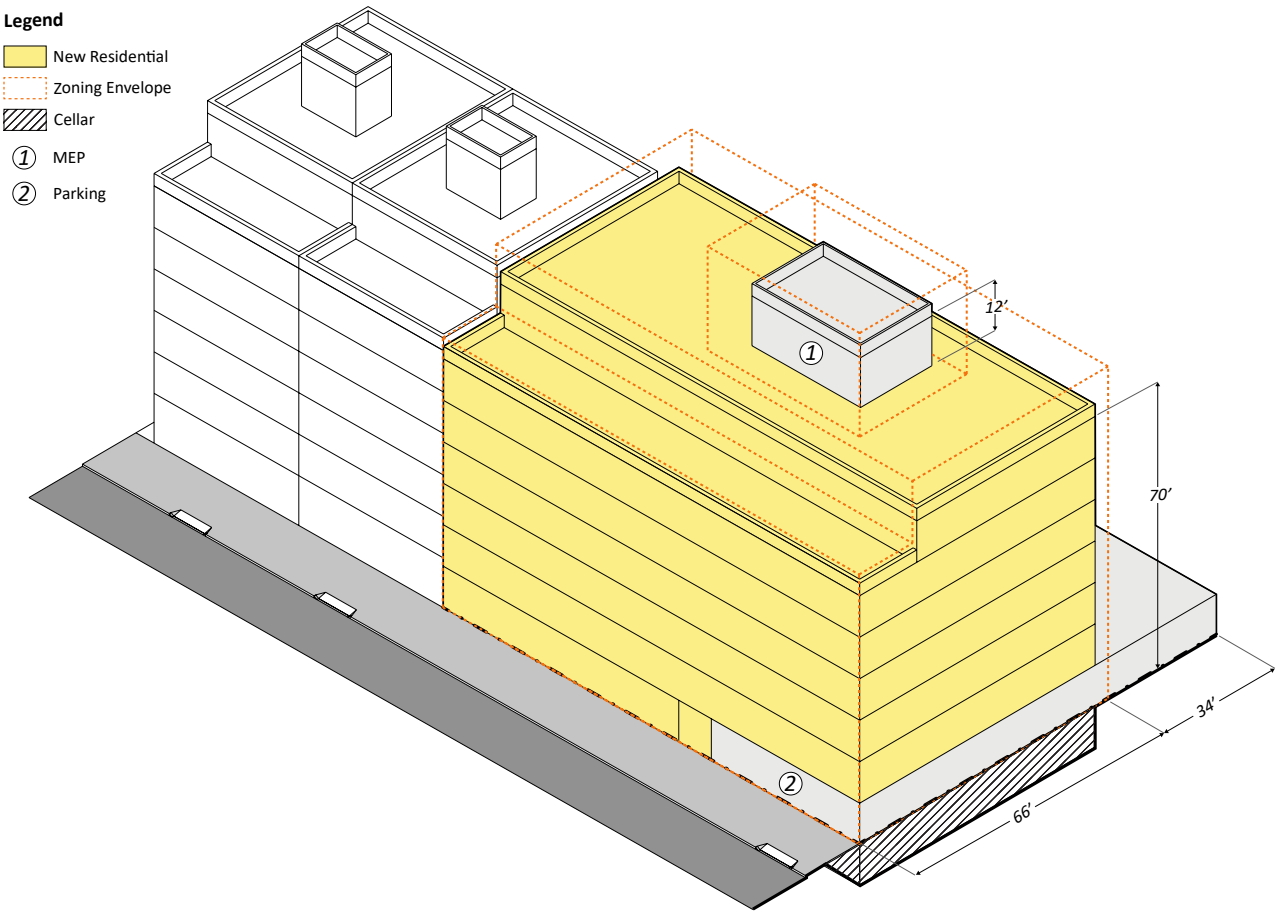
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	11,500 sf	11,500 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	+ 7 ft
Provided Overall Height	73 ft	80 ft	+ 7 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	65 % / 35 %	65 % / 35 %	0 / 0
Dwelling Units	54	54	0
Parking Spaces	27	27	0

R7A Residence District

Prototype 5

0.2% Annual Chance Floodplain: No-Action Condition

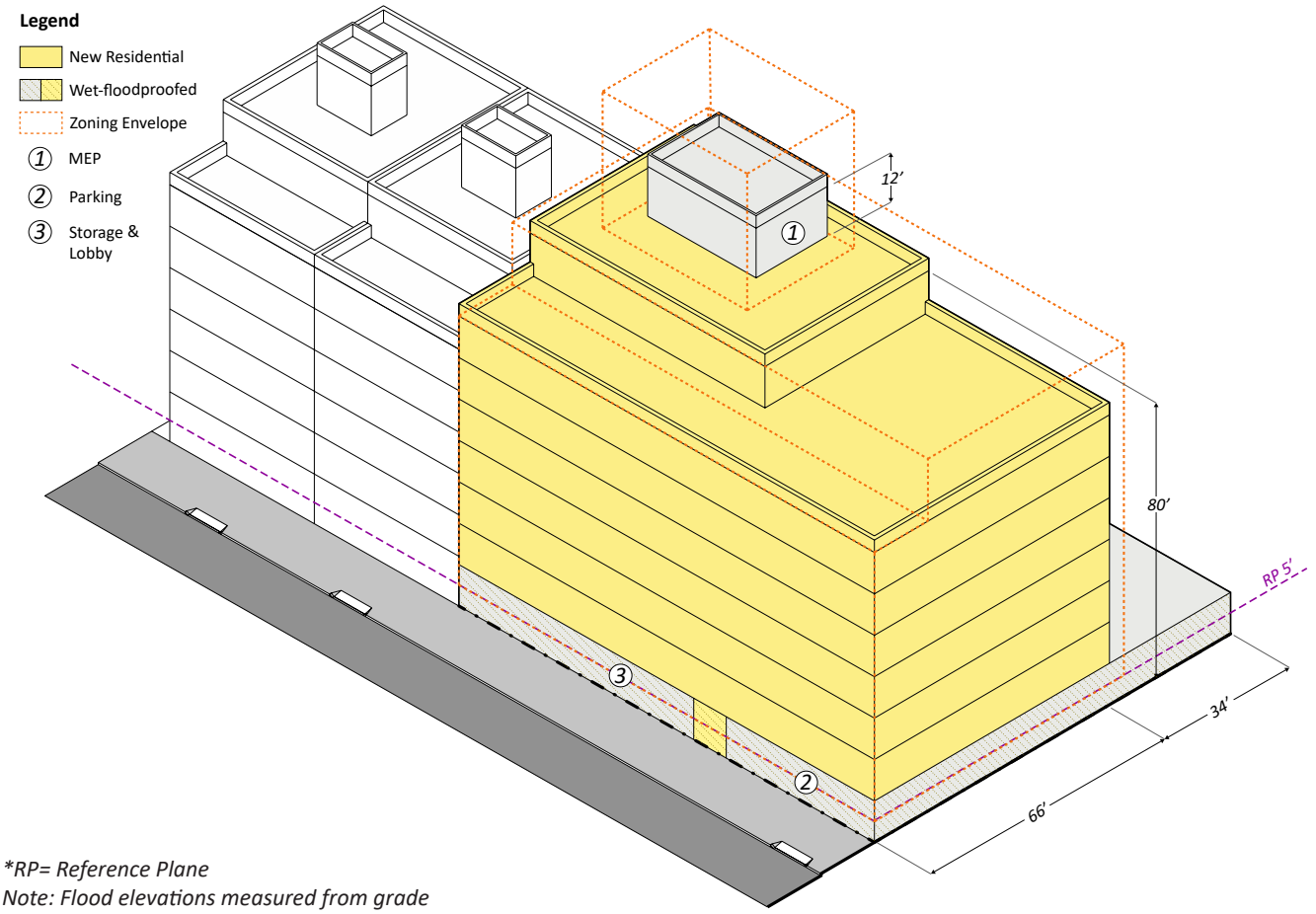


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	11,500 sf	11,500 sf	0
Zoning Floor Area	46,000 sf	46,000 sf	0
Zoning Residential Floor Area	46,000 sf	46,000 sf	0
Gross Floor Area	63,920 sf	60,980 sf	- 2,940 sf
Gross Residential Floor Area	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 / Open Space	65 % / 35 %	65 % / 35 %	0 / 0
Dwelling Units	54	54	0
Parking Spaces	27	27	0

R7A Residence District

Prototype 5

0.2% Annual Chance Floodplain: With-Action Condition



**RP= Reference Plane*
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	11,500 sf	11,500 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 / Open Space	65 % / 35 %	65 % / 35 %	0 / 0
Dwelling Units	54	54	0
Parking Spaces	27	27	0

Prototype 6

R6 Residence District, 500-foot x 200-foot Through Lot
Campus-Style Housing, Retrofit

Introduction

Prototypical Analysis Site 6 utilizes a generic 500-foot by 200-foot through lot (100,000 sf) in an R6 residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 6 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Added MEP building with generators as permitted obstruction on open space.

Existing Condition

Under existing conditions, Prototypical Analysis Site 6 contains campus-style housing with eight-stories and 320 dwelling units (no dwelling units on the ground floor). The zoning lot is developed with 240,000 sf of zoning floor area with an FAR of 2.40, complying with the permitted FAR within an R6 zoning district, which allows for a maximum FAR of 2.43 if the requisite amount of open space is provided under the height factor regulations (ZR 23-151). The building's gross floor area is 270,000 sf. Spaces used for the cellar (22,800 sf) and MEP equipment (7,200 sf) are exempted from the zoning floor area under existing conditions (ZR 12-10 Definition of Floor Area).

The total building height on Prototypical Analysis Site 6 is 80 feet under existing conditions, fitting within the permitted sky exposure plane of an R6 zoning district (ZR 23-631). All residential floors have floor-to-floor heights of 10 feet each. The MEP equipment is located in the cellar of Site 6.

The multi-family campus housing was built prior to December 15, 1961 and is outside the Transit Zone. The site's dwelling 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 in the existing condition.

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario on Prototypical Analysis Site 6 does not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. The permitted sky exposure plane of an R6 residence district is measured from the BFE (ZR 12-10 Definition of a Base Plane).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 6 would be retrofitted to elevate the mechanical equipment. The site would accommodate campus-style housing with eight stories, 320 dwelling units (no dwelling units on the ground floor), and a new detached building with MEP and generators. The zoning lot would be occupied with 240,000 sf of zoning floor area with an FAR of 2.40 under With-Action conditions, the maximum permitted within an R6 zoning district, which allows for a

maximum FAR of 2.43 (ZR 23-151). The building's gross floor area would be 247,200 sf. As a result of the Proposed Action, the MEP building (7,200 sf) would be exempted from the zoning floor area.

Prototypical Analysis Site 6 is mapped with a BFE of two feet above grade, according to FEMA's flood maps, resulting in a FRCE of three feet. The total building height on Prototypical Analysis Site 6 in the With-Action scenario would continue to be 80 feet, as measured form grade, fitting within the permitted sky exposure plane of an R6 zoning district (ZR 23-631). All residential floors would have a floor-to-floor height of 10 feet. Additionally, the MEP equipment on Site 6 would be relocated from the cellar to a new detached building located on-site and 30 feet from the existing residential building. The cellar would be filled-in, resulting in a reduction in the gross floor area of the site. The overall height of the MEP building would be 21 feet and the MEP equipment inside would be elevated above the FRCE in the future with the Proposed Action. In addition, the exhaust stack of the MEP building would be located above the adjacent residential building, and the generators would be enclosed.

Even with the addition of the MEP building on the site, Prototypical Analysis Site 6 would continue to provide 78 parking spaces in an unenclosed parking lot on site, continuing to meet the minimum required parking spaces (ZR 25-251). Under the Proposed Action, the reduction of open space on the site would not create a new non-compliance with open space requirements. The building on Site 6 would comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be a reduction of 22,800 sf of gross floor area on Prototypical Analysis Site 6 in the 1% annual chance floodplain, because the cellar would be filled in to meet Appendix G requirements and the MEP equipment would be relocated into a new on-site building. There would be a seven percent decrease in the open space on the lot. No additional dwelling units, stories, or parking spaces would be added to Prototypical Analysis Site 6 as a result of the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 6 would be the same as the existing condition, because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted sky exposure of an R6 residence district is measured from grade because there is no BFE in the 0.2% floodplain (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 6 would be retrofitted. The site would accommodate campus-style housing with eight stories, 320 dwelling units (no dwelling units on the ground floor), and a new detached MEP building with generators. The zoning lot would be occupied with 240,000 sf of zoning floor area with an FAR of 2.40 under With-Action conditions, the maximum permitted within an R6 zoning district, which allows for a maximum FAR of 2.43 (ZR 23-151). The building's gross floor area would be 247,200 sf. As a result of the Proposed Action, the MEP building (7,200 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 6.

The total building height on Prototypical Analysis Site 6 in the With-Action scenario would continue to be 80 feet, fitting within the permitted sky exposure plane of an R6 zoning district (ZR 23-631). All residential floors would have floor-to-floor heights of 10 feet. Additionally, the MEP equipment on Site 6 would be relocated from the cellar to a new detached building located on-site and 30 feet from the existing residential

building. The cellar would be filled-in, resulting in a reduction in the gross floor area of the site. The overall height of the MEP building would be 21 feet and the MEP equipment inside would be elevated to five feet above grade in the future with the Proposed Action. In addition, the exhaust stack of the MEP building would be located above adjacent residential building.

Even with the addition of the MEP building on the site, Prototypical Analysis Site 6 would continue to provide 78 parking spaces in an unenclosed parking lot on site, continuing to meet the minimum required parking spaces (ZR 25-251). Under the Proposed Action, the reduction of open space on the site would not create a new non-compliance with open space requirements. The building on Site 6 would comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be a reduction of 22,800 sf of gross floor area on Prototypical Analysis Site 6 in the 0.2% annual chance floodplain, because the cellar would be filled in to meet Appendix G requirements and the MEP equipment would be relocated into a new on-site building. There would be a seven percent decrease in the open space on the lot. No additional dwelling units, stories, or parking spaces would be added to Prototypical Analysis Site 6 as a result of the Proposed Action.

R6 Residence District

Prototype 6

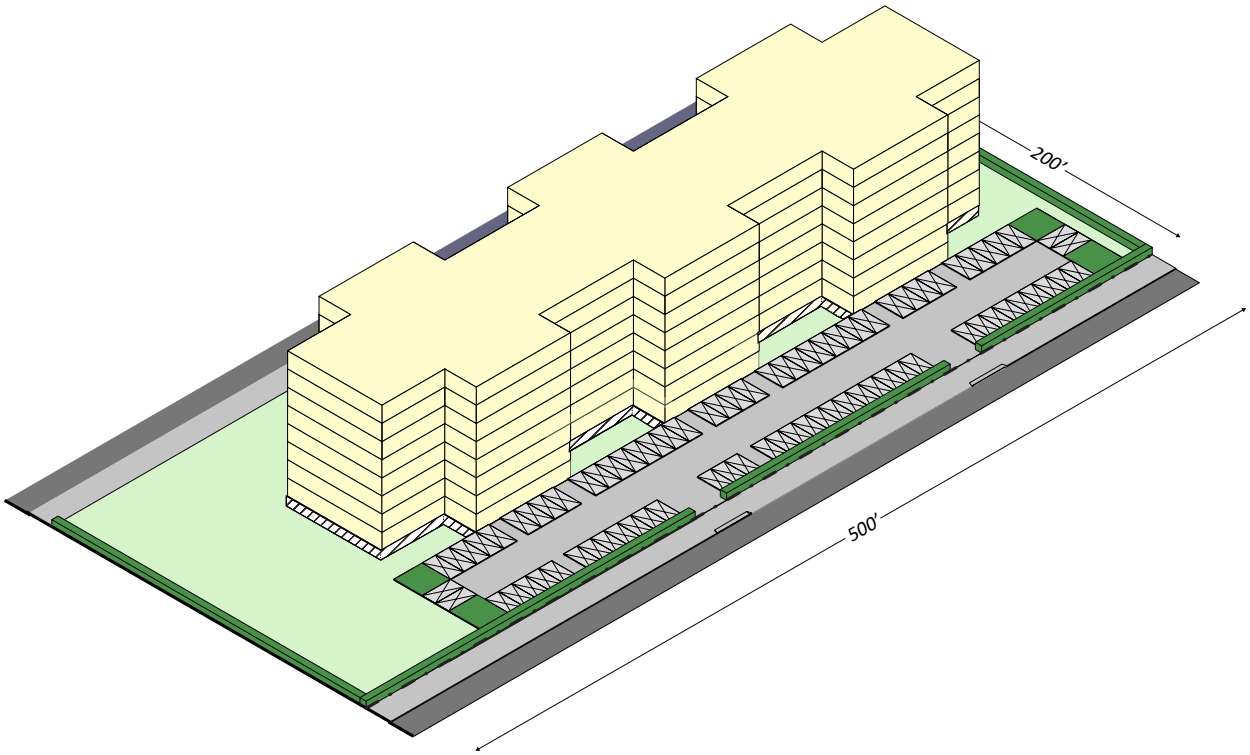
Existing Condition

Legend

Residential

Parking

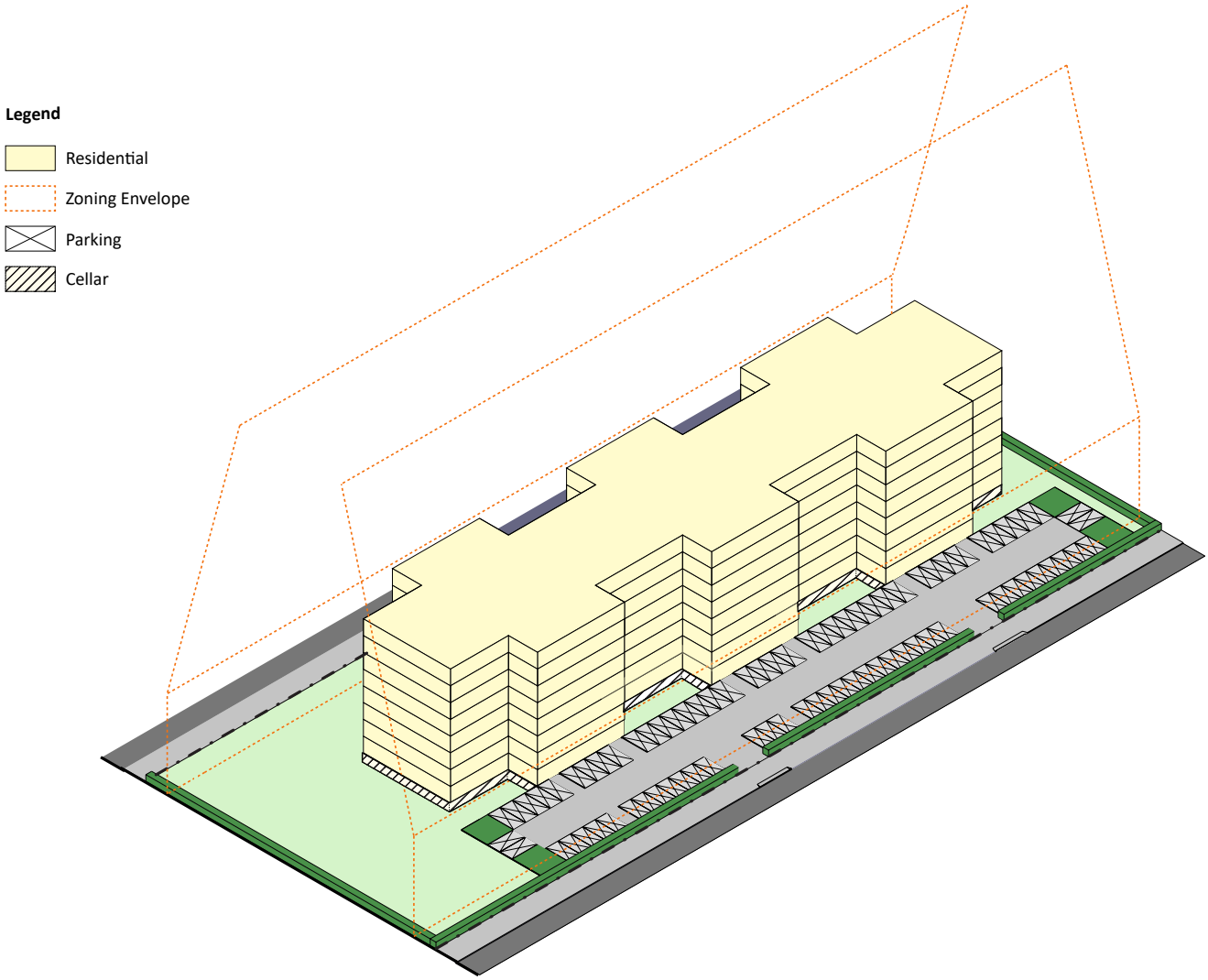
Cellar



R6 Residence District

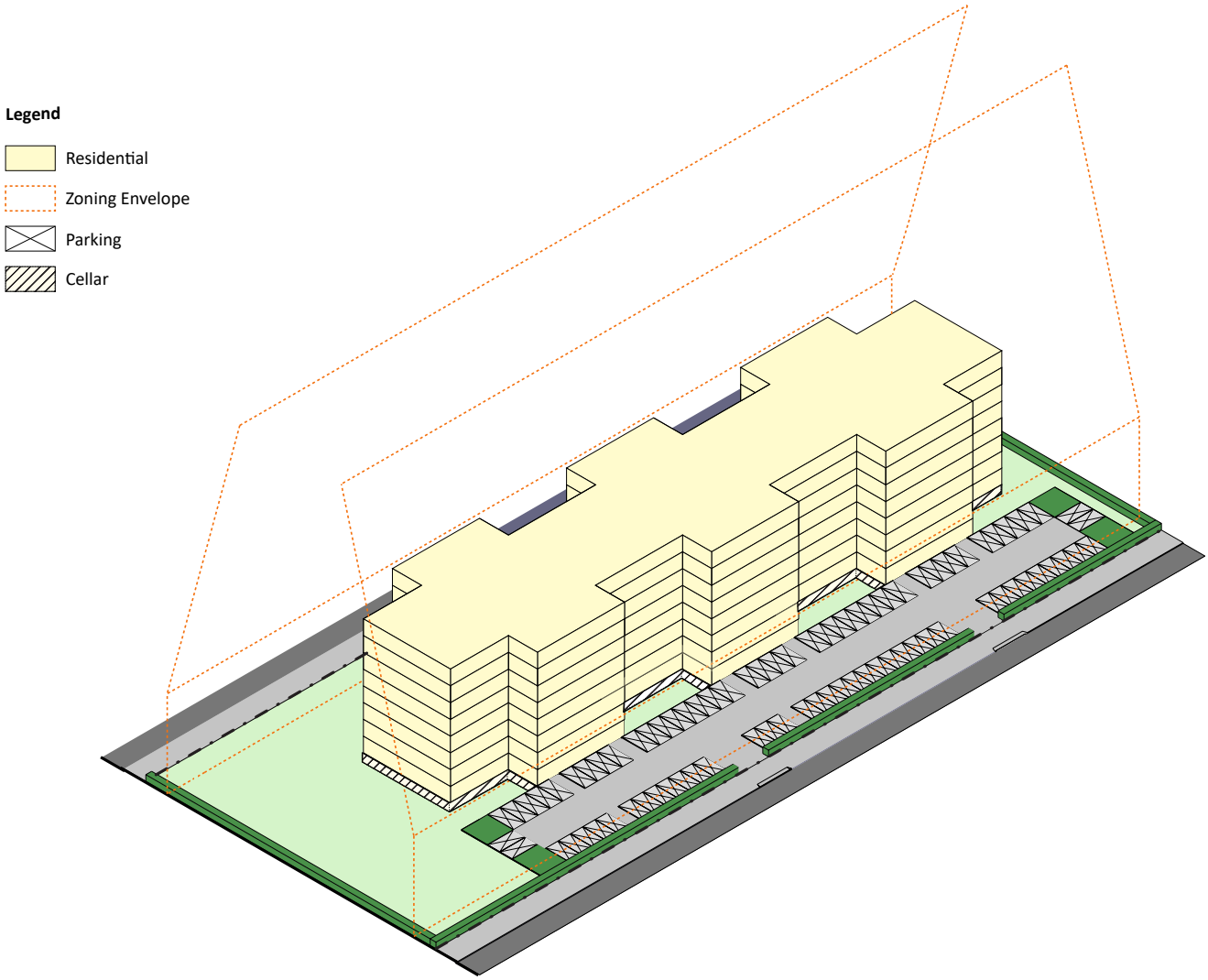
Prototype 6

1% & 0.2% Annual Chance Floodplain: No-Action Condition



	No-Action Condition	With-Action Condition	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 / Lot Coverage	46 % / 54 %	39 % / 61 %	- 7 % / + 7 %
Dwelling Units	320	320	0
Parking Spaces	78	78	0

1% Annual Chance Floodplain: FT1



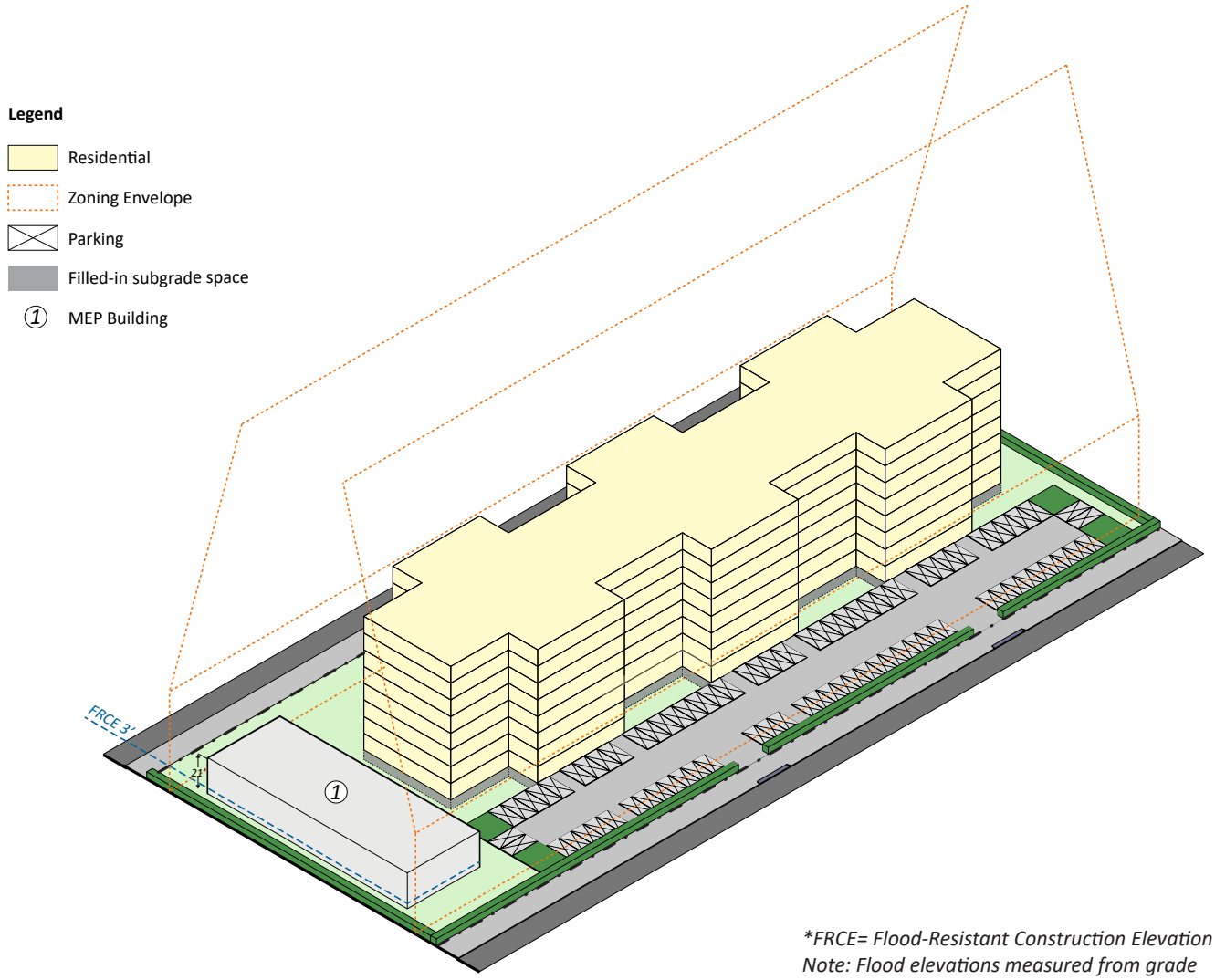
	No-Action Condition	**1% Annual Chance Floodplain: FT1**	With-Action Condition	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	100,000 sf	100,000 sf	100,000 sf	0	0	0
Zoning Floor Area	240,000 sf	240,000 sf	240,000 sf	0	0	0
Zoning Residential Floor Area	240,000 sf	240,000 sf	240,000 sf	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 / Lot Coverage	46 % / 54 %	46 % / 54 %	39 % / 61 %	0 / 0	- 7% / + 7%	- 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 Condition



**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	No-Action Condition	With-Action Condition	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 / Lot Coverage	46 % / 54 %	39 % / 61 %	- 7% / + 7%
Dwelling Units	320	320	0
Parking Spaces	78	78	0

Prototype 7

R5 / C1-2 District, 120-foot by 100-foot Subdivided Lot
Low-Rise Mixed Use Building, New Construction

Introduction

Prototypical Analysis Site 7 utilizes a generic 120-foot by 100-foot interior lot (12,000 sf) that is subdivided into five tax lots. Site 7 is located in an R5 residential zoning district with a C1-2 commercial overlay. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 7 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

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

Existing Condition

Under existing conditions, Prototypical Analysis Site 7 is a 12,000 sf vacant lot. The lot is tentatively subdivided into five separate tax lots: three 20-foot by 100-foot (2,000 sf) lots and two 30-foot by 100-foot (3,000 sf) lots.

1% Annual Chance Floodplain Scenario

No-Action Condition

In the future without the Proposed Action, it is expected that Prototypical Analysis Site 7 would be developed with low-rise, mixed-use commercial and residential buildings with four stories and 10 dwelling units. Two dwelling units would be provided per building. While general development trends have shown that residential buildings are more viable due to the high costs of dry-floodproofing required for commercial uses at grade, the No-Action scenario for Site 7 depicts a mixed-use building for conservative analysis purposes.

Under No-Action conditions, Site 7 would be developed with 15,000 sf of zoning floor area, providing an FAR of 1.25, the maximum permitted within an R5/C1-2 zoning district not using infill regulations (ZR 23-142 and ZR 35-22). The building's gross floor area would be 21,600 sf (17,200 gsf residential and 4,400 gsf commercial). Additionally, floor spaces used for MEP equipment (1,100 sf) and the ground floor retail use (5,500 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 7 in the future without the Proposed Action (ZR 12-10 Definition of Floor Area, Definition of Cellar).

Prototypical Analysis Site 7 is mapped with a BFE of five feet above grade, according to FEMA's flood maps resulting in a DFE of six feet. In order to meet the minimum Appendix G requirements and use the ground floor as retail space and internal residential access, the first occupiable floor of the building on Site 7 would be placed well above the DFE but slightly below 10 feet above grade to count as a cellar and exempt floor area. The total building height would be about 37 feet with a perimeter wall of about 28 feet, as measured from grade, fitting within the permitted building envelope of an R5 zoning district measured from the BFE. This would allow 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 35-22, and ZR

12-10 Definition of a Base Plane). The ground floor of Prototypical Analysis Site 7 would have dry-floodproofed commercial space and internal residential access with floor-to-floor height of about 10 feet, and residential floor-to-floor heights of nine feet each.

The No-Action scenario on Site 7 would contain nine unenclosed parking spaces in the rear of the lot, as required in the underlying zoning for the provided dwelling units (ZR 25-23). There would be 13 required parking spaces for the retail use, however it is waived since it is below the waiver threshold of 15 spaces (ZR 36-21, 36-231). The building on Prototypical Analysis Site 7 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 7 would be developed with low-rise, mixed-use commercial and residential buildings with four stories and 10 dwelling units. Two dwelling units would be provided per building. Under With-Action conditions, the zoning lot would be developed with a total of 15,000 sf of zoning floor area, including 12,150 sf of residential zoning floor area and 2,860 sf of commercial zoning floor area, the maximum permitted within an R5 zoning district which allows for an FAR of 1.25 (ZR 23-142 and ZR 35-22). The building's gross floor area would be 19,800 sf (14,290 gsf residential and 5,510 gsf commercial). As a result of the Proposed Action, floor spaces used for MEP equipment (1,100 sf) and the first 30 feet of dry-floodproofed space from the street wall at ground level (total 3,690 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 7. In the future with the Proposed Action, the exempted commercial floor area at the ground floor would be added to the second floor as commercial use that would most likely be used as an accessory space and as overall residential use.

In order to floodproof the building for the long term and exceed the minimum Appendix G requirements, in the future with the Proposed Action, the building on Prototypical Analysis Site 7 would utilize the "reference plane" allowance of 10 feet in the 1% flood zone. In order to get the proposed floor area exemption, the ground floor would be dry-floodproofed and the FSAFE would be at 15 feet above grade. The total building height would be 42 feet with a perimeter wall of 24 feet, as measured from grade, fitting within the permitted building envelope of an R5 zoning district as measured from a "reference plane" of 10 feet above grade, which allows for a maximum building height of 50 feet (40 feet plus 10 feet) and a maximum perimeter wall height of 40 feet (30 feet plus 10 feet). The ground floor would have a residential lobby and active commercial use with a floor-to-floor height of 15 feet, while residential floors two through four would have floor-to-floor heights of nine feet each on Site 7 in the future with the Proposed Action.

The With-Action scenario on Prototypical Analysis Site 7 would contain nine unenclosed parking spaces in the rear of the lot, as required in the underlying zoning (ZR 25-23). While the exempted ground floor retail space does not trigger parking requirements, the added second story commercial space does. There are 10 required parking spaces for the retail use, however, it is waived since it is below the waiver threshold of 15 spaces (ZR 36-21, 36-231). The building on Site 7 would comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be a reduction of 1,800 sf of gross floor area and a reduction of 1,810 sf of exempted floor area on Prototypical Analysis Site 7 in the 1% annual chance floodplain, as well as a reduction of four feet of perimeter wall and an additional five feet of overall building height as compared to No-Action conditions. There would also be a reduction of 2,910 sf of gross residential floor area and an increase of 1,110 sf of gross commercial floor area on the site in the future with the Proposed

Action. There would be no changes to the number of dwelling units, parking spaces, or lot coverage on Site 7 as a result of the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

In the future without the Proposed Action, Prototypical Analysis Site 7 would be developed with low-rise, mixed-use commercial and residential buildings with four stories and 10 dwelling units. Two dwelling units would be provided per building. While general development trends have shown that residential buildings are more viable due to the high costs of dry-floodproofing required for commercial uses at grade, the No-Action scenario for Site 7 depicts a mixed-use building for conservative analysis purposes.

Under No-Action conditions, Site 7 would be developed with 15,000 sf of zoning floor area, including 12,060 sf of residential zoning floor area and 2,940 sf of commercial zoning floor area, providing an FAR of 1.25, the maximum permitted within an R5/C1-2 zoning district (ZR 23-142 and ZR 35-22). The building's gross floor area would be 20,040 sf (12,480 gsf residential and 7,560 gsf commercial). Additionally, floor spaces used for MEP equipment (840 sf) and cellar (4,200 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). The cellar would be used for commercial accessory use.

Prototypical Analysis Site 7 would have the first occupiable floor at grade and the building would not meet the minimum Appendix G requirements under No-Action conditions. The total building height on Site 7 would be 37 feet with a perimeter wall of 28 feet, fitting within the permitted building envelope of an R5/C1-2 zoning district, which would allow for a maximum building height of 40 feet and a maximum perimeter wall height of 30 feet measured form grade since there is no BFE in the 0.2% floodplain (ZR 23-631 and ZR 35-22). The ground floor of Prototypical Analysis Site 7 would have a residential lobby and commercial use with a floor-to-floor height of 10 feet. The building would have residential floor-to-floor heights of nine feet each.

The No-Action scenario on Site 7 would contain nine unenclosed parking spaces in the rear of the lot, as required in the underlying zoning (ZR 25-23). There would be 10 required parking spaces for the retail use, however it is waived since it is below the waiver threshold of 15 spaces (ZR 36-21, 36-231). The building on Prototypical Analysis Site 7 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 7 would be developed with low-rise, mixed-use commercial and residential buildings with four stories and 10 dwelling units. Two dwelling units would be provided per building.

Under With-Action conditions, the zoning lot would be developed with a total of 15,000 sf of zoning floor area, including 11,550 sf of residential zoning floor area and 3,435 sf of commercial zoning floor area, the maximum permitted within an R5/C1-2 zoning district which allows for an FAR of 1.25 (ZR 23-142 and ZR 35-22). The building's gross floor area would be 19,850 sf (13,765 gsf residential and 6,085 gsf commercial). As a result of the Proposed Action, floor spaces used for MEP equipment (1,100 sf), the wet-floodproofed residential lobby, and the first 30 feet of dry-floodproofed space from the street wall at ground level (total 3,765 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 7. The floor space used for the MEP equipment is larger because the With-Action building is larger and the MEP is calculated based on the gross floor area of the building. In the future with the Proposed Action, the

exempted commercial floor area at the ground floor would be added to the second floor as commercial use that would most likely be used as an accessory space and as overall residential use.

In order to floodproof the building for the long term, in the future with the Proposed Action, the building on Prototypical Analysis Site 7 would utilize the "reference plane" allowance of five feet in the 0.2% flood zone. In order to get the proposed floor area exemption, the ground floor would be dry-floodproofed and the FSAFE would be at 15 feet above grade. The total building height would be 42 feet with a perimeter wall of 24 feet, fitting within the permitted building envelope of an R5/C1-2 zoning district as measured from a "reference plane" of five feet above grade, which 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 would have a residential lobby and active commercial use with floor-to-floor heights of 15 feet, while residential floors two through four have floor-to-floor heights of nine feet each on Site 7 in the future with the Proposed Action.

The With-Action scenario on Prototypical Analysis Site 7 would contain nine unenclosed parking spaces in the rear of the lot, as required in the underlying zoning (ZR 25-23). While the exempted ground floor retail space does not trigger parking requirements, the added second story commercial space does. There are 11 required parking spaces for the retail use, however, it is waived since it is below the waiver threshold of 15 spaces. (ZR 36-21, 36-231). The building on Site 7 would comply with all other underlying zoning regulations in the future with the Proposed Action.

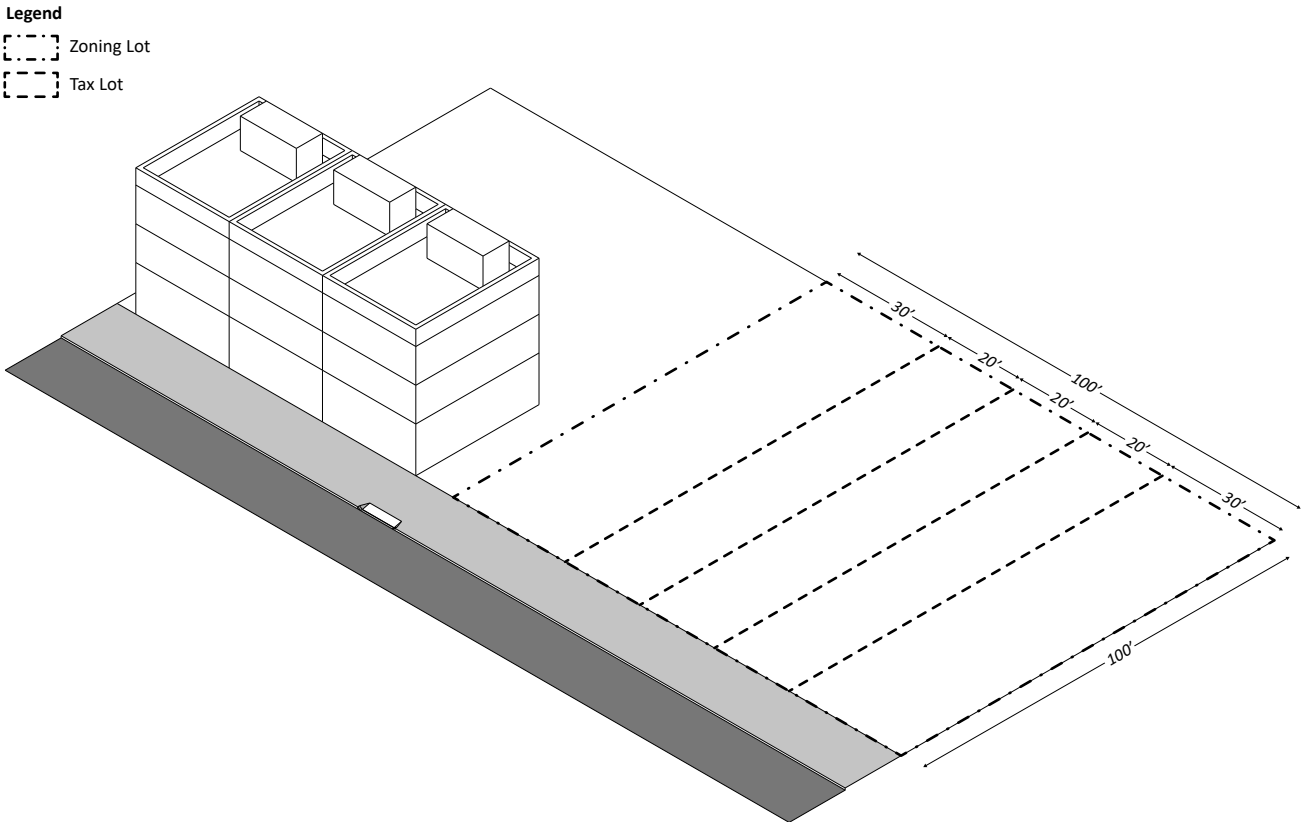
Increment

As a result of the Proposed Action, there would be a reduction of 190 sf of gross floor area and a reduction of 335 sf of exempted floor area on Prototypical Analysis Site 7 in the 0.2% annual chance floodplain, as well as a reduction of four feet of perimeter wall and an additional five feet of overall building height as compared to No-Action conditions. There would also be an increase of 1,285 sf of gross residential floor area and a decrease of 1,475 sf of gross commercial floor area on the site in the future with the Proposed Action. There would be no changes to the number of dwelling units, lot coverage, or parking spaces on Site 7 as a result of the Proposed Action.

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

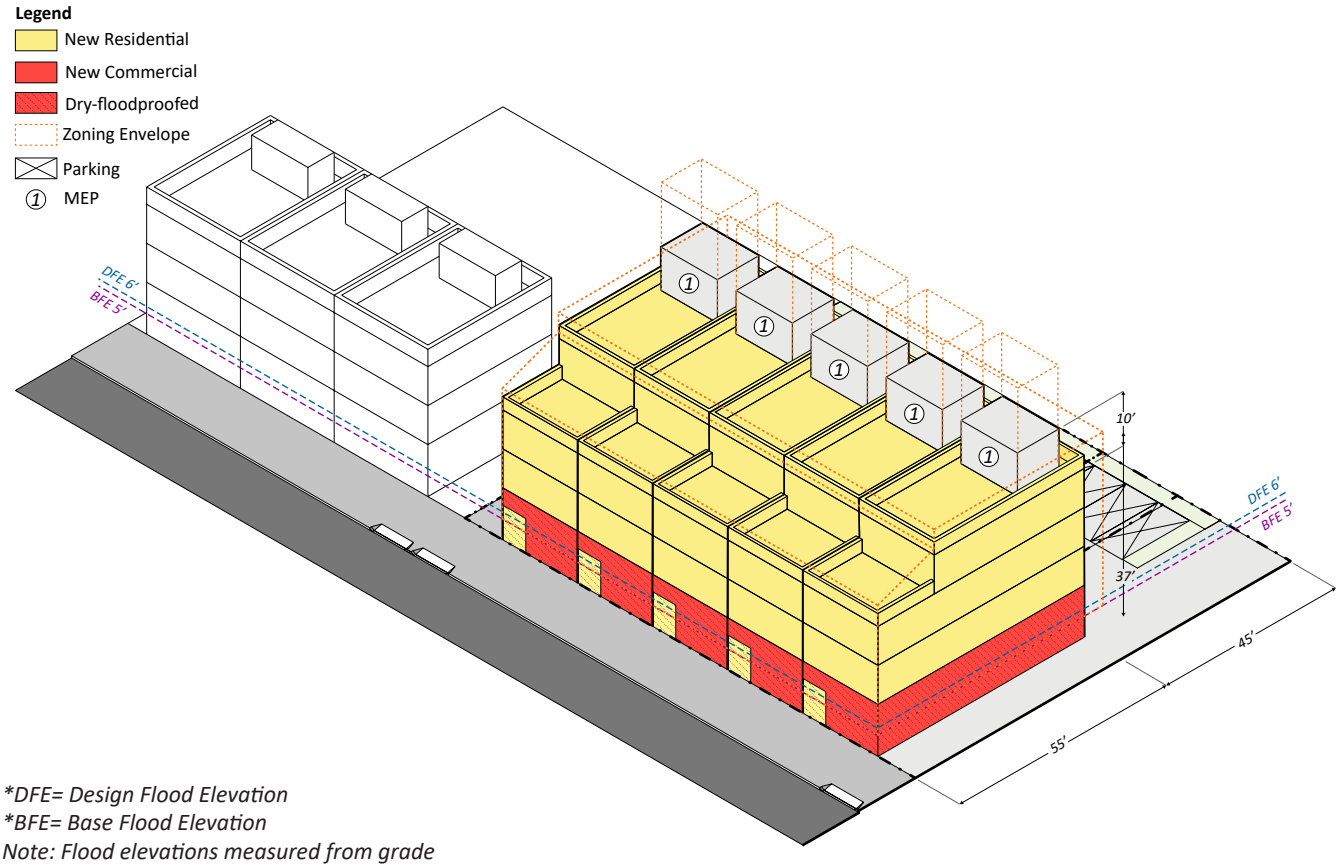
Existing Condition



R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

1% Annual Chance Floodplain: No-Action Condition



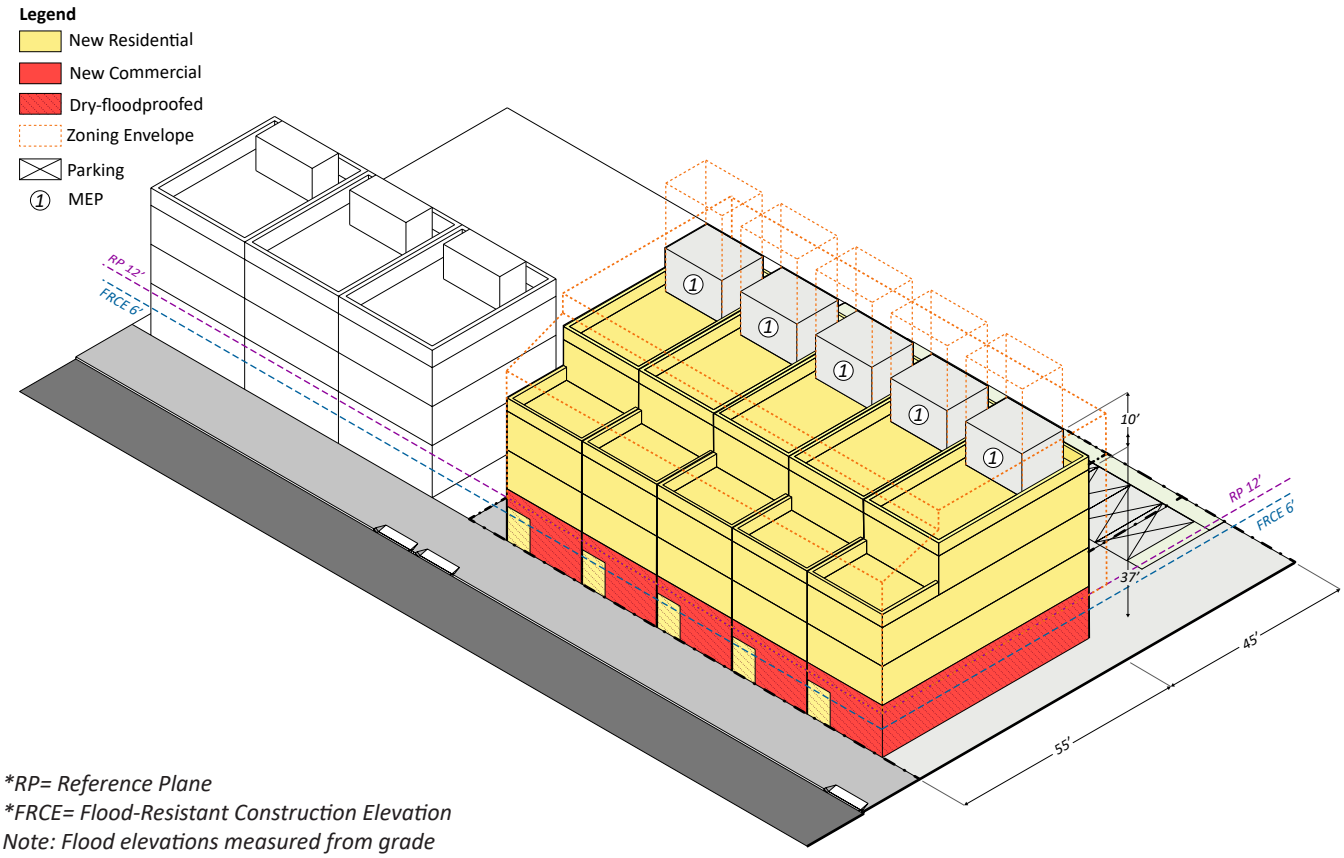
**DFE= Design Flood Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-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	21,600 sf	19,800 sf	- 1,800 sf
Gross Residential Floor Area	17,200 sf	14,290 sf	- 2,910 sf
Gross Commercial Floor Area	4,400 sf	5,510 sf	+ 1,110 sf
Exempted Floor Area	6,600 sf	4,790 sf	- 1,810 ft
Provided Perimeter Wall/Baseheight	28 ft	24 ft	- 6 ft
Provided Overall Height	37 ft	42 ft	+ 3 ft
Provided Number of Stories	4	4	0
Lot Coverage / Open Space	44 % / 56 %	46 % / 54%	+ 2% / - 2%
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: FT1



**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

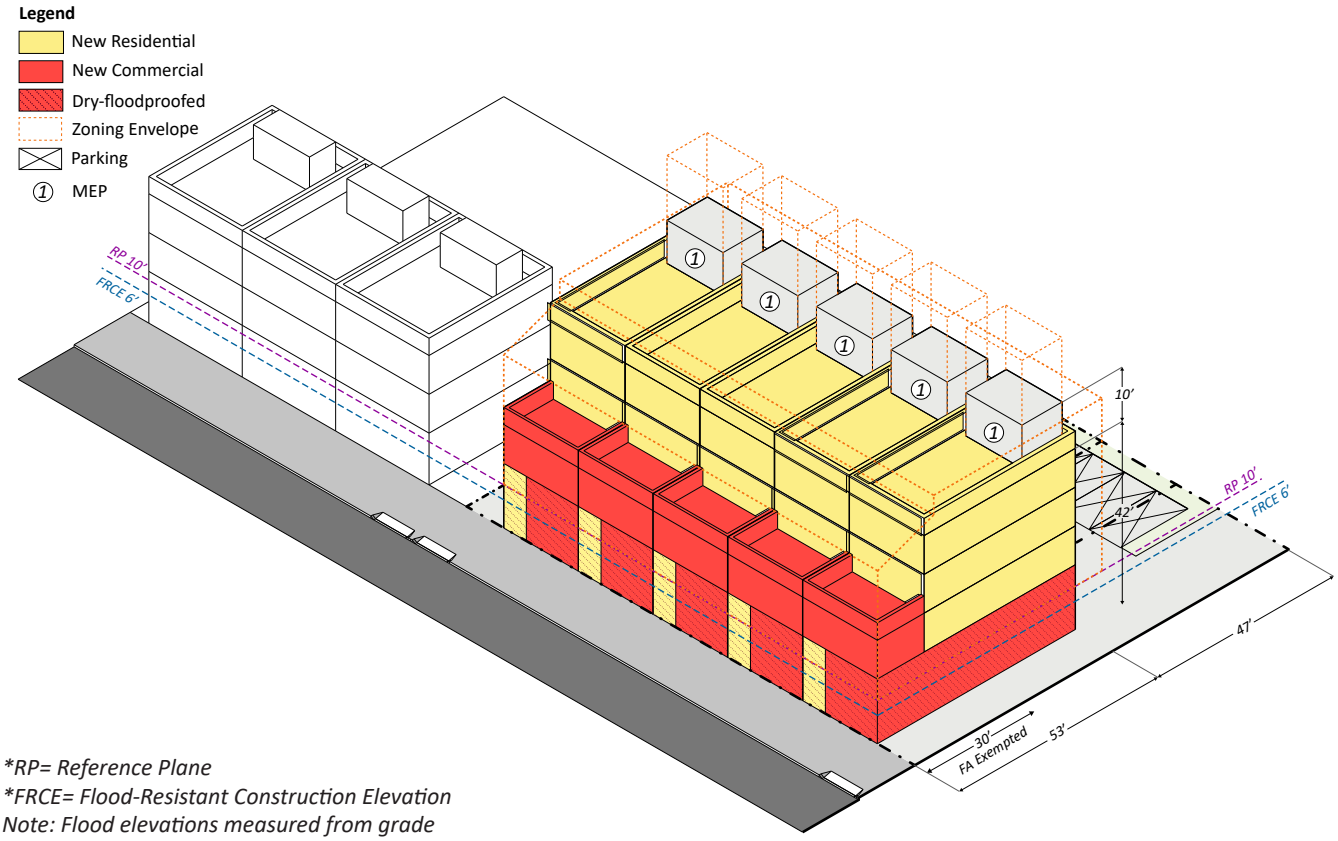
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	12,000 sf	12,000 sf	12,000 sf	0	0	0
Zoning Floor Area	15,000 sf	15,000 sf	15,000 sf	0	0	0
Zoning Residential Floor Area	15,000 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	21,600 sf	21,600 sf	19,800 sf	0	- 1,800 sf	- 1,800 sf
Gross Residential Floor Area	17,200 sf	17,200 sf	14,290 sf	0	- 2,910 sf	- 2,910 sf
Gross Commercial Floor Area	4,400 sf	4,400 sf	5,510sf	0	+ 1,110 sf	+ 1,110 sf
Exempted Floor Area	6,600 sf	6,000 sf	4,790 sf	0	- 1,810 ft	- 1,810 ft
Provided Perimeter Wall/Baseheight	28 ft	28 ft	24 ft	0	- 4 ft	- 4 ft
Provided Overall Height	37 ft	37 ft	42 ft	0	+ 5 ft	+ 5 ft
Provided Number of Stories	4	4	4	0	0	0
Lot Coverage / Open Space	44 % / 56 %	44 % / 56%	46 % / 54 %	0	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 Condition



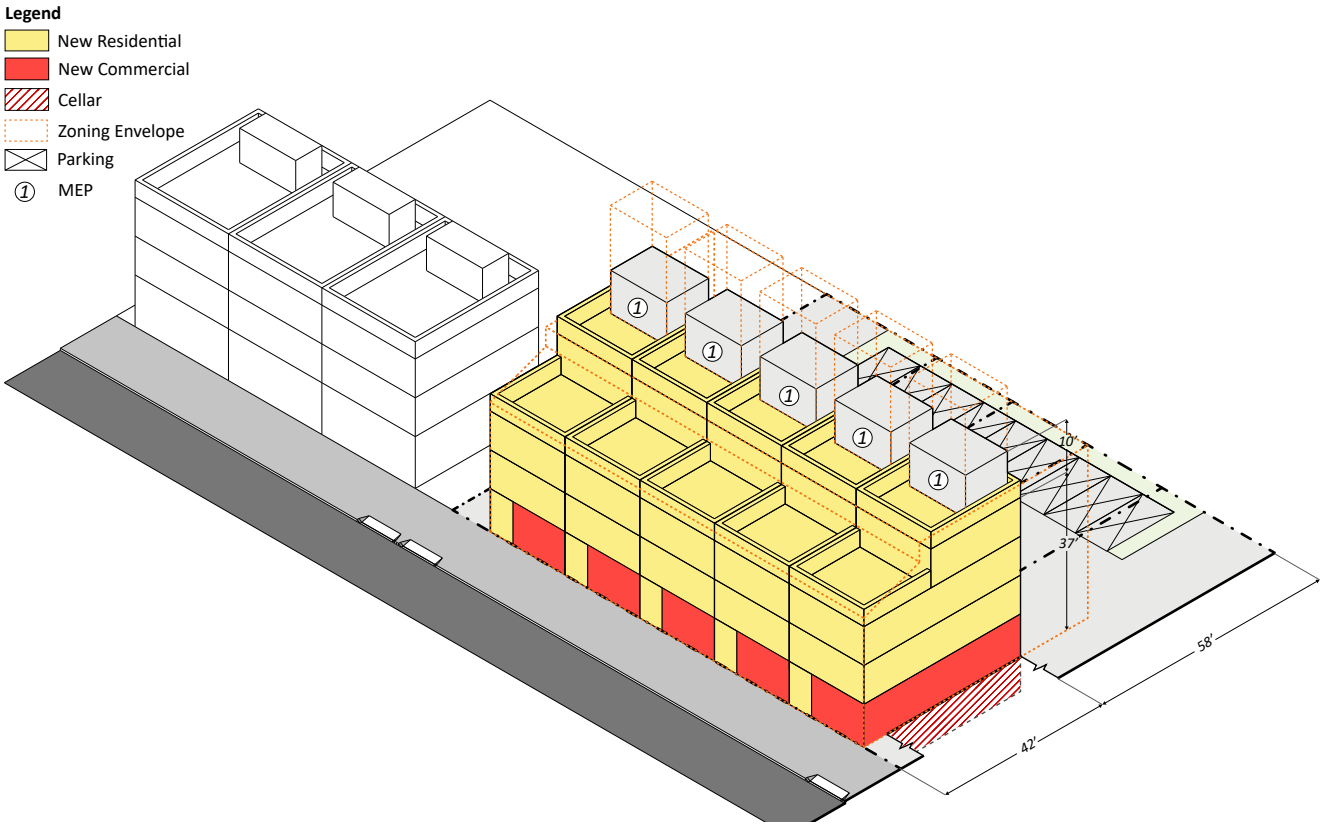
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-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	21,600 sf	19,800 sf	- 1,800 sf
Gross Residential Floor Area	17,200 sf	14,290 sf	- 2,910 sf
Gross Commercial Floor Area	4,400 sf	5,510 sf	+ 1,110 sf
Exempted Floor Area	6,600 sf	4,790 sf	- 1,810 ft
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	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	10	10	0
Parking Spaces	9	9	0

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

0.2% Annual Chance Floodplain: No-Action Condition

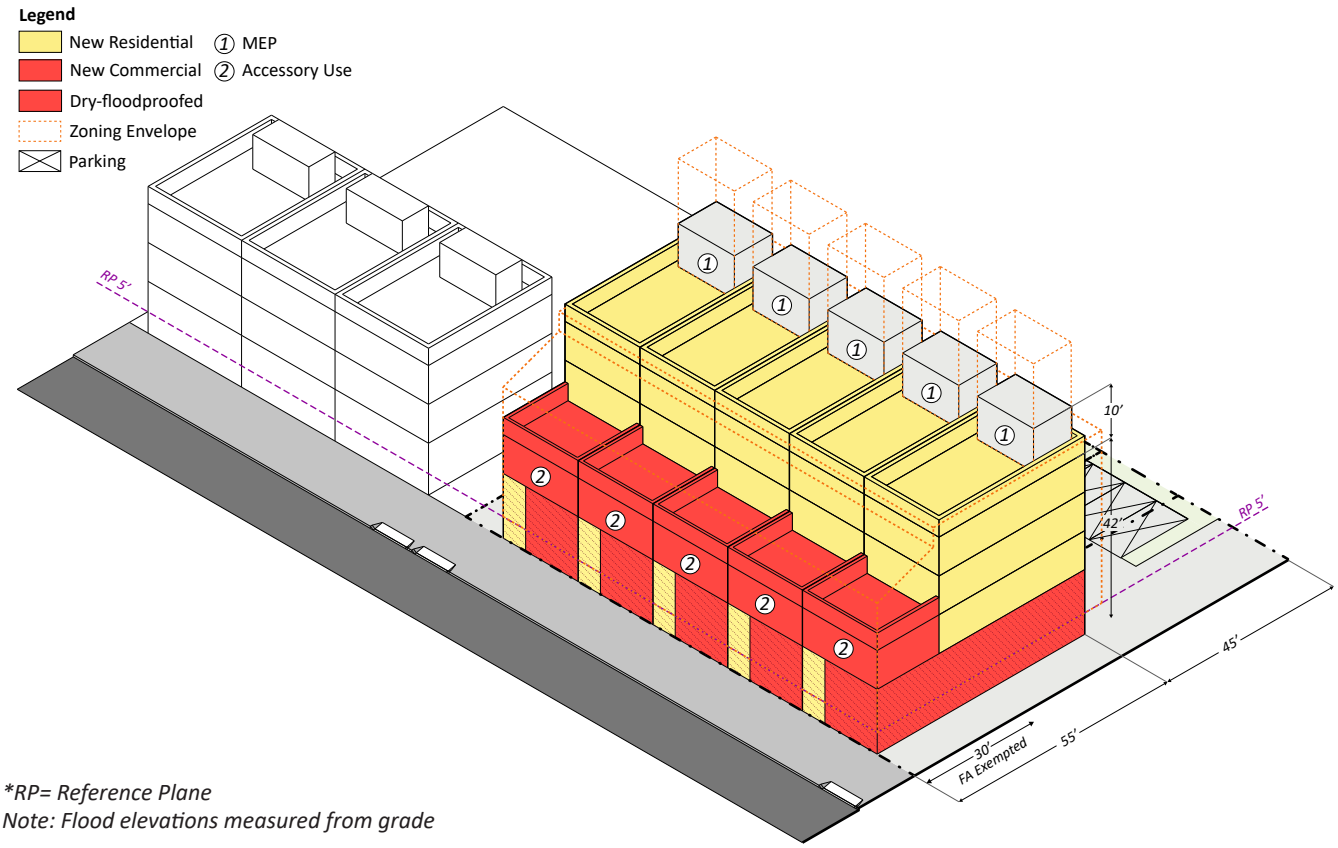


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	12,000 sf	12,000 sf	0
Zoning Floor Area	15,000 sf	15,000 sf	0
Zoning Residential Floor Area	12,060 sf	11,550 sf	- 510 sf
Zoning Commercial Floor Area	2,940 sf	3,435 sf	+ 495 sf
Gross Floor Area	20,040 sf	19,850 sf	- 190 sf
Gross Residential Floor Area	12,480 sf	13,765 sf	+ 1,285 sf
Gross Commercial Floor Area	7,560 sf	6,085 sf	- 1,475 sf
Exempted Floor Area	5,200 sf	4,865 sf	- 335 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	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	10	10	0
Parking Spaces	9	9	0

R5 / C1-2 Commercial District mapped within Residence District

Prototype 7

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
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	19,850 sf	- 190 sf
Gross Residential Floor Area	12,480 sf	13,765 sf	+ 1,285 sf
Gross Commercial Floor Area	7,560 sf	6,085 sf	- 1,475 sf
Exempted Floor Area	5,200 sf	4,865 sf	- 335 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	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	10	10	0
Parking Spaces	9	9	0

Prototype 8

R7A / C1-2 District, 25-foot x 100-foot Interior Lot
Mid-Rise Multi-Family Apartment Building, Retrofit

Introduction

Prototypical Analysis Site 8 utilizes a generic 25-foot by 100-foot interior lot (2,500 sf) in an R7A contextual residential zoning district with a C1-2 commercial overlay. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 8 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Floor area exemption for wet-floodproofed space and dry-floodproofed commercial space on the ground floor;
- Minor floor area exemption for flood panels; and
- Streetscape improvements.

Existing Condition

Under existing conditions, Prototypical Analysis Site 8 contains a seven-story residential building with 13 dwelling units and ground-floor commercial space. The zoning lot is developed with 10,000 sf of zoning floor area (8,860 zsf residential and 1,140 zsf commercial) with an FAR of 4.0, the maximum permitted within an R7A/C1-2 zoning district outside of IHDA and MIH areas (ZR 23-153 and ZR 35-22). The building's gross floor area is 10,800 sf (9,660 gsf residential and 1,140 gsf commercial). Floor spaces used for MEP equipment (300 sf) and five percent of the remaining gross floor area (500 sf) would be exempted from the zoning floor area to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10).

The total building height is 75 feet above grade, fitting within the permitted building envelope of an R7A/C1-2 district, which allows for a maximum building height of 85 feet and a maximum base height of 75 feet with a qualifying ground floor (ZR 23-631 and ZR 35-22). The ground floor has a floor-to-floor height of 15 feet and all residential floors have floor-to-floor heights of 10 feet. The MEP equipment is located on the roof of the building, and there is no parking on the site. Because the building on Site 8 is a small lot and requires 4 parking spaces which is less than the waiver threshold of 15 parking spaces, the parking is waived for the residential portion of the building (ZR 25-241, 25-261). For the retail space, since the parking requirement is 4 parking spaces, which is less than the waiver threshold of 15 spaces, retail parking is also waived for Site 8 (ZR 36-21, 36-231).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario would not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with the requirements of Appendix G. The permitted building envelope of an R7A district is measured from the BFE (ZR 12-10 Definition of Base Plane), which allows for a maximum building height of 87 feet (85 feet plus two feet

BFE) and a maximum perimeter wall height of 77 feet (75 feet plus two feet BFE) with the qualifying ground floor (ZR 23-662).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 8 would be retrofitted. The site would accommodate a total of 10,000 sf of zoning floor area, including 9,805 sf of residential zoning floor area and 195 sf of commercial zoning floor area, the maximum permitted within an R7A/C1-2 zoning district which allows for an FAR of 4.0 (ZR 23-153). The building's gross floor area would be 12,105 sf (10,665 gsf residential and 1,140 gsf commercial). As a result of the Proposed Action, floor spaces used for MEP equipment (300 sf), five percent of the remaining gross floor area (500 sf) to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10), the first 30 feet of dry-floodproofed space from the street wall at ground level and wet-floodproofed residential lobby (total 930 sf), and flood panel storage space at the ground level (375 sf) would be exempted from the zoning floor area.

The Prototypical Analysis Site is mapped with a BFE of two feet above grade, according to FEMA's flood maps resulting in a FRCE of three feet. In order to floodproof the building for the long term and exceed the minimum Appendix G requirements in the future with the Proposed Action, Prototypical Analysis Site 8 would utilize the maximum proposed "reference plane" of 10 feet above grade. In order to get the proposed floor area exemption, the commercial space on the ground floor would be dry-floodproofed and the FSAFE would be placed at 15 feet above grade following the existing building structure. The 570 sf of exempted floor area would be added to the building as a partial residential story (and increase of 10 feet), increasing the building height to 85 feet in the future with the Proposed Action. This fits within the permitted building envelope of an R7A/C1-2 zoning district as measured from a "reference plane" of 10 feet above grade, which allows for a maximum building height of 95 feet (85 feet plus 10 feet) and a maximum base height of 85 feet (75 feet plus 10 feet) with the qualifying ground floor. Under With-Action conditions, the ground floor of Prototypical Analysis Site 8 would have a residential lobby and active commercial use.

The MEP equipment on Site 8 would continue to be located on the roof of the building, and there would be no parking on the site under With-Action conditions. Because the building on Site 8 is a small lot and requires 4 parking spaces, which is less than the waiver threshold of 15 parking spaces, the parking is waived for the residential portion of the building (ZR 25-241, 25-261). For the retail space, the exempted floor area is not counted towards parking, so the parking requirement is 1 parking space which is less than the waiver threshold of 15 spaces, retail parking is also waived for Site 8 (ZR 36-21, 36-231).

Increment

As a result of the Proposed Action, there would be an increase of approximately 1,305 sf of gross floor area, an increase of approximately 505 sf of exempted floor area, and an increase of 10 feet on Prototypical Analysis Site 8 in the 1% annual chance floodplain, as compared to No-Action conditions. The Proposed Action would allow the ground floor of the building to be dry-floodproofed and the first 30 feet from the street wall to be exempted. There would be an increase of residential gross floor area (1,155 sf) and an increase of residential zoning floor area (945 sf) on the site. As a result of the Proposed Action, e commercial gross floor area would increase by 150 sf and commercial zoning floor area would decrease by 945 sf. Additionally, there would be no change to the number of dwelling units, parking spaces, or lot coverage on Site 8 as a result of the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 8 is the same as the existing condition because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an R7A/C1-2 zoning district is measured from grade since there is no BFE in the 0.2% floodplain, which allows for a maximum building height of 85 feet and a maximum base height of 75 feet with the qualifying ground floor (ZR 23-662).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 8 would be retrofitted. The site would accommodate a total of 10,000 sf of zoning floor area, including 9,805 sf of residential zoning floor area and 195 sf of commercial zoning floor area, the maximum permitted within an R7A/C1-2 zoning district which allows for an FAR of 4.0 (ZR 23-153). The building's gross floor area would be 12,105 sf (10,815 gsf residential and 1,290 gsf commercial). As a result of the Proposed Action, spaces used for MEP equipment (300 sf), five percent of the remaining gross floor area (500 sf) to account for other deductions of the Quality Housing Program (ZR 12-10 Definition of Floor Area and ZR 28-10), the first 30 feet of dry-floodproofed space from the street wall at ground level and wet-floodproofed residential lobby (total 930 sf), and flood panel storage space at the ground level (375 sf) would be exempted from the zoning floor area.

In order to floodproof the building for the long term, in the future with the Proposed Action, Prototypical Analysis Site 8 would utilize the maximum proposed "reference plane" of five feet above grade. In order to get the proposed floor area exemption, the ground floor would be dry-floodproofed and the FSAFE would be placed at 15 feet above grade following the existing building structure. Under With-Action conditions, the 570 sf of exempted floor area would be added to the building as a partial residential story (an increase of 10 feet), increasing the building height to 85 feet. This would fit within the permitted building envelope of an R7A/C1-2 zoning district as measured from a "reference plane" of five feet above grade, which allows for a maximum building height of 90 feet (85 feet plus five feet) and a maximum base height of 80 feet (75 feet plus five feet) with the qualifying ground floor. Additionally, the ground floor would have a residential lobby and active commercial use in the future with the Proposed Action.

In the With-Action scenario, the MEP equipment on Site 8 would continue to be located on the roof of the building and there would be no parking on the site. Because the building on Site 8 is a small lot and requires 4 parking spaces, which is less than the waiver threshold of 15 parking spaces, the parking is waived for the residential portion of the building (ZR 25-241, 25-261). For the retail space, the exempted floor area is not counted towards parking, so the parking requirement is 1 parking space which is less than the waiver threshold of 15 spaces, retail parking is also waived for Site 8 (ZR 36-21, 36-231).

Increment

As a result of the Proposed Action, there would be an increase of approximately 1,305 sf of gross floor area , an increase of approximately 505 sf of exempted floor area, and an increase of 10 feet on Prototypical Analysis Site 8 in the 0.2% annual chance floodplain, as compared to No-Action conditions. The Proposed Action would allow the ground floor of the building to be dry-floodproofed and the first 30 feet from the street wall to be exempted. There would be an increase of residential gross floor area (1,155 sf) and an increase of residential zoning floor area (945 sf) on the site. As a result of the Proposed Action, commercial gross floor area would increase (150 sf) and commercial zoning floor area would decrease by 945 sf.

Additionally, there would be no change to the number of dwelling units, parking spaces, or lot coverage on Site 8 as a result of the Proposed Action.

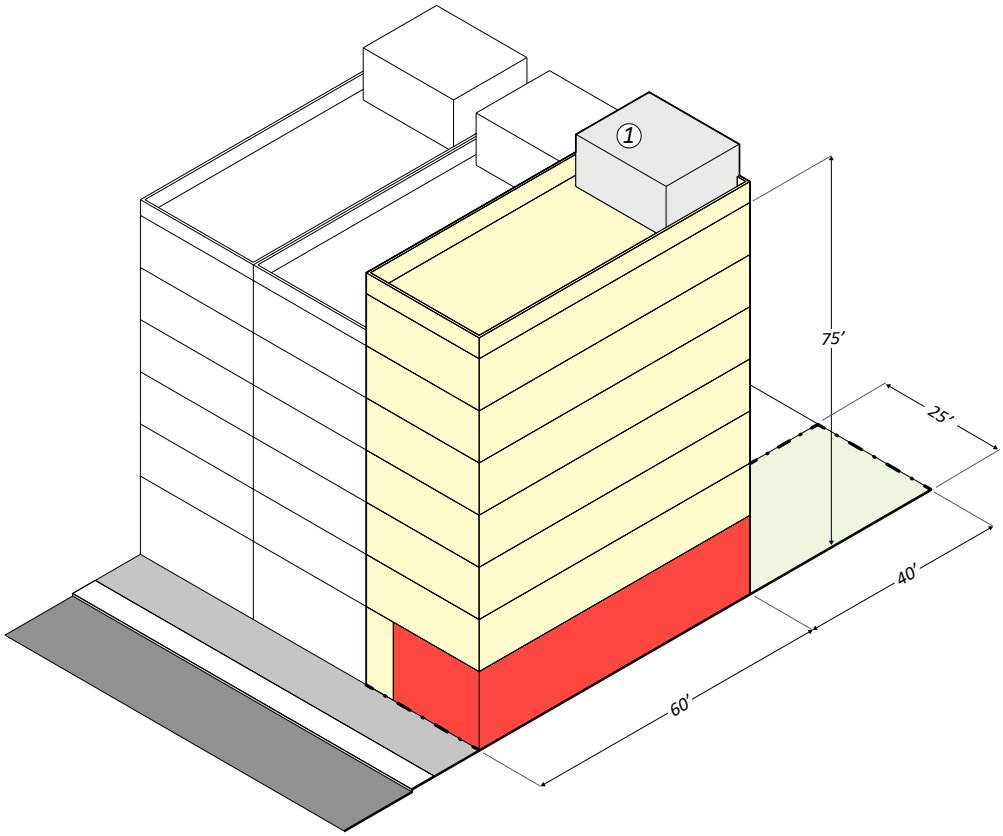
R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

Existing Condition

Legend

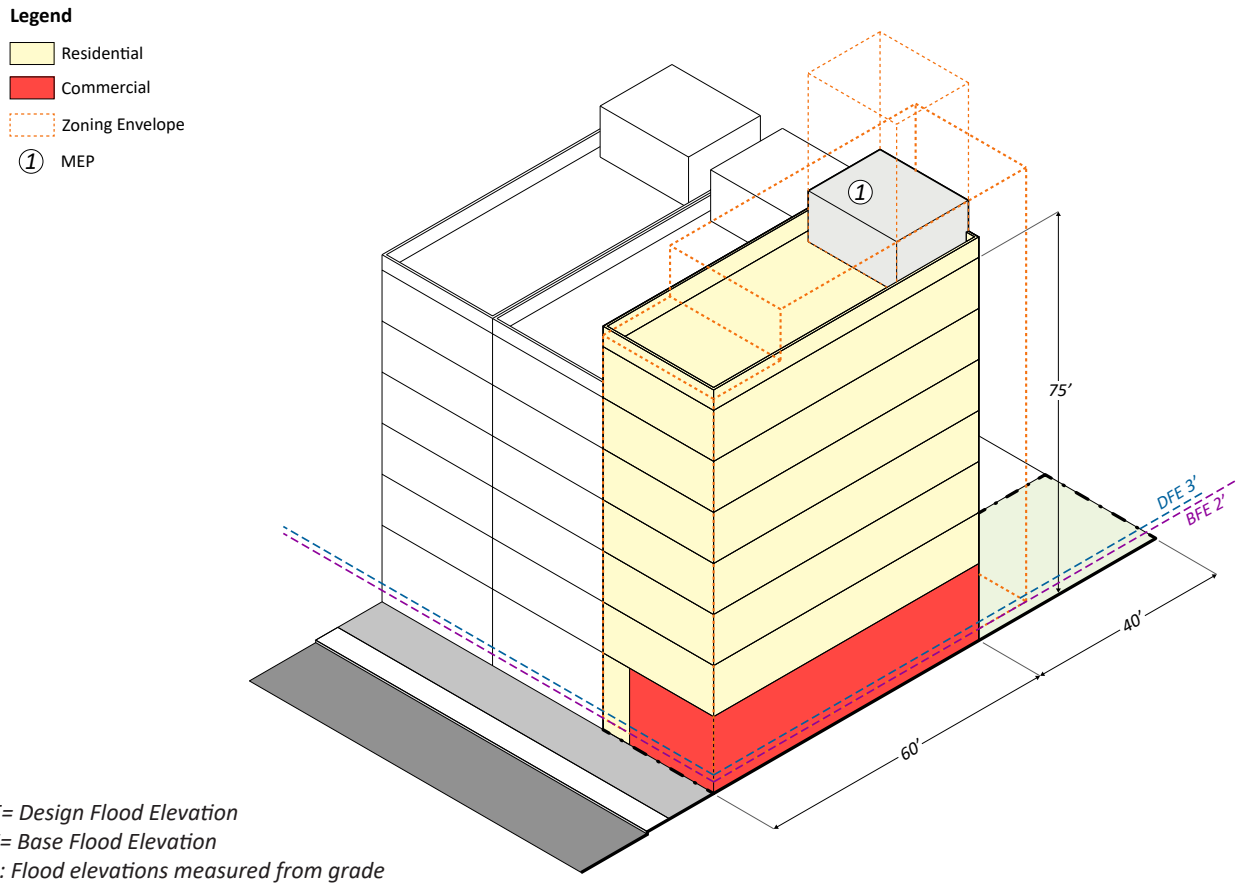
- Residential
- Commercial
- ① MEP



R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

1% Annual Chance Floodplain: No-Action Condition



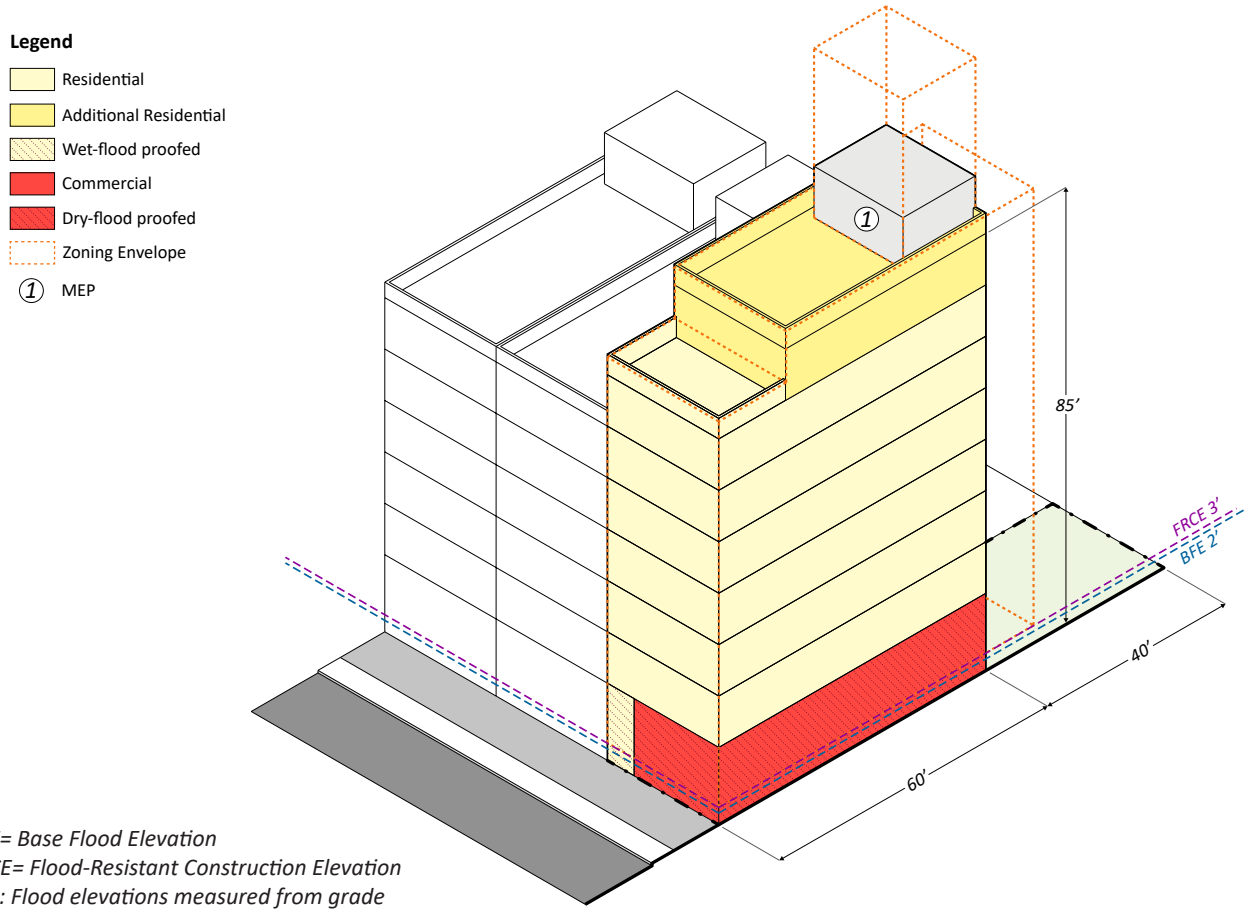
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	10,000 sf	10,000 sf	0
Zoning Residential Floor Area	8,860 sf	9,805 sf	+ 945 sf
Zoning Commercial Floor Area	1,140 sf	195 sf	- 945 sf
Gross Floor Area	10,800 sf	12,105 sf	+ 1,305 sf
Gross Residential Floor Area	9,660 sf	10,815 sf	+ 1,155 sf
Gross Commercial Floor Area	1,140 sf	1,290 sf	+ 150 sf
Exempted Floor Area	800 sf	1,305 sf	+ 505 sf
Provided Perimeter Wall/Baseheight	75 ft	75 ft	0
Provided Overall Height	75 ft	85 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	62 % / 38 %	62 % / 38 %	0 / 0
Dwelling Units	13	13	0
Parking Spaces	0	0	0

R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

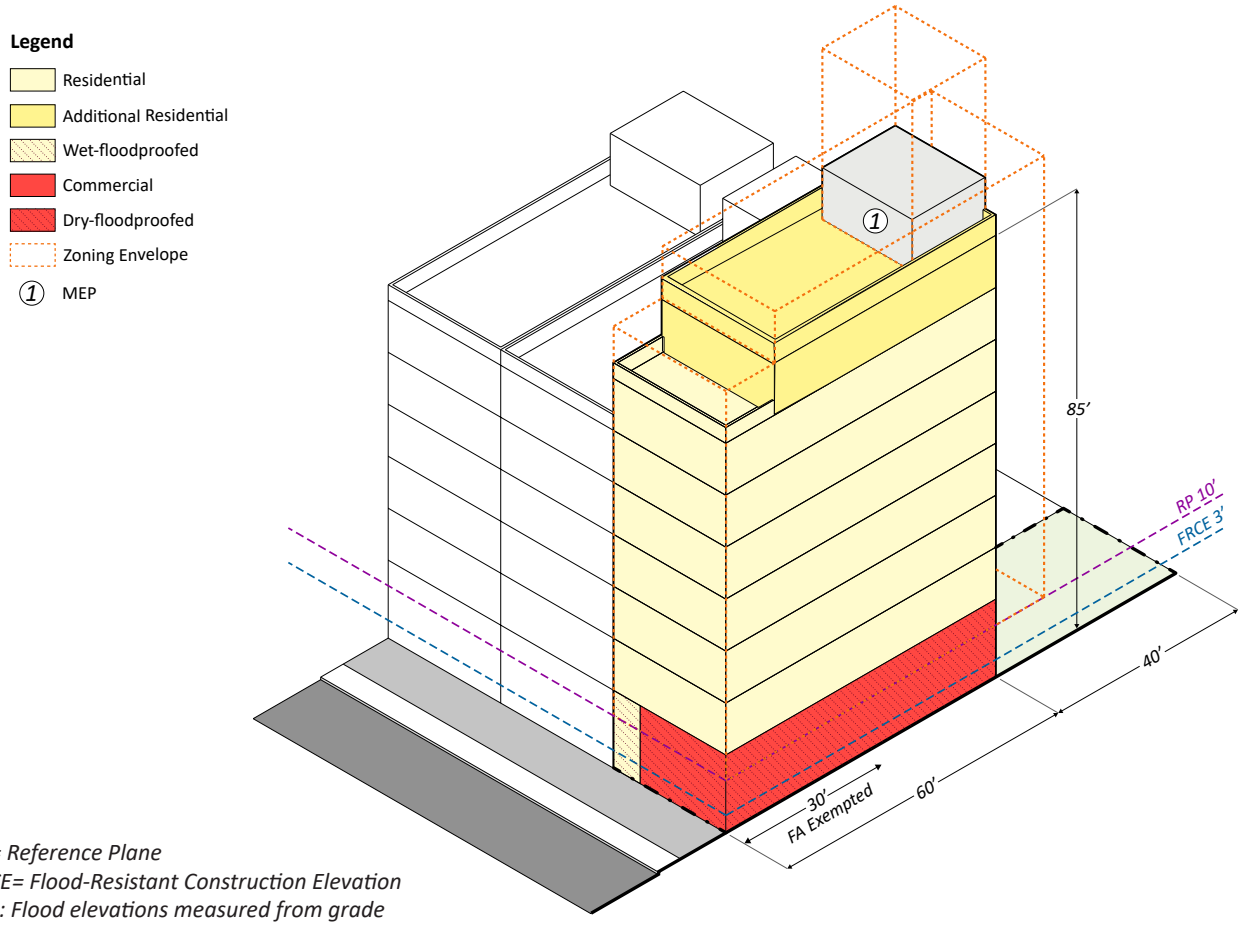
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	2,500 sf	0	0	0
Zoning Floor Area	10,000 sf	9,625 sf	10,000 sf	+ 375 sf	- 375 sf	0
Zoning Residential Floor Area	8,860 sf	9,625 sf	9,805 sf	+ 765 sf	+ 765 sf	+ 945 sf
Zoning Commercial Floor Area	1,140 sf	0 sf	195 sf	- 1,140 sf	- 1,140 sf	- 945 sf
Gross Floor Area	10,800 sf	11,925 sf	12,105 sf	+ 1,125 sf	+ 180 sf	+ 1,305 sf
Gross Residential Floor Area	9,660 sf	10,785 sf	10,815 sf	+ 1,125 sf	+ 30 sf	+ 1,155 sf
Gross Commercial Floor Area	1,140 sf	1,140 sf	1,290 sf	0	+ 150 sf	+ 150 sf
Exempted Floor Area	800 sf	2,300 sf	1,305 sf	+ 1,500 ft	- 995 ft	+ 505 sf
Provided Perimeter Wall/Baseheight	75 ft	75 ft	75 ft	0	0	0
Provided Overall Height	75 ft	85 ft	85 ft	+ 10 ft	0	+ 10 ft
Provided Number of Stories	7	8	8	+ 1	0	+ 1
Lot Coverage / Open Space	62 % / 38 %	62 % / 38 %	62 % / 38 %	0 / 0	0 / 0	0 / 0
Dwelling Units	13	13	13	0	0	0
Parking Spaces	0	0	0	0	0	0

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

R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

1% Annual Chance Floodplain: With-Action Condition



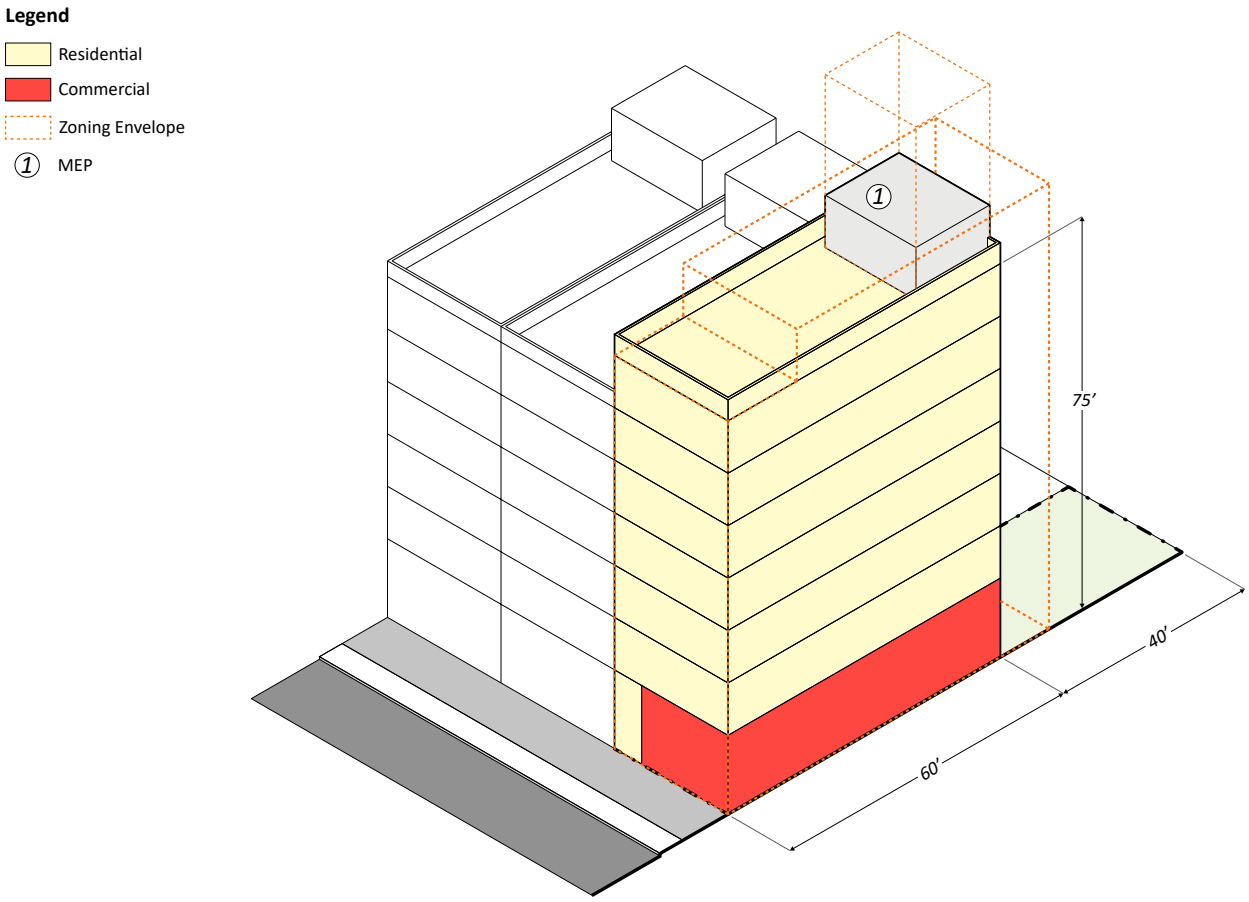
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	10,000 sf	10,000 sf	0
Zoning Residential Floor Area	8,860 sf	9,805 sf	+ 945 sf
Zoning Commercial Floor Area	1,140 sf	195 sf	- 945 sf
Gross Floor Area	10,800 sf	12,105 sf	+ 1,305 sf
Gross Residential Floor Area	9,660 sf	10,815 sf	+ 1,155 sf
Gross Commercial Floor Area	1,140 sf	1,290 sf	+ 150 sf
Exempted Floor Area	800 sf	1,305 sf	+ 505 sf
Provided Perimeter Wall/Baseheight	75 ft	75 ft	0
Provided Overall Height	75 ft	85 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	62 % / 38 %	62 % / 38 %	0 / 0
Dwelling Units	13	13	0
Parking Spaces	0	0	0

R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

0.2% Annual Chance Floodplain: No-Action Condition

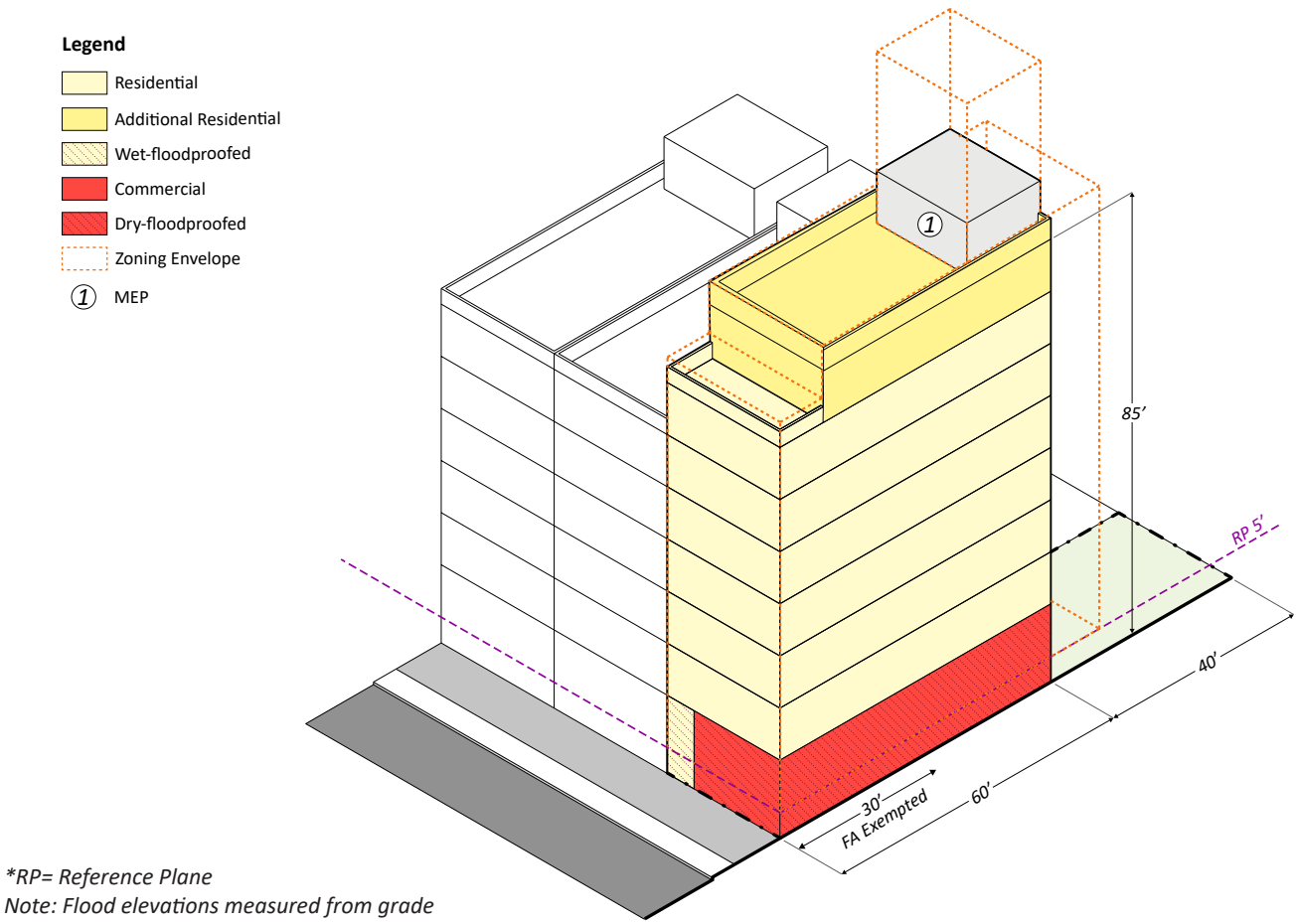


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	10,000 sf	10,000 sf	0
Zoning Residential Floor Area	8,860 sf	9,805 sf	+ 945 sf
Zoning Commercial Floor Area	1,140 sf	195 sf	- 945 sf
Gross Floor Area	10,800 sf	12,105 sf	+ 1,305 sf
Gross Residential Floor Area	9,660 sf	10,815 sf	+ 1,155 sf
Gross Commercial Floor Area	1,140 sf	1,290 sf	+ 150 sf
Exempted Floor Area	800 sf	1,305 sf	+ 1,305 sf
Provided Perimeter Wall/Baseheight	75 ft	75 ft	0
Provided Overall Height	75 ft	85 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	62 % / 38 %	62 % / 38 %	0 / 0
Dwelling Units	13	13	0
Parking Spaces	0	0	0

R7A / C1-2 Commercial District mapped within Residence District

Prototype 8

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	10,000 sf	10,000 sf	0
Zoning Residential Floor Area	8,860 sf	9,805 sf	+ 945 sf
Zoning Commercial Floor Area	1,140 sf	194 sf	- 945 sf
Gross Floor Area	10,800 sf	12,105 sf	+ 1,305 sf
Gross Residential Floor Area	9,660 sf	10,815 sf	+ 1,155 sf
Gross Commercial Floor Area	1,140 sf	1,290 sf	+ 150 sf
Exempted Floor Area	800 sf	1,305 sf	+ 505 sf
Provided Perimeter Wall/Baseheight	75 ft	75 ft	0
Provided Overall Height	75 ft	85 ft	+ 10 ft
Provided Number of Stories	7	8	+ 1
Lot Coverage / Open Space	62 % / 38 %	62 % / 38 %	0 / 0
Dwelling Units	13	13	0
Parking Spaces	0	0	0

Prototype 9

R3-1 / C1-2 District, 100-foot x 100-foot Corner Lot
Low-Rise Commercial Building, New Construction

Introduction

Prototypical Analysis Site 9 utilizes a generic 100-foot by 100-foot corner lot (10,000 sf) in an R3-1 contextual residential zoning district with a C1-2 commercial overlay. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 9 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes; and
- Floor area exemption for entry ways.

Existing Condition

Under existing conditions, Prototypical Analysis Site 9 is a 10,000 sf vacant lot.

1% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario illustrates the development of a one-story commercial building on Prototypical Analysis Site 9. The zoning lot would be developed with 4,200 sf of zoning floor area, providing an FAR of 0.42, less than the maximum permitted within an R3-1/C1-2 zoning district, which allows a maximum residential FAR of 0.5 and commercial FAR of 1.0 (ZR 33-121). The building's gross floor area would be 5,040 sf. Floor spaces used for MEP equipment (840 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). Additionally, in the future without the Proposed Action, the building's MEP equipment would be located on the roof, and the building would be elevated with a six feet high crawl space. External access would be provided adjacent to the building.

Prototypical Analysis Site 9 is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a DFE of six feet. In order to meet minimum Appendix G requirements, there would be a crawl space provided and the first occupiable floor would be placed at six feet above grade. The total building height on Site 9 would be 21 feet, as measured from grade, fitting within the permitted sky exposure plane of an R3-1/C1-2 zoning district measured from BFE, which allows for an initial building height of 35 feet before the sky exposure plane (30 feet plus five feet BFE) (ZR 33-431). The first floor of the building on Site 9 would have a floor-to-floor height of 15 feet. Additionally, under No-Action conditions, Site 9 would include nine out of the 14 required accessory parking spaces for the retail space in an unenclosed parking lot at the rear of the building. While the parking spaces can be waived since it is less than the waiver threshold of 15, parking is still provided to represent a typical commercial development with parking (ZR 36-21, 36-231). The building on Prototypical Analysis Site 9 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 9 would be developed with a one-story commercial building. Under With-Action conditions, Site 9 would contain a total of 4,510 sf of zoning floor area (0.45 FAR), less than the maximum permitted within an R3-1/C1-2 zoning district, which allows for a maximum residential FAR of 0.5 and commercial FAR of 1.0 (ZR 33-121). Additionally, the building's gross floor area would be 6,000 sf. Floor spaces used for MEP equipment (840 sf) and the internal access and show pit (650 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). The internal access and show pit are exempted because they are wet-floodproofed spaces at grade.

The Prototypical Analysis Site 9 is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a FRCE of six feet. In order to meet minimum Appendix G requirements, the building would utilize the proposed "reference plane" of six feet above grade. In order to have the access closer to grade, there would be a wet-floodproofed show pit at grade and the FSAFE would be placed at six feet above grade. As such, in the future with the Proposed Action, the total building height on Prototypical Analysis Site 9 would be 21 feet above grade, fitting within the permitted sky exposure plane of an R3-1/C1-2 zoning district (ZR 33-431) as measured from a "reference plane" of six feet. The first floor on Site 9 would have a floor-to-floor height of 15 feet, and the building access would be kept at grade by providing internal access with a show pit. In the future with the Proposed Action, Prototypical Analysis Site 9 would include 15 required accessory parking spaces (ZR 36-21).

Increment

As a result of the Proposed Action, there would be an additional 310 sf of zoning floor area, an increase of 960 sf of gross floor area, and an additional 650 sf of exempted floor area on Prototypical Analysis Site 9 in the 1% annual chance floodplain, as compared to No-Action conditions. The increase of zoning floor area on Site 9 would occur because the With-Action buildings provides internal access, allowing the building to extend to the street line, resulting in a larger building in comparison to the No-Action building, which provides access in the front of the building rather than internally. There would also be an increase of lot coverage from 42 percent of 50 percent of the lot in the future with the Proposed Action, and an additional six parking spaces on the lot. No changes to the number of dwelling units on Site 9 would occur as a result of the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario illustrates the development of a one-story commercial building on Prototypical Analysis Site 9. Under No-Action conditions, the zoning lot would be developed with 4,200 sf of zoning floor area, providing an FAR of 0.42, less than the maximum permitted within an R3-1/C1-2 zoning district, which allows a maximum residential FAR of 0.5 and commercial FAR of 1.0 (ZR 23-121). The building's gross floor area would be 5,040 sf. Floor spaces used for MEP equipment (840 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). In the future without the Proposed Action, Prototypical Analysis Site 9's MEP equipment would be located on the roof.

Under No-Action conditions, the building on Site 9 would not meet the minimum Appendix G requirements. The first occupiable floor would be at grade, and the total building height on Site 9 would be 15 feet above grade, fitting within the permitted sky exposure plane of an R3-1/C1-2 zoning district, which allows for an initial building height of 30 feet before the sky exposure plane (ZR 33-431). Since there is no BFE in the 0.2% flood zone, this is measured the grade. The first floor has a floor-to-floor height of 15 feet. Additionally, under No-Action conditions, Prototypical Analysis Site 9 would include nine out of the 14

required accessory parking spaces for the retail space in an unenclosed parking lot at the rear of the building. While the parking spaces can be waived since it is less than the waiver threshold of 15, parking is still provided to represent a typical commercial development with parking (ZR 36-21, 36-231). The building on Prototypical Analysis Site 9 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 9 would be developed with a one-story commercial building. Under With-Action conditions, the zoning lot would be developed with a total of 4,510 sf of zoning floor area (0.45 FAR), less than the maximum permitted within an R3-1/C1-2 zoning district which allows for a maximum residential FAR of 0.5 and commercial FAR of 1.0 (ZR 23-121). The building's gross floor area would be 6,000 sf. Floor spaces used for MEP equipment (840 sf) and the internal access and show pit (650 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). The internal access and show pit are exempted because they are wet-floodproofed spaces at grade.

In order to floodproof the building for the long term in the future with the Proposed Action, the building would utilize the proposed "reference plane" of five feet above grade. In order to have the access closer to grade, there would be a wet-floodproofed show pit at grade on Site 9, and the FSAFE would be placed at six feet above grade. As such, the total building height on Prototypical Analysis Site 9 would be 21 feet above grade in the future with the Proposed Action, fitting within the permitted sky exposure plane of an R3-1/C1-2 zoning district (ZR 33-431) as measured from a "reference plane" of five feet. The first floor of Site 9 would have a floor-to-floor height of 15 feet, and access would be kept at grade by providing internal access with a show pit. In the future with the Proposed Action, Site 9 would contain 15 required accessory parking spaces (ZR 36-21).

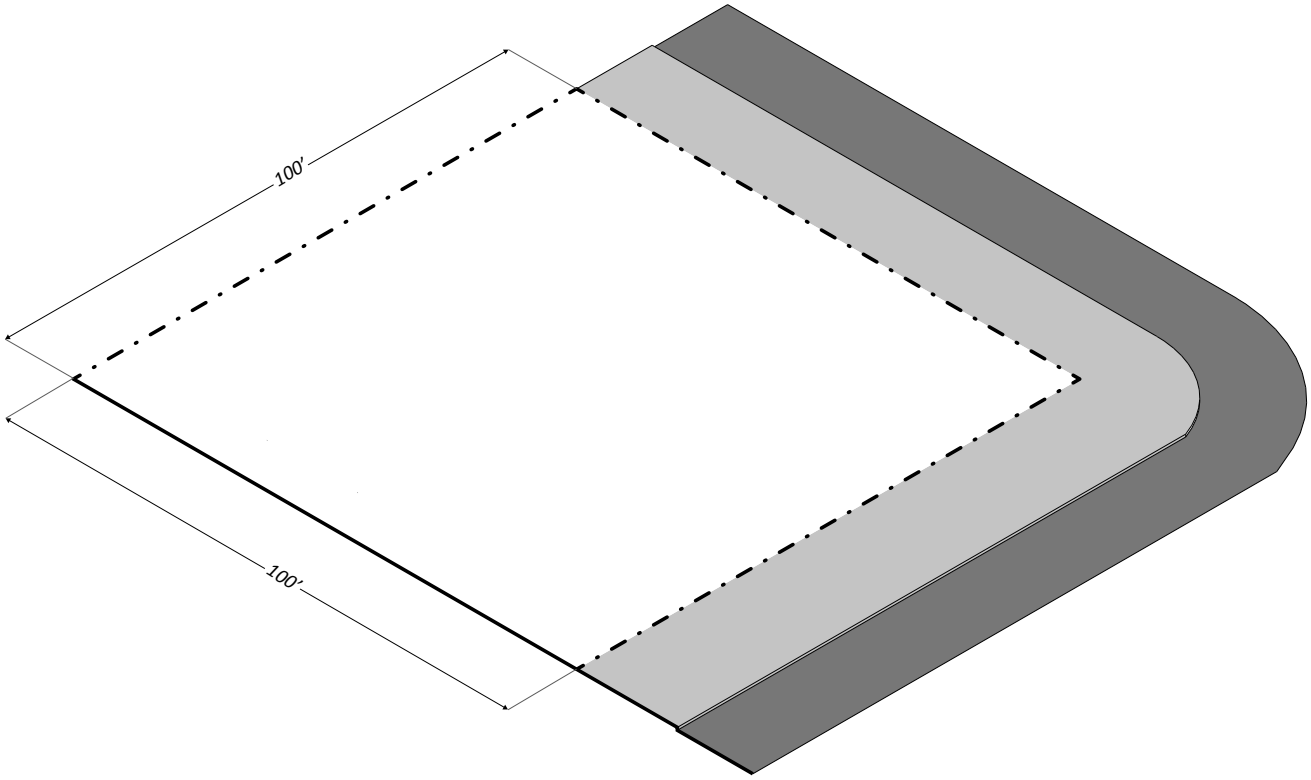
Increment

As a result of the Proposed Action, there would be an additional 310 sf of zoning floor area, an increase of 960 sf of gross floor area, and an additional 650 sf of exempted floor area on Prototypical Analysis Site 9 in the 0.2% annual chance floodplain, as compared to No-Action conditions. The increase of zoning floor area on Site 9 would occur because the With-Action buildings provides internal access, allowing the building to extend to the street line, resulting in a larger building in comparison to the No-Action building, which provides access in the front of the building rather than internally. There would also be an increase of lot coverage from 42 percent of 50 percent of the lot in the future with the Proposed Action, an additional six parking spaces on the lot, and the total building height would increase by six feet. Additionally, there would be no change to the number of dwelling units as a result of the Proposed Action.

R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

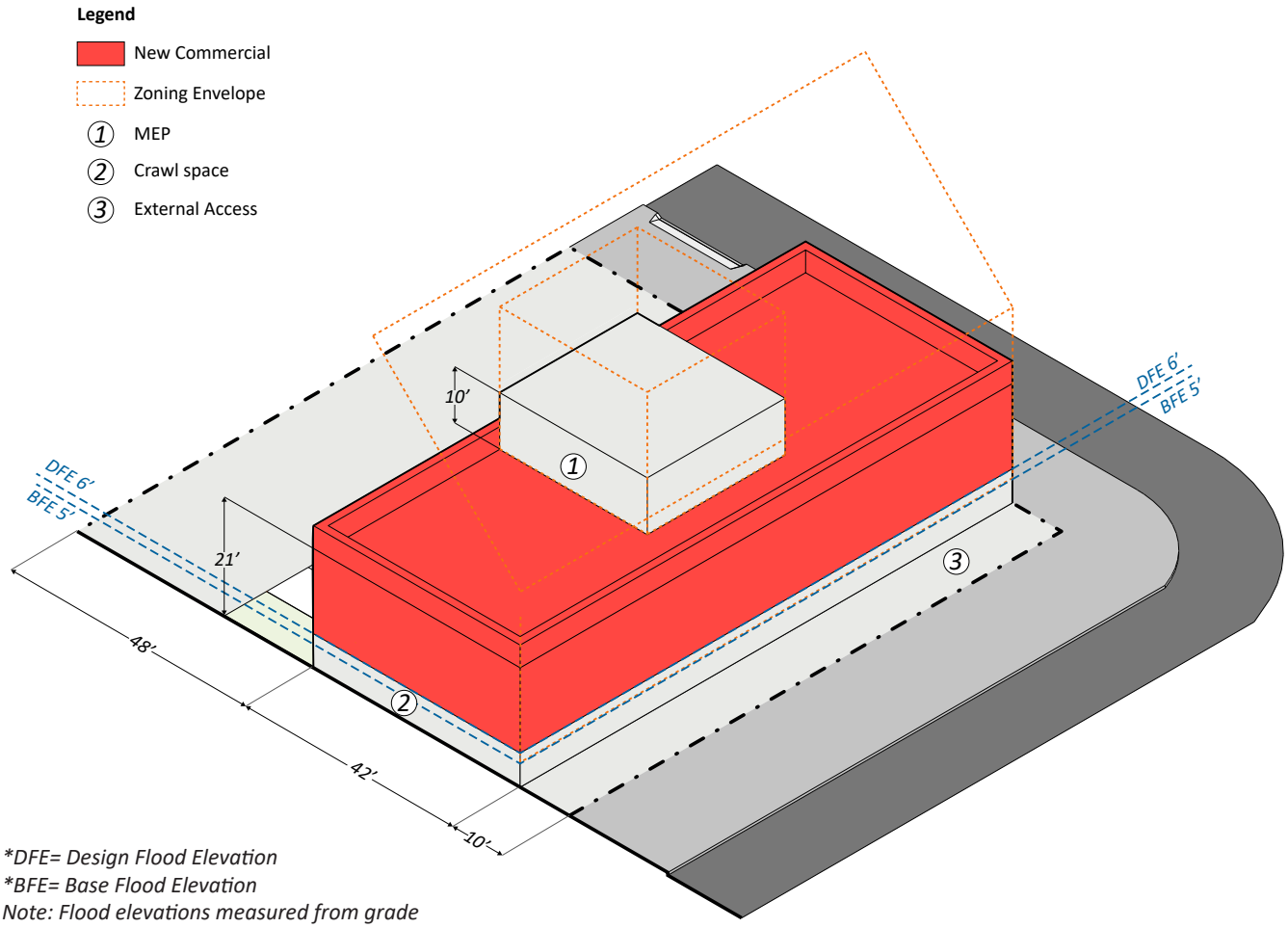
Existing Condition



R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

1% Annual Chance Floodplain: No-Action Condition



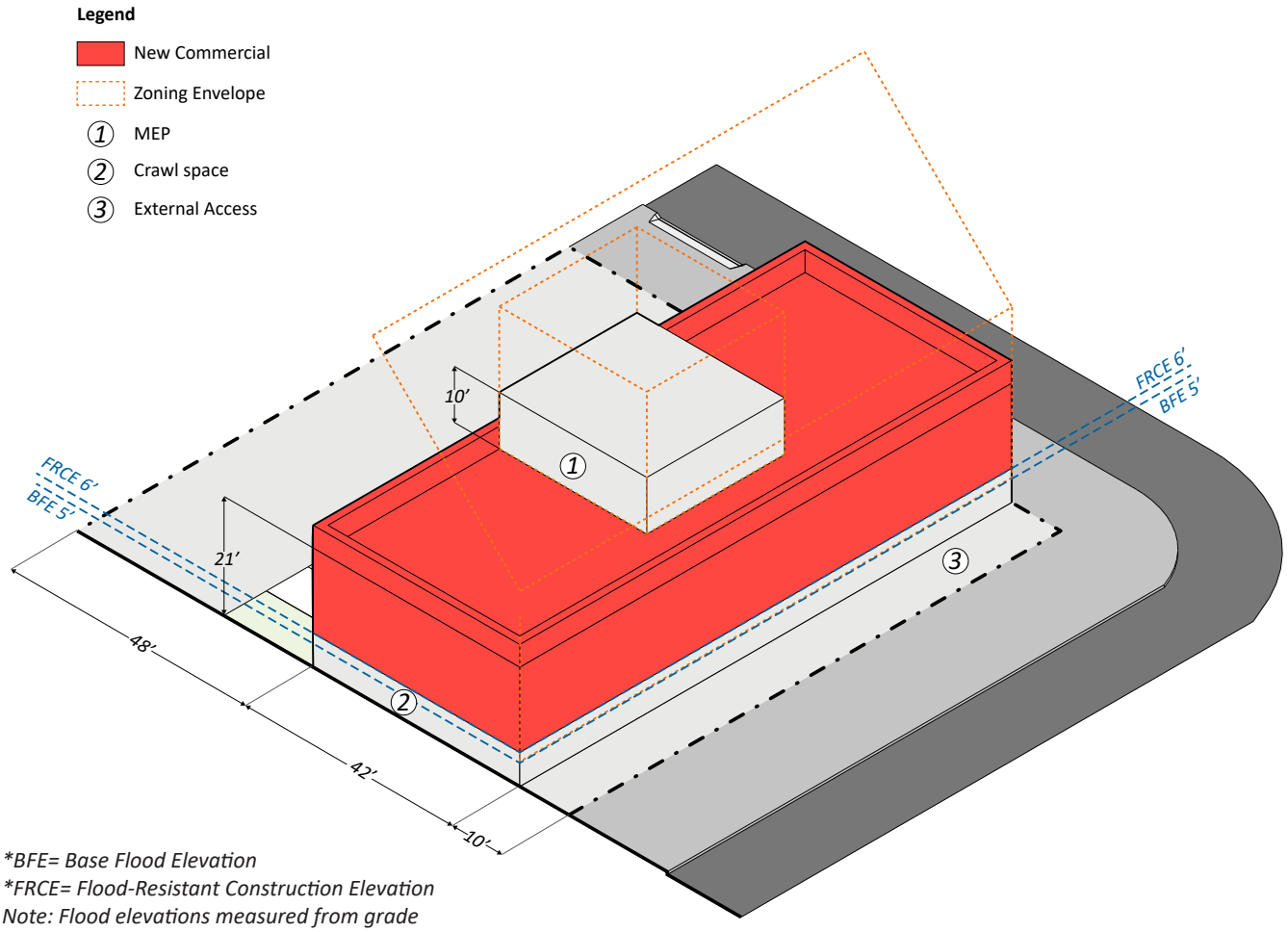
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	4,200 sf	4,510 sf	+ 310 sf
Zoning Commercial Floor Area	4,200 sf	4,510 sf	+ 310 sf
Gross Floor Area	5,040 sf	6,000 sf	+ 960 sf
Gross Commercial Floor Area	5,040 sf	6,000 sf	+ 960 sf
Exempted Floor Area	840 sf	1,490 sf	+ 650 sf
Provided Perimeter Wall/Baseheight	21 ft	21 ft	0
Provided Overall Height	21 ft	21 ft	0
Provided Number of Stories	1	1	0
Lot Coverage	42 %	50 %	+ 8 %
Parking Spaces	9	15	+ 6

R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

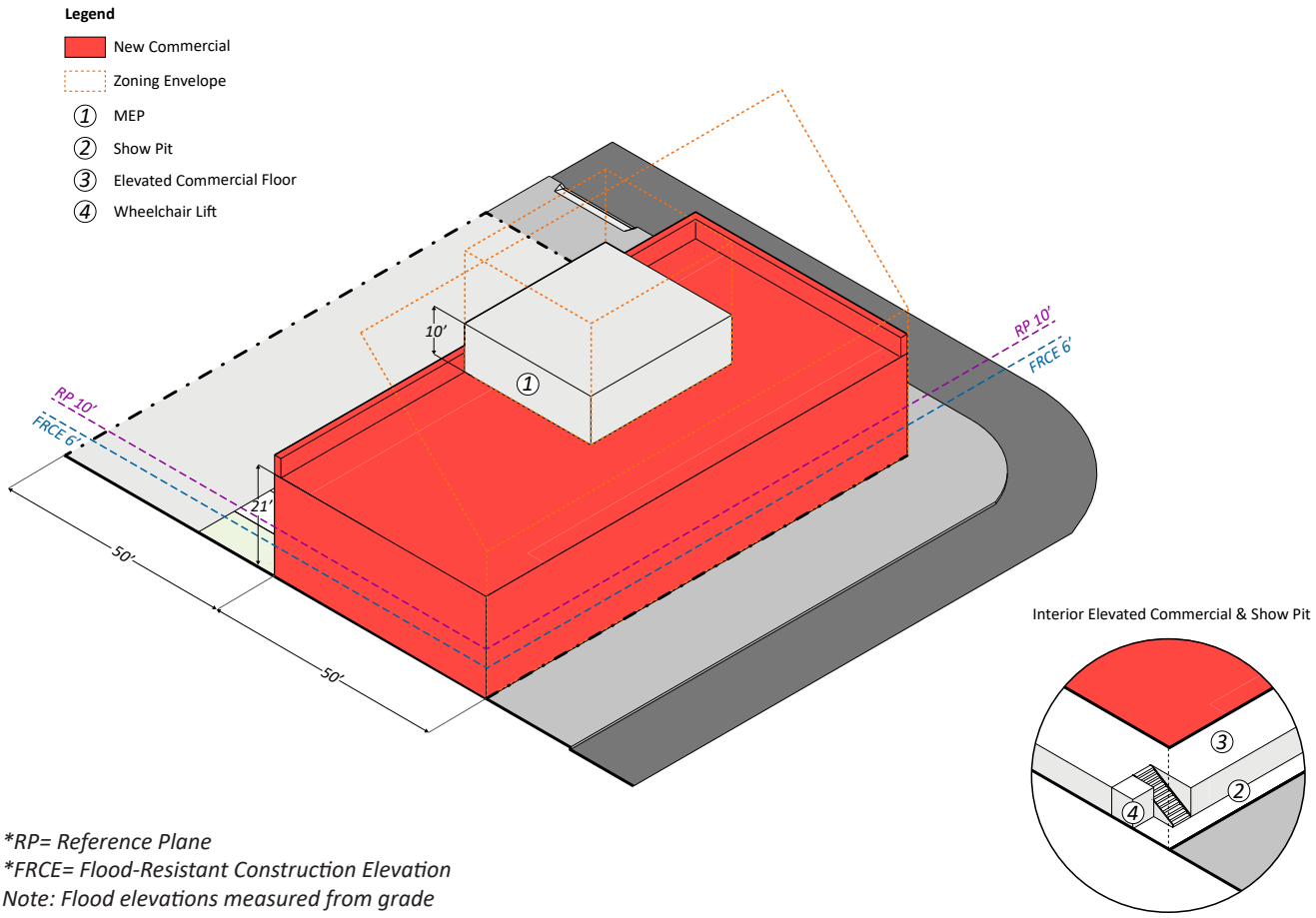
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	10,000 sf	0	0	0
Zoning Floor Area	4,200 sf	4,200 sf	4,510 sf	0	+ 310 sf	+ 310 sf
Zoning Commercial Floor Area	4,200 sf	4,200 sf	4,510 sf	0	+ 310 sf	+ 310 sf
Gross Floor Area	5,040 sf	5,040 sf	6,000 sf	0	+ 960 sf	+ 960 sf
Gross Commercial Floor Area	5,040 sf	5,040 sf	6,000 sf	0	+ 960 sf	+ 960 sf
Exempted Floor Area	840 sf	840 sf	1,490 sf	0	+ 650 sf	+ 650 sf
Provided Perimeter Wall/Baseheight	21 ft	21 ft	21 ft	0	0	0
Provided Overall Height	21 ft	21 ft	21 ft	0	0	0
Provided Number of Stories	1	1	1	0	0	0
Lot Coverage	42 %	42%	50 %	0	+ 8 %	+ 8 %
Parking Spaces	9	9	15	0	+ 6	+ 6

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

R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

1% Annual Chance Floodplain: With-Action Condition



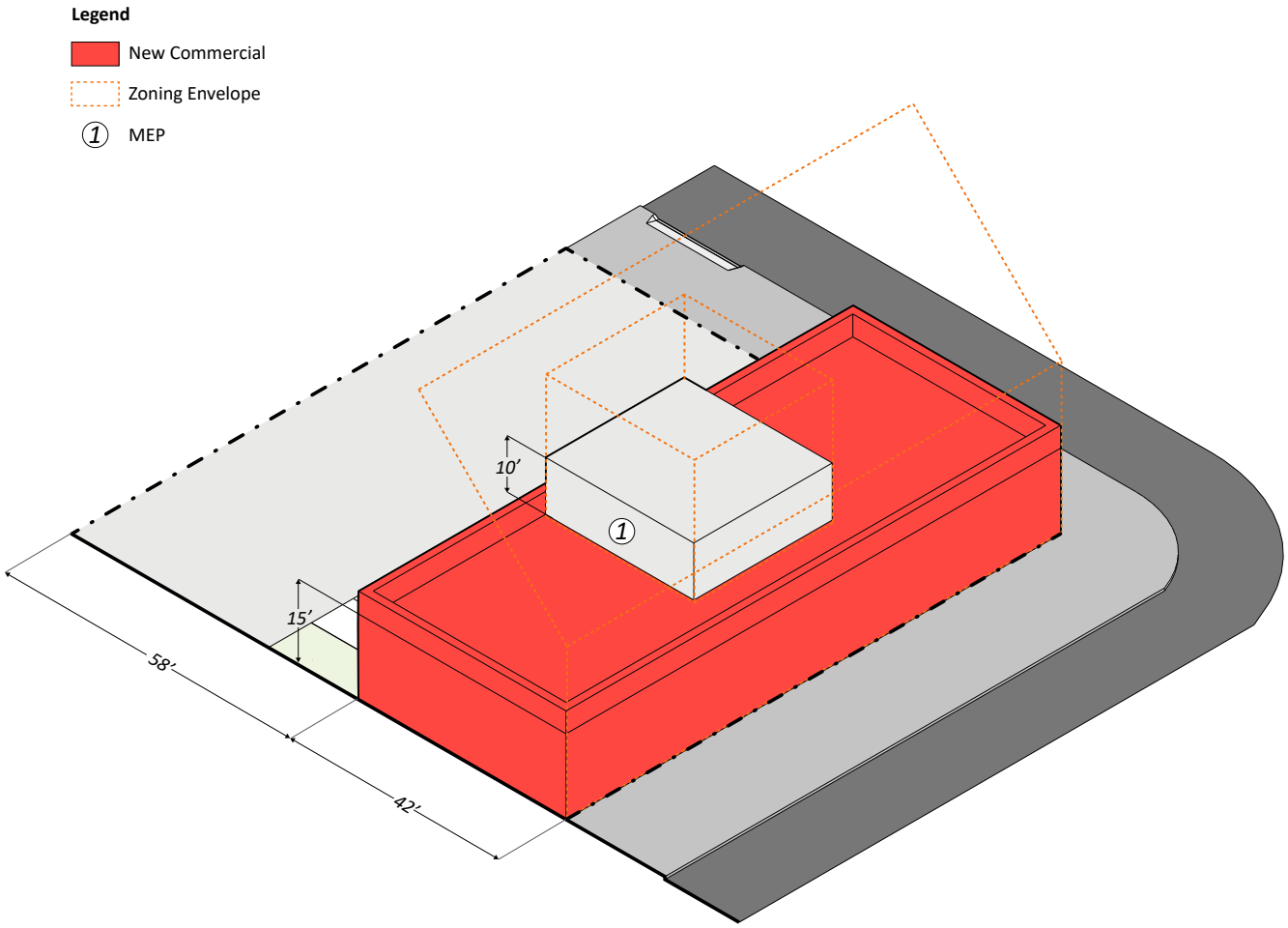
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	4,200 sf	4,510 sf	+ 310 sf
Zoning Commercial Floor Area	4,200 sf	4,510 sf	+ 310 sf
Gross Floor Area	5,040 sf	6,000 sf	+ 960 sf
Gross Commercial Floor Area	5,040 sf	6,000 sf	+ 960 sf
Exempted Floor Area	840 sf	1,490 sf	+ 650 sf
Provided Perimeter Wall/Baseheight	21 ft	21 ft	0
Provided Overall Height	21 ft	21 ft	0
Provided Number of Stories	1	1	0
Lot Coverage	42 %	50 %	+ 8 %
Parking Spaces	9	15	+ 6

R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

0.2% Annual Chance Floodplain: No-Action Condition

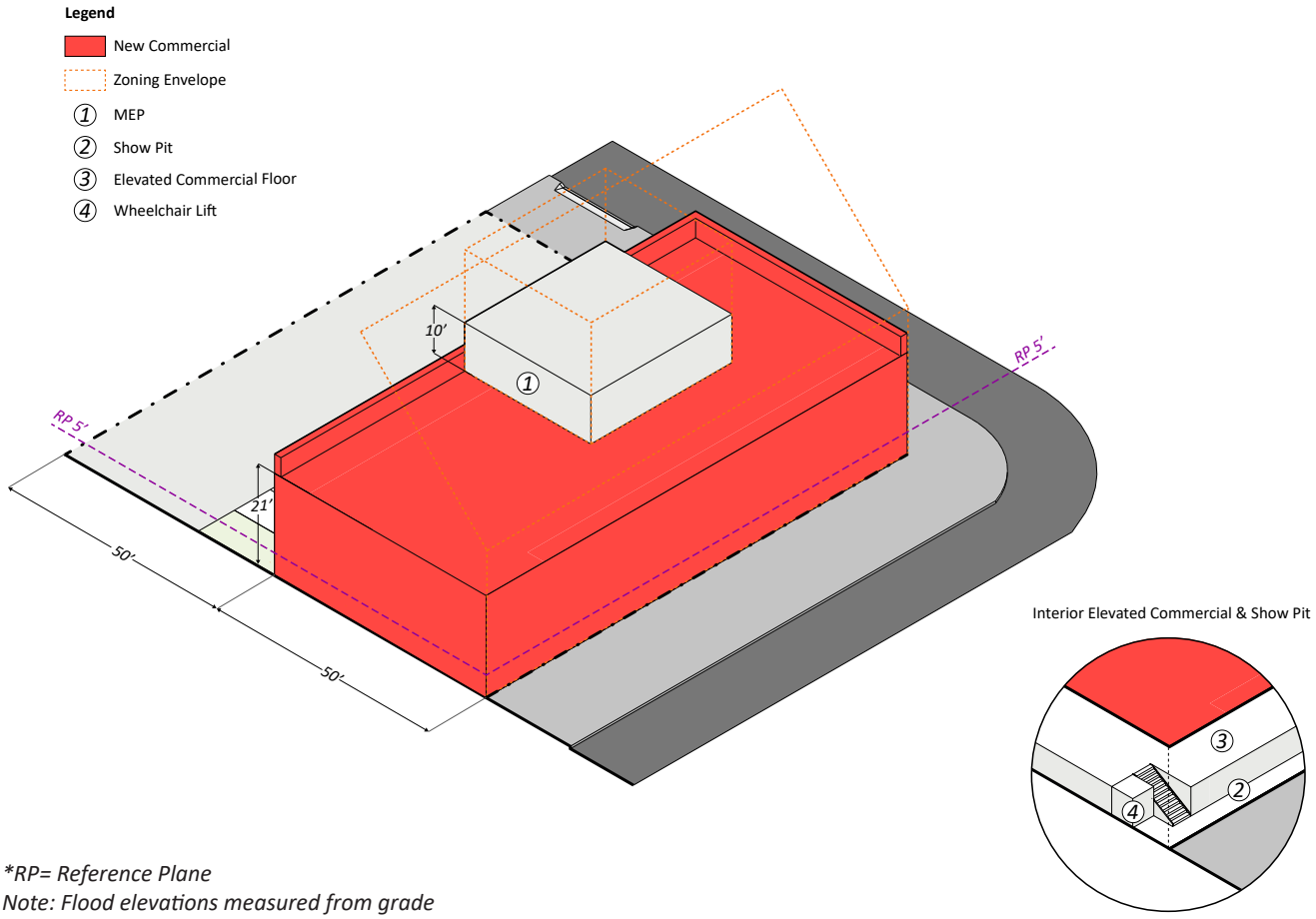


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	4,200 sf	4,510 sf	+ 310 sf
Zoning Commercial Floor Area	4,200 sf	4,510 sf	+ 310 sf
Gross Floor Area	5,040 sf	6,000 sf	+ 960 sf
Gross Commercial Floor Area	5,040 sf	6,000 sf	+ 960 sf
Exempted Floor Area	840 sf	1,490 sf	+ 650 sf
Provided Perimeter Wall/Baseheight	15 ft	21 ft	+ 6 ft
Provided Overall Height	15 ft	21 ft	+ 6 ft
Provided Number of Stories	1	1	0
Lot Coverage	42 %	50 %	+ 8 %
Parking Spaces	9	15	+ 6

R3-1 / C1-2 Commercial District mapped within Residence District

Prototype 9

0.2% Annual Chance Floodplain: With-Action Condition



**RP= Reference Plane*
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	4,200 sf	4,510 sf	+ 310 sf
Zoning Commercial Floor Area	4,200 sf	4,510 sf	+ 310 sf
Gross Floor Area	5,040 sf	6,000 sf	+ 960 sf
Gross Commercial Floor Area	5,040 sf	6,000 sf	+ 960 sf
Exempted Floor Area	840 sf	1,490 sf	+ 650 sf
Provided Perimeter Wall/Baseheight	15 ft	21 ft	+ 6 ft
Provided Overall Height	15 ft	21 ft	+ 6 ft
Provided Number of Stories	1	1	0
Lot Coverage	42 %	50 %	+ 8 %
Parking Spaces	9	15	+ 6

Prototype 10

M1-1 Manufacturing District, 100-foot x 100-foot Interior Lot
Low-Rise Industrial/Manufacturing Building, Retrofit

Introduction

Prototypical Analysis Site 10 utilizes a generic 100-foot by 100-foot interior lot (10,000 sf) in an M1-1 light manufacturing zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 10 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Minor floor area exemption for manufacturing buildings.

Existing Condition

Under existing conditions, Prototypical Analysis Site 10 contains a one-story industrial building, which comprises the entire lot. The zoning lot is developed with 10,000 sf of zoning floor area with an FAR of 1.0, the maximum permitted FAR in M1-1 zoning districts (ZR 43-12). The building's gross floor area is 11,500 sf. Floor spaces used for MEP equipment (1,500 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

The building has a total building height of 30 feet above grade, fitting within the permitted sky exposure plane of an M1-1 zoning district which allows for an initial building height of 30 feet before the sky exposure plane (ZR 43-43). The building contains a loading berth, but because the building was built prior to December 15, 1961, it does not comply with underlying parking regulations of M1-1 zoning districts and does not contain any accessory parking spaces (ZR 42-21).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario would not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. The permitted sky exposure plane of an M1-1 zoning district is measured from the BFE, which allows for an initial building height of 32 feet before the sky exposure plane (30 feet plus two feet BFE) (ZR 12-10 Definition of a Base Plane).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 10 would be retrofitted to relocate the important spaces to a higher level. The site would accommodate a total of 10,000 sf of zoning floor area the maximum permitted within an M1-1 zoning district which allows for an FAR of 1.0 (ZR 43-12). The building's gross floor area would be 12,000 sf. Floor spaces used for MEP equipment (1,500 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). As a result of the Proposed Action, an additional 500 sf of exempted floor area would be included as a mezzanine level in the building above the FRCE.

Prototypical Analysis Site 10 is mapped with a BFE of two feet above grade, according to FEMA's flood maps, resulting in a FRCE of three feet. In the future with the Proposed Action, the building on Site 10 would continue to have a total building height of 30 feet, fitting within the permitted sky exposure plane of

an M1-1 zoning district (ZR 43-43). The building would contain a loading berth, but because the building was built prior to December 15, 1961, it would not comply with underlying parking regulations of M1-1 zoning districts and does not contain any accessory parking spaces (ZR 42-21).

Increment

As a result of the Proposed Action, there would be an additional 500 sf of gross floor area and exempted floor area on Prototypical Analysis Site 10 in the 1% annual chance floodplain as compared to No-Action conditions. No changes to use, building height, lot coverage, parking spaces, or zoning floor area would occur on the site in the future with the Proposed Action.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 10 is the same as the existing condition because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an M1-1 zoning district, which allows for an initial building height of 30 feet before the sky exposure plane, is measured from grade since there is no BFE in the 0.2% annual chance floodplain (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 10 would be retrofitted. The site would accommodate a total of 10,000 sf of zoning floor area, the maximum permitted within an M1-1 zoning district which allows for an FAR of 1.0 (ZR 43-12). The building's gross floor area would be 12,000 sf, and the building would continue to cover 100 percent of the lot. Floor spaces used for MEP equipment (1,500 sf) would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). As a result of the Proposed Action, an additional 500 sf of exempted floor area would be included as a mezzanine level in the building to partially floodproof the building for the long term.

In the future with the Proposed Action, the building on Site 10 would continue to have a total building height of 30 feet, fitting within the permitted sky exposure plane of an M1-1 zoning district, which allows for an initial building height of 30 feet above grade before the sky exposure plane (ZR 43-43). The building would contain a loading berth, but because the building was built prior to December 15, 1961, it would not comply with underlying parking regulations of M1-1 zoning districts and does not contain any accessory parking spaces (ZR 42-21).

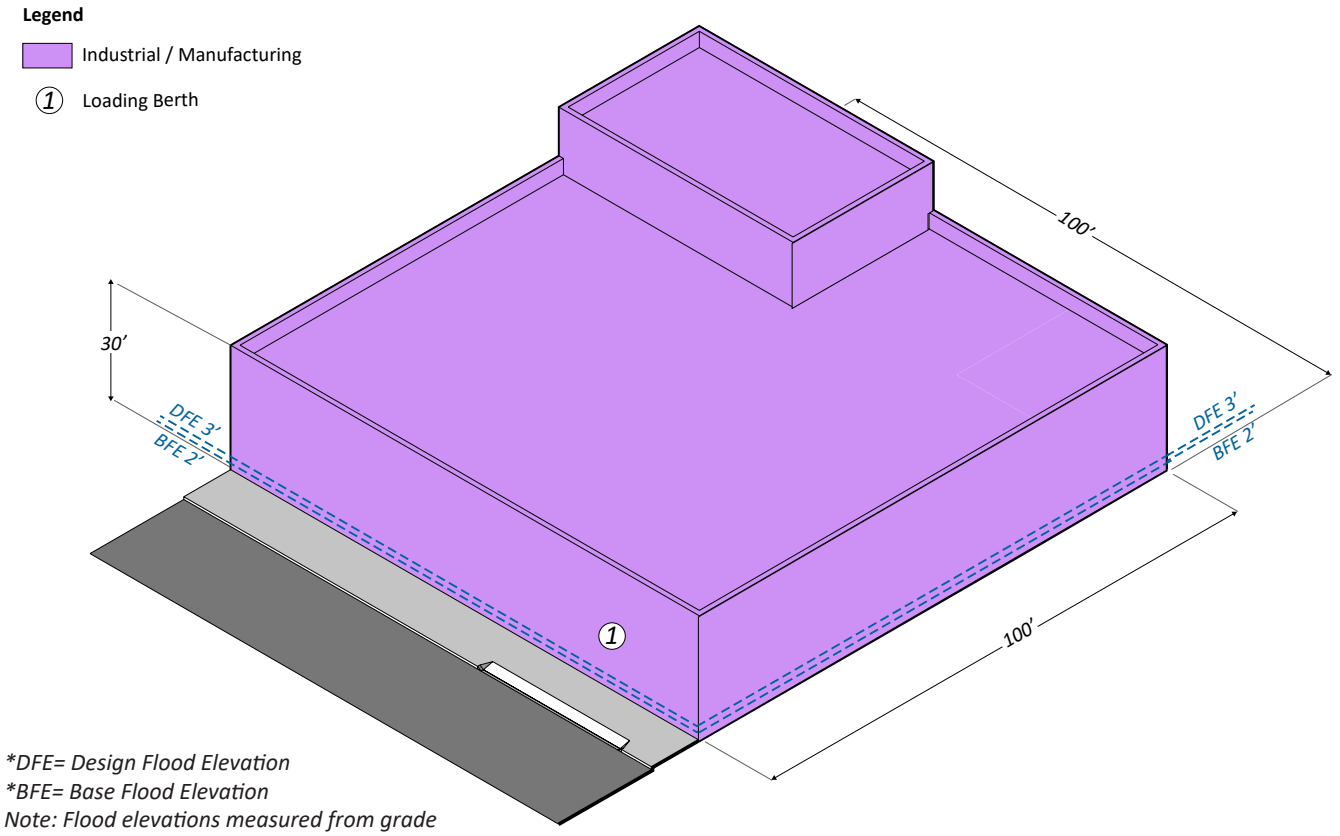
Increment

As a result of the Proposed Action, there would be an additional 500 sf of gross floor area and exempted floor area on Prototypical Analysis Site 10 in the 0.2% annual chance floodplain as compared to No-Action conditions. No changes to use, building height, lot coverage, parking spaces, or zoning floor area would occur on the site in the future with the Proposed Action.

M1-1 Industrial

Prototype 10

Existing Condition

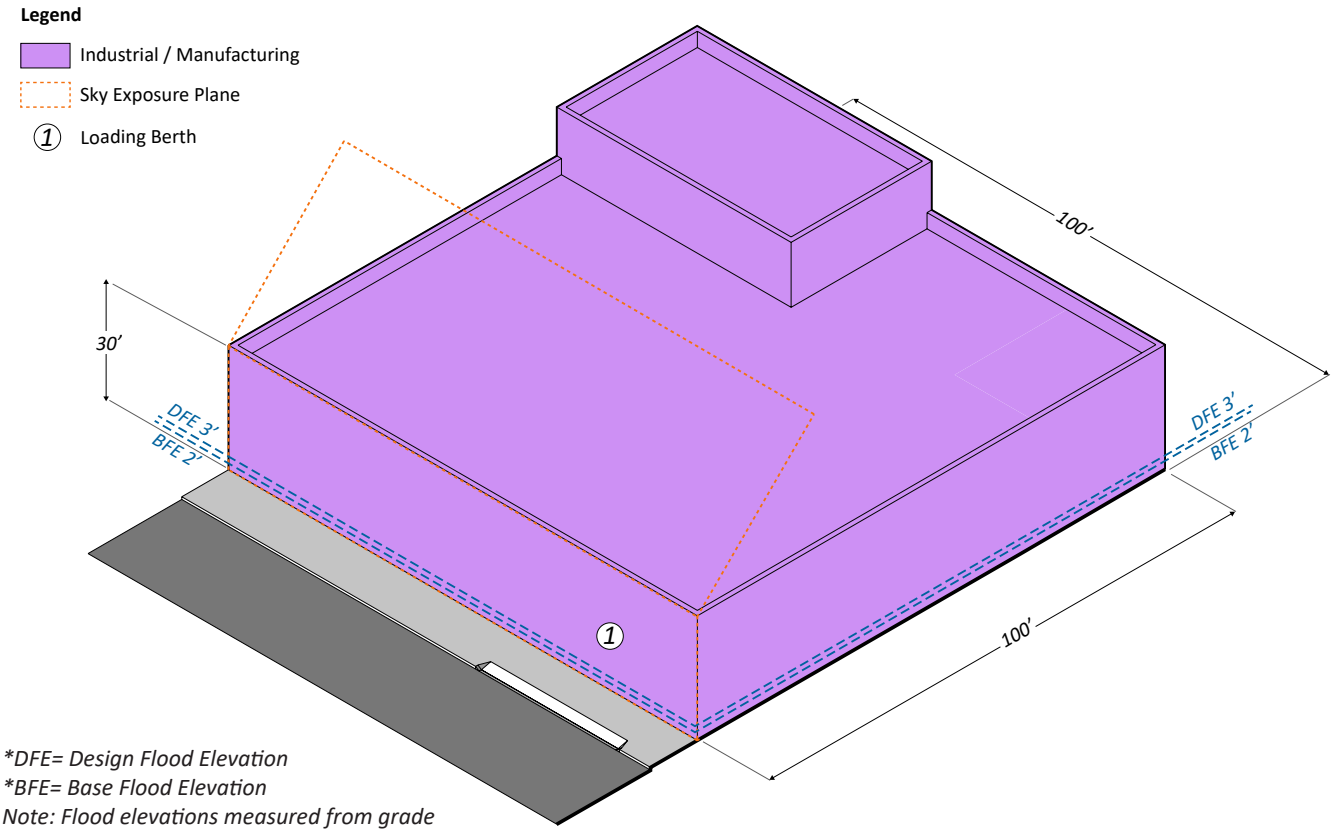


**DFE= Design Flood Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

M1-1 Industrial

Prototype 10

1% & 0.2 Annual Chance Floodplain: No-Action Condition



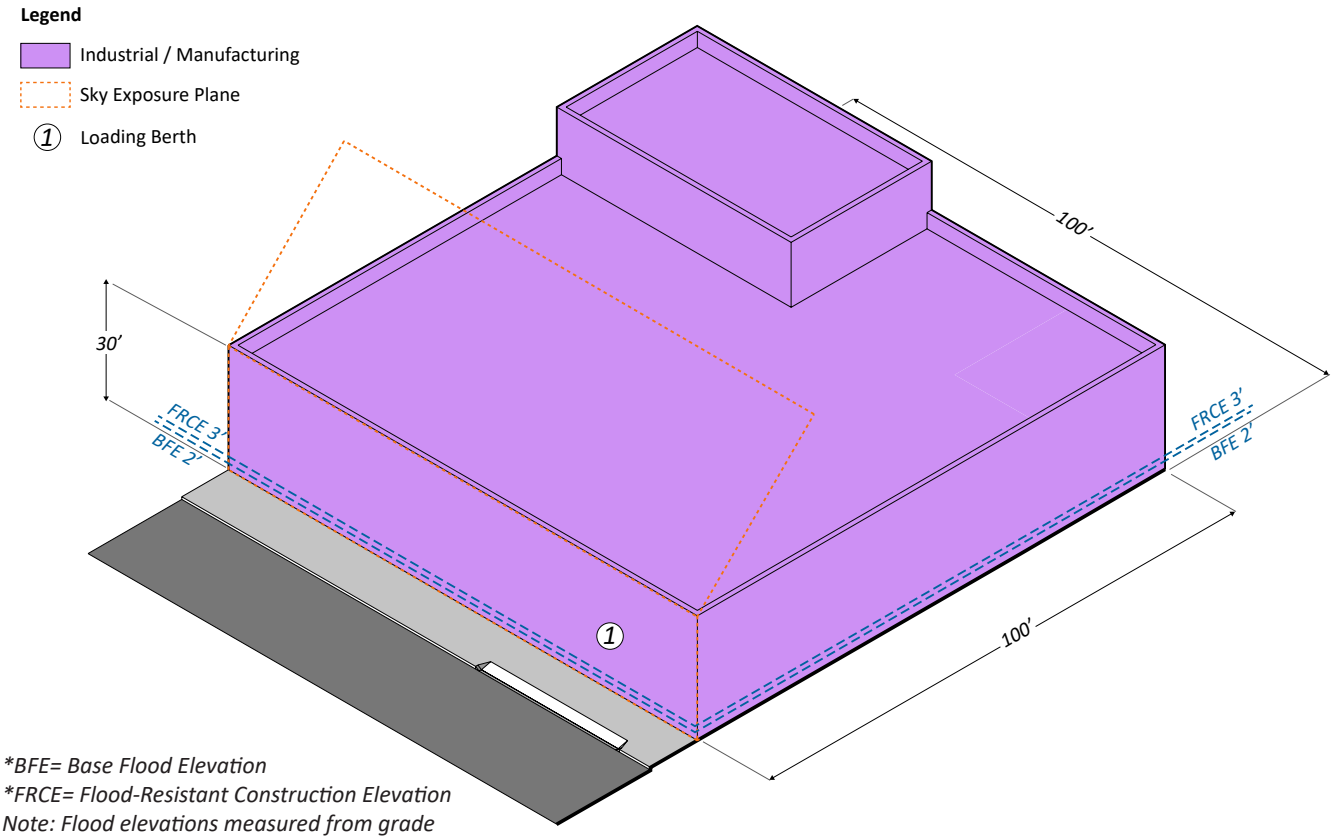
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	No-Action	With-Action	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	8,500 sf	8,500 sf	0
Zoning Manufacturing Floor Area	8,500 sf	8,500 sf	0
Gross Floor Area	10,000 sf	10,500 sf	+ 500 sf
Gross Manufacturing Floor Area	10,000 sf	10,500 sf	+ 500 sf
Exempted Floor Area	1,500 sf	2,000 sf	+ 500 sf
Provided Perimeter Wall/Baseheight	20 ft	20 ft	0
Provided Overall Height	30 ft	30 ft	0
Provided Number of Stories	2	2	0
Lot Coverage	100%	100%	0
Parking Spaces	0	0	0

M1-1 Industrial

Prototype 10

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

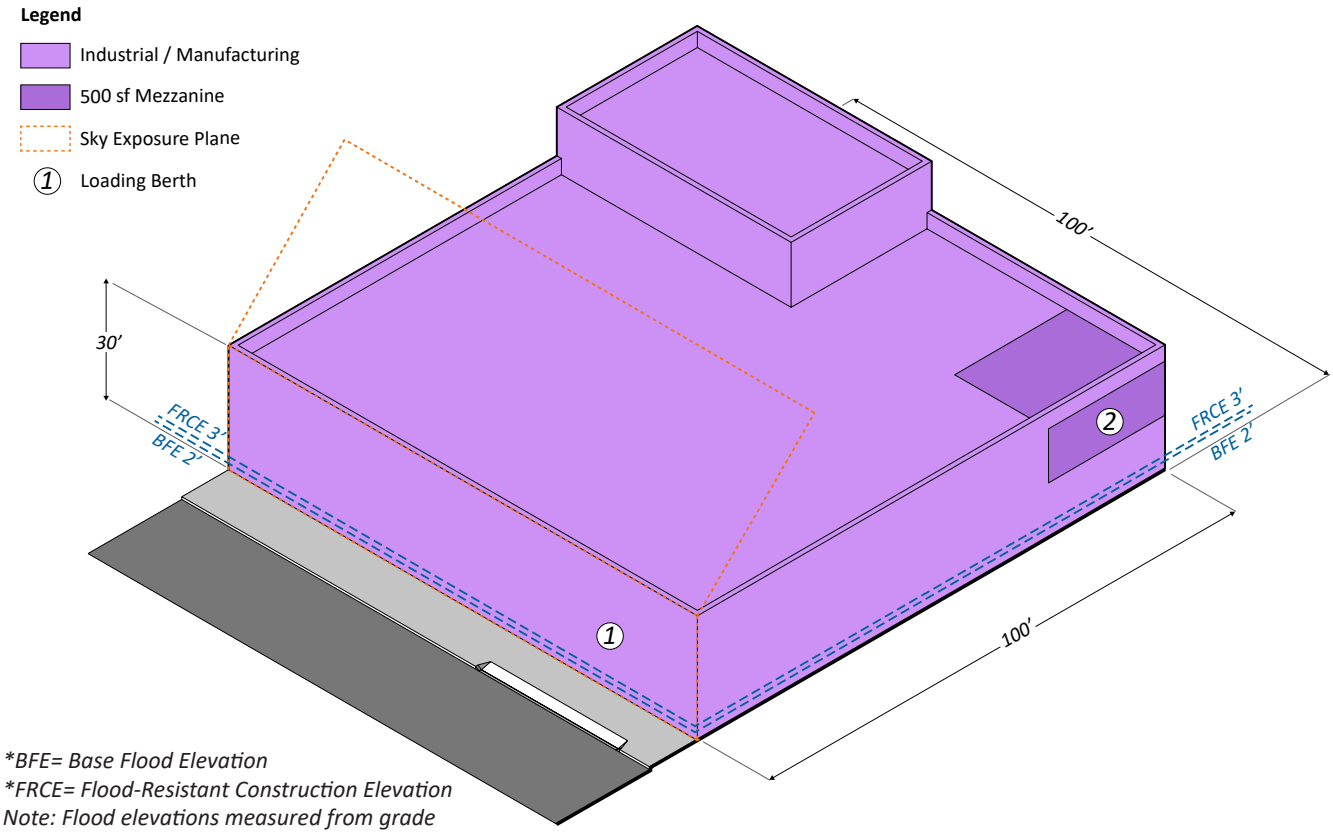
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	10,000 sf	0	0	0
Zoning Floor Area	8,500 sf	8,500 sf	8,500 sf	0	0	0
Zoning Residential Floor Area	8,500 sf	8,500 sf	8,500 sf	0	0	0
Gross Floor Area	10,000 sf	10,000 sf	10,500 sf	0	+ 500 sf	+ 500 sf
Gross Residential Floor Area	10,000 sf	10,000 sf	10,500 sf	0	+ 500 sf	+ 500 sf
Exempted Floor Area	1,500 sf	1,500 sf	2,000 sf	0	+ 500 sf	+ 500 sf
Provided Perimeter Wall/Baseheight	20 ft	20 ft	20 ft	0	0	0
Provided Overall Height	30 ft	30 ft	30 ft	0	0	0
Provided Number of Stories	2	2	2	0	0	0
Lot Coverage	100%	100%	100%	0	0	0
Parking Spaces	0	0	0	0	0	0

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

M1-1 Industrial

Prototype 10

1% & 0.2% Annual Chance Floodplain: With-Action Condition



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	No-Action	With-Action	Change N/A to W/A
Lot Area	10,000 sf	10,000 sf	0
Zoning Floor Area	8,500 sf	8,500 sf	0
Zoning Residential Floor Area	8,500 sf	8,500 sf	0
Gross Floor Area	10,000 sf	10,500 sf	+ 500 sf
Gross Residential Floor Area	10,000 sf	10,500 sf	+ 500 sf
Exempted Floor Area	1,500 sf	2,000 sf	+ 500 sf
Provided Perimeter Wall/Baseheight	20 ft	20 ft	0
Provided Overall Height	30 ft	30 ft	0
Provided Number of Stories	1	1	0
Lot Coverage	100%	100%	0
Parking Spaces	0	0	0

Prototype 11

R4 Residence District, 25-foot x 100-foot Interior Lot
Single-Family Detached Residence, New Construction

Introduction

Prototypical Analysis Site 11 utilizes a generic 25-foot by 100-foot interior lot (2,500 sf) in an R4 residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 11 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Cottage envelope building provisions;
- Additional floor area from attic allowance distributed within building as height mitigation;
- Floor area exemption for wet-floodproofed ground floor;
- Permitted obstructions of MEP equipment in the rear yard;
- Minor FAR exemption allowance for MEP equipment; and
- Streetscape improvements.

Existing Condition

Under existing conditions, Prototypical Analysis Site 11 is a 2,500 sf vacant lot.

1% Annual Chance Floodplain Scenario

No-Action Condition

In the future without the Proposed Action, Prototypical Analysis Site 11 would be developed with a single-family detached residence with three stories, an attic, and a garage within the building. The zoning lot would be developed with 2,245 sf of zoning floor area with an FAR of 0.90; the maximum permitted FAR within an R4 zoning district for buildings not using infill regulations, including the attic allowance is 0.90 (ZR 23-142). The additional FAR from the attic allowance would be placed below the sloped roof. The building's gross floor area would be 3,195 sf. Under No-Action conditions, floor spaces used for MEP equipment (50 sf) and the wet-floodproofed ground floor (900 sf) on Site 11 would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). While the total space used for MEP equipment is 160 sf, only 50 sf would be exempt.

Prototypical Analysis Site 11 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 Appendix G requirements and use the ground floor as a garage, the first occupiable floor would be placed at eight feet above grade in the future without the Proposed Action. The total building height on Site 11 would be 40 feet with a perimeter wall of 26 feet, fitting within the permitted building envelope of an R4 zoning district as measured from the BFE, which would allow 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 and ZR 12-10 Definition of a Base Plane). Because the lot width is less than the minimum required in the zoning district, the building would be allowed to reduce the width of the required side yards from eight to five feet on one side of the building (ZR 23-48). In the No-Action scenario, the ground floor of Site 11 would have a wet-floodproofed

garage with a floor-to-floor height of eight feet, all residential floors would have floor-to-floor heights of nine feet each, and the attic would have a floor-to-floor height of eight feet.

The No-Action scenario on Prototypical Analysis Site 11 would have one enclosed parking space in a garage within the building, as required in the underlying zoning (ZR 25-22). The building on Prototypical Analysis Site 11 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 11 would be developed with a single-family detached residence with three-stories and a garage within the building. Under With-Action conditions, the site would contain 2,250 sf of zoning floor area with an FAR of 0.90, the maximum permitted within R4 zoning district, including the attic allowance for buildings utilizing the cottage envelope. The additional FAR from the attic allowance would be distributed within the building, helping reduce the height of the overall building. The building's gross floor area would be 3,461 sf. As a result of the Proposed Action, floor spaces used for MEP equipment (165 sf) and the wet-floodproofed ground floor (1,046 sf) would be exempted from the zoning floor area. The space used for the MEP equipment for the With-Action is larger because the MEP is calculated based on the gross floor area of the building.

Prototypical Analysis Site 11 is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a FRCE of seven feet. In order to floodproof the building for the long term, and exceed the minimum Appendix G requirements, the home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, which results in the FSAFE being placed at 10 feet above grade. The total building height on the site would be 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 of Prototypical Analysis Site 11 would have a wet-floodproofed garage with a floor-to-floor height of 10 feet; residential floors would have floor-to-floor heights of nine feet each; and the attic would have a floor-to-floor height of six feet. Additionally, the MEP equipment on Site 11 would be located in the rear yard as permitted obstruction and would be elevated 10 feet above grade to match the FSAFE. The MEP equipment would be attached to the building.

The With-Action scenario on Prototypical Analysis Site 11 would have one enclosed parking space in a garage within the building, as required in the underlying zoning (ZR 25-22). The building on Site 11 would comply with all other underlying zoning regulations in the future with the Proposed Action.

Increment

As a result of the Proposed Action, there would be an additional 50 sf of zoning floor area and an additional 266 sf of gross floor area and exempted floor area on Prototypical Analysis Site 11 in the 1% annual chance floodplain. As compared to No-Action condition, the perimeter wall would also be two feet higher and the overall height of the building would be five feet lower. No additional stories, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action. Additionally, lot coverage on Site 11 would increase from 36 percent to 42 percent.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

In the future without the Proposed Action, Prototypical Analysis Site 11 would be developed with a single-family detached residence with two-stories, an attic and a detached garage. Under No-Action conditions, the zoning lot would be developed with 1,880 sf of zoning floor area with an FAR of 0.75. The maximum permitted within an R4 zoning district for buildings not using infill regulations, including the attic allowance is an FAR of 0.90 (ZR 23-142). The additional FAR from the attic allowance would be placed below the sloped roof. The detached garage also allows up to 300 sf of additional floor area on the zoning lot (ZR 23-142). The building's gross floor area would be 2,110 sf. Floor spaces used for MEP equipment (50 sf) on Site 11 would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area). While the total space used for MEP equipment is 97 sf, only 50 sf would be exempt.

Under No-Action conditions on Site 11, the first occupiable floor would be located at grade and the building would not meet minimum Appendix G requirements. In the No-Action scenario, the total building height on Site 11 would be 28 feet with a perimeter wall of 18 feet, fitting within the permitted building envelope of an R4 zoning district, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 25 feet (ZR 23-631). Since there is no BFE in the 0.2% flood zone, this is measured the grade. Residential floors one through two would have floor-to-floor heights of nine feet each and the attic would have a floor-to-floor height of 10 feet on Site 11 in the future without the Proposed Action.

The No-Action scenario on Prototypical Analysis Site 11 would provide one enclosed parking space in a detached garage in the side yard, as required in the underlying zoning (ZR 25-22). The building on Site 11 would comply with all other underlying zoning regulations in the future without the Proposed Action.

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 11 would be developed with a single-family detached residence with two stories, an attic, and a garage within the building. The zoning lot would contain 1,925 sf of zoning floor area with an FAR of 0.77 in the future with the Proposed Action. The maximum permitted within an R4 district including the attic allowance is an FAR of 0.90 (ZR 23-142). Additionally, the building's gross floor area would be 3,182 sf. As a result of the Proposed Action, floor spaces used for MEP equipment (150 sf) and the wet-floodproofed garage at ground level (1,105 sf) would be exempted from the zoning floor area on Prototypical Analysis Site 11.

In order to floodproof the building for the long term, the home is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone and the FSAFE would be placed at eight feet above grade In the future with the Proposed Action, the total building height on Site 11 would be 27 feet with a perimeter wall of 17 feet, fitting within the proposed cottage envelope measured from a "reference plane" of five feet above, 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 would have a wet floodproofed garage with a floor-to-floor height of eight feet, the second floor would have a floor-to-floor height of nine feet, and the attic would have a floor-to-floor height of 10 feet in the With-Action scenario. Additionally, the MEP equipment on Site 11 would be located in the rear yard as permitted obstruction and would be elevated eight feet above grade to match the FSAFE. The MEP equipment would be attached to the building.

The With-Action scenario on Prototypical Analysis Site 11 would provide one enclosed parking space in the garage, as required in the underlying zoning (ZR 25-621 and ZR 25-22). The building on Site 11 would comply with all other underlying zoning regulations in the future with the Proposed Action.

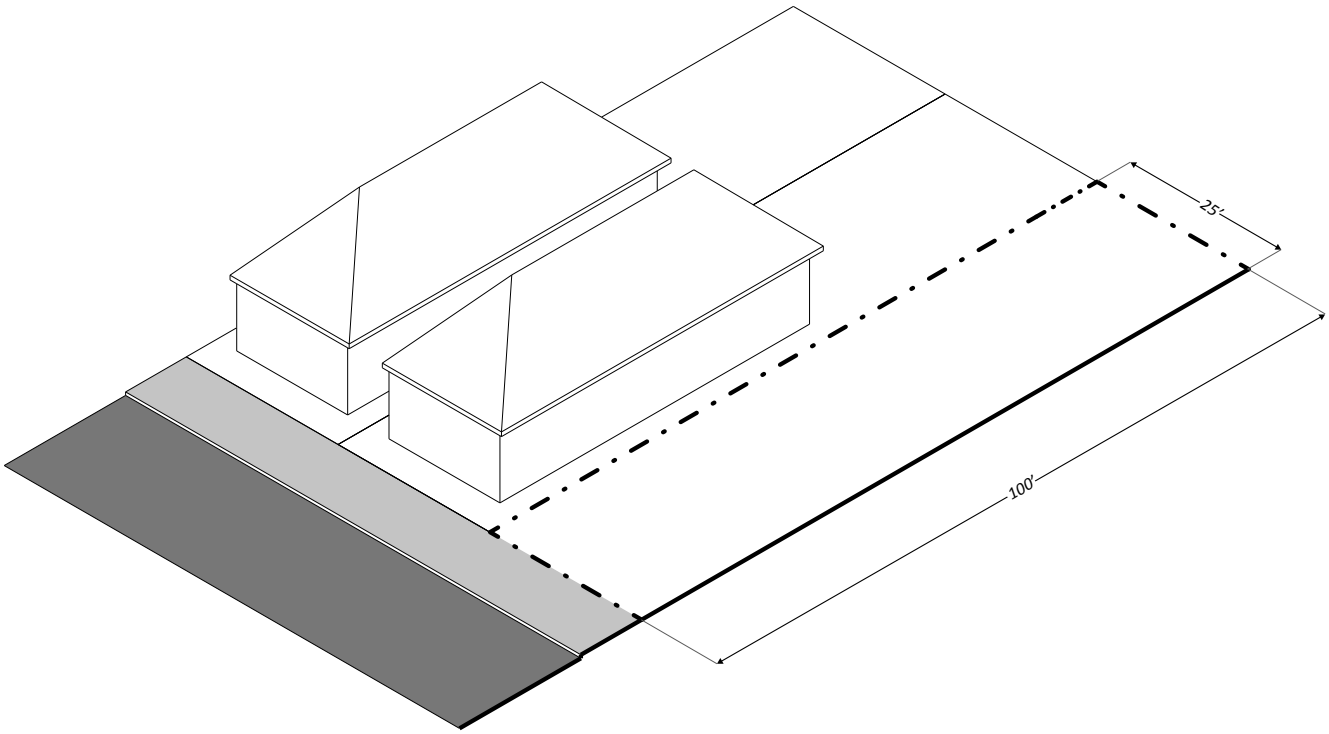
Increment

As a result of the Proposed Action, there would be 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 on Prototypical Analysis Site 11 in the 0.2% annual chance floodplain. As compared to the No-Action condition, the perimeter wall would be one foot lower and the overall building height would be one foot lower on Site 11. No additional stories, dwelling units, or parking spaces would be added on the lot as a result of the Proposed Action. Additionally, lot coverage on the site would increase from 35 percent to 44 percent in the future with the Proposed Action.

R4 Residence District

Prototype 11

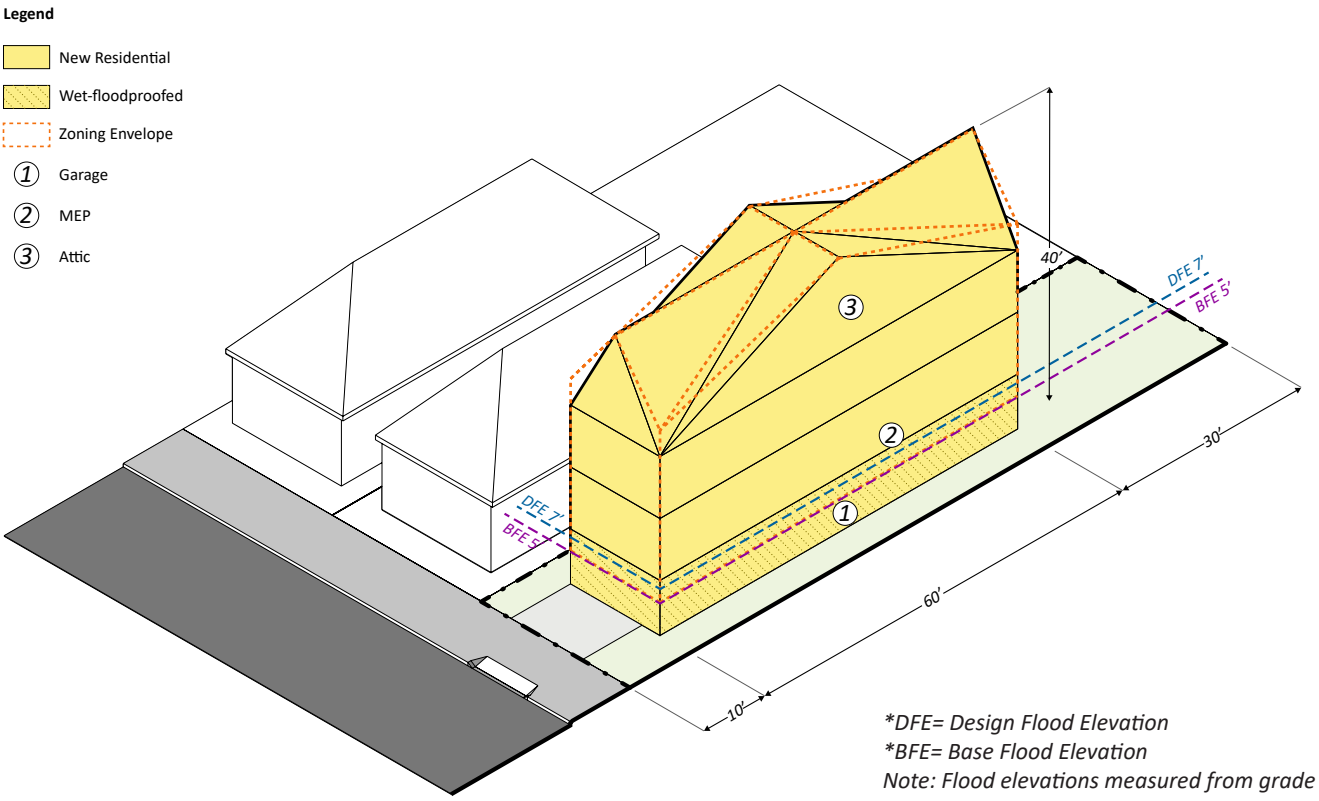
Existing Condition



R4 Residence District

Prototype 11

1% Annual Chance Floodplain: No-Action Condition



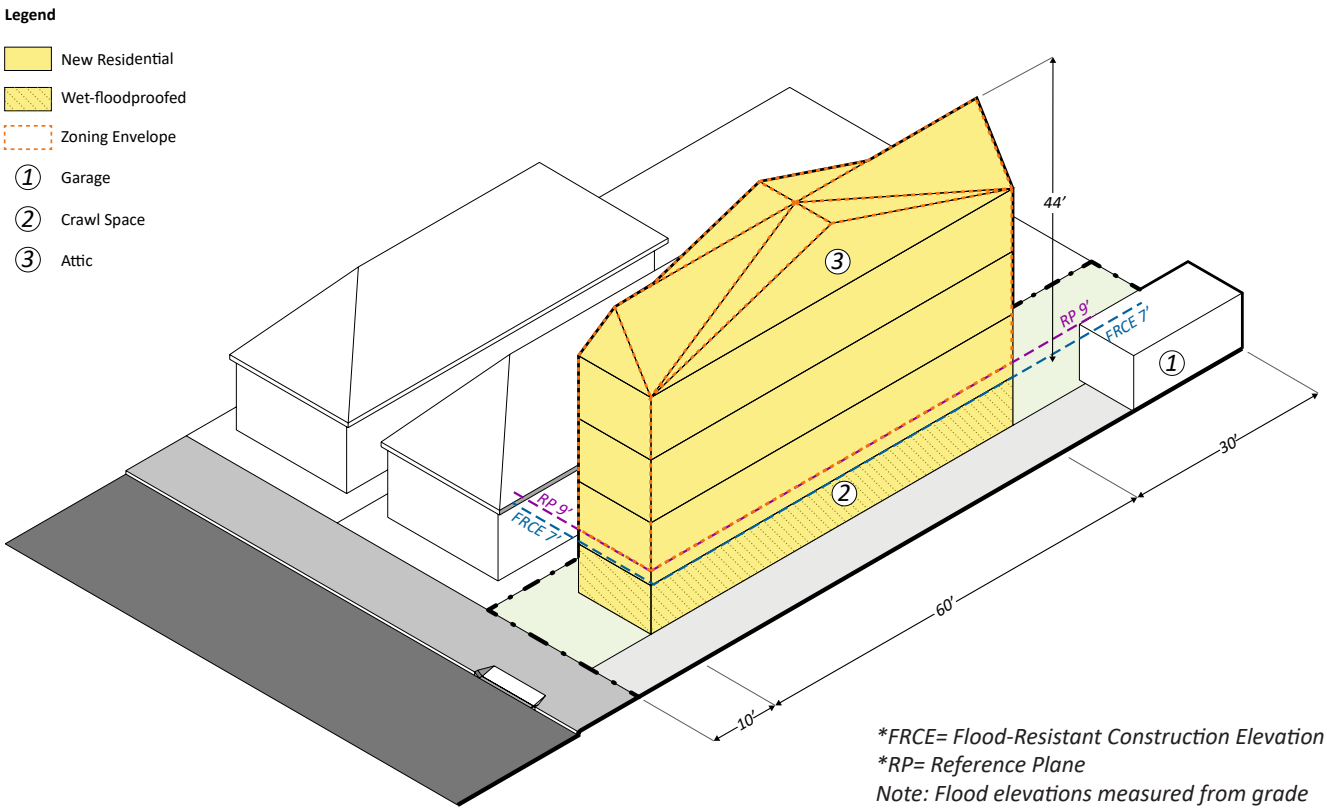
**DFE= Design Flood Elevation*
**BFE= Base Flood Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	2,245 sf	2,250 sf	+ 5 sf
Zoning Residential Floor Area	2,245 sf	2,250 sf	+ 5 sf
Gross Floor Area	3,195 sf	3,461 sf	+ 266 sf
Gross Residential Floor Area	3,195 sf	3,461 sf	+ 266 sf
Exempted Floor Area	950 sf	1,211 sf	+ 261 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

R4 Residence District

Prototype 11

1% Annual Chance Floodplain: FT1



**FRCE= Flood-Resistant Construction Elevation*
**RP= Reference Plane*
Note: Flood elevations measured from grade

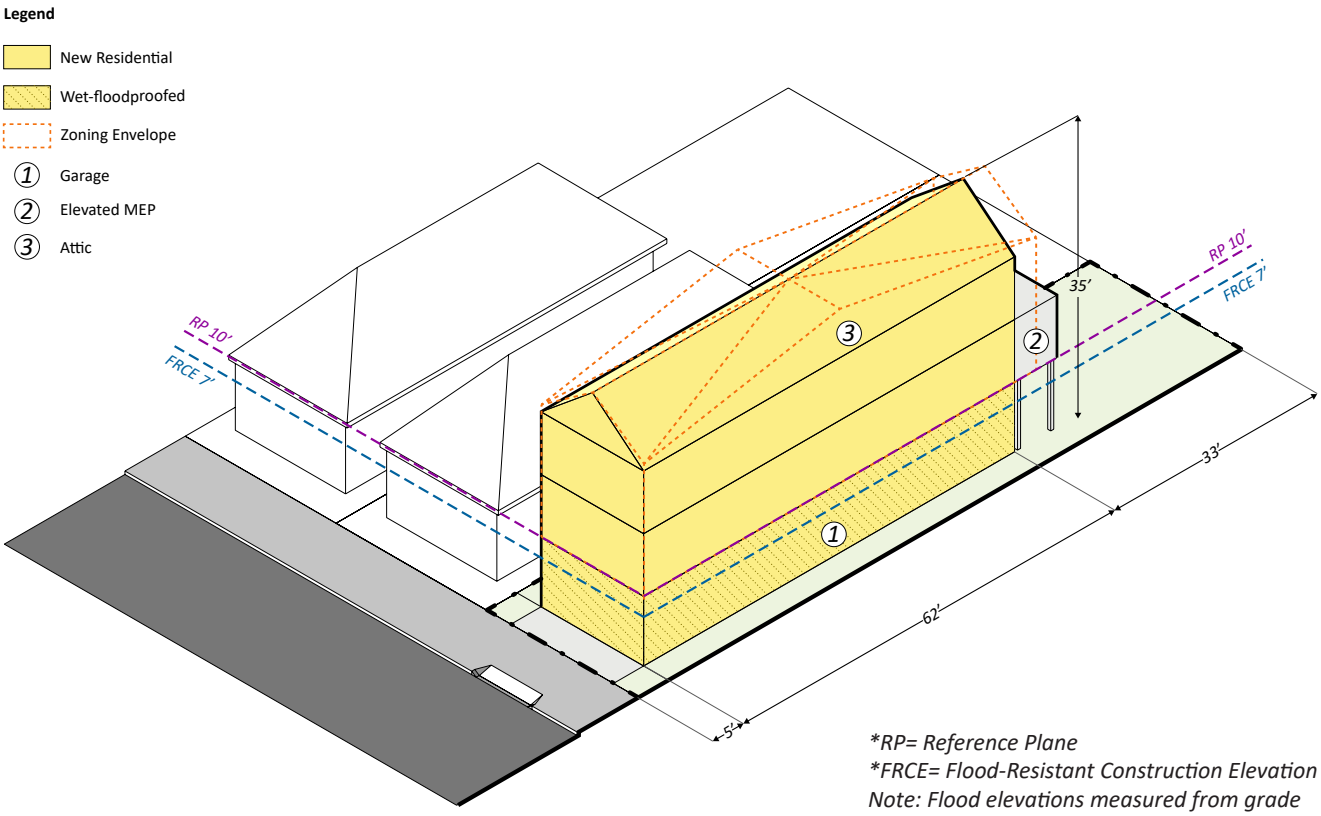
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	2,500 sf	0	0	0
Zoning Floor Area	2,245 sf	2,250 sf	2,250 sf	+ 5 sf	0	+ 5 sf
Zoning Residential Floor Area	2,245 sf	2,250 sf	2,250 sf	+ 5 sf	0	+ 5 sf
Gross Floor Area	3,195 sf	3,170 sf	3,461 sf	- 25 sf	+ 291sf	+ 266 sf
Gross Residential Floor Area	3,195 sf	3,170 sf	3,461 sf	- 25 sf	+ 291 sf	+ 266 sf
Exempted Floor Area	950 sf	920 sf	1,211 sf	- 30 sf	+ 291 sf	+ 261 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 Condition



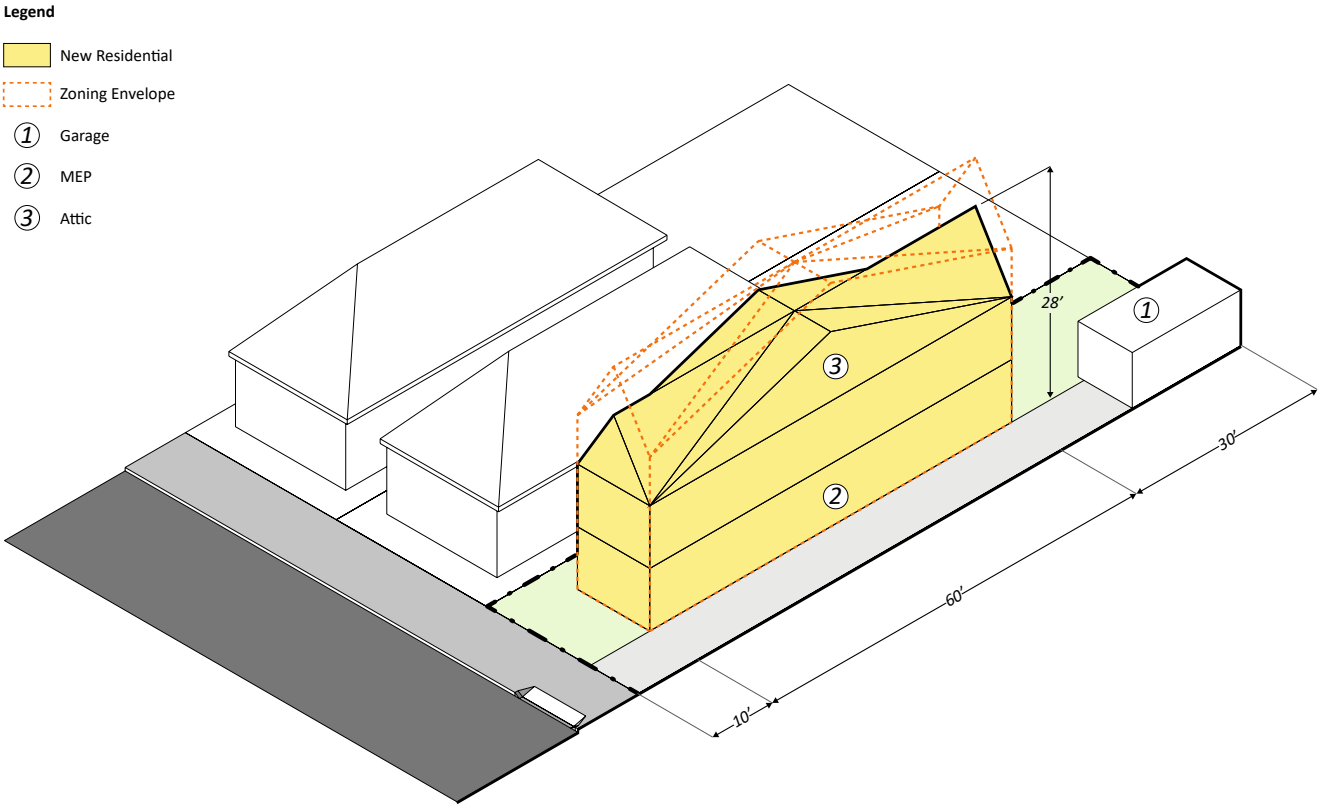
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	2,245 sf	2,250 sf	+ 5 sf
Zoning Residential Floor Area	2,245 sf	2,250 sf	+ 5 sf
Gross Floor Area	3,195 sf	3,461 sf	+ 266 sf
Gross Residential Floor Area	3,195 sf	3,461 sf	+ 266 sf
Exempted Floor Area	950 sf	1,211 sf	+ 261 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

R4 Residence District

Prototype 11

0.2% Annual Chance Floodplain: No-Action Condition

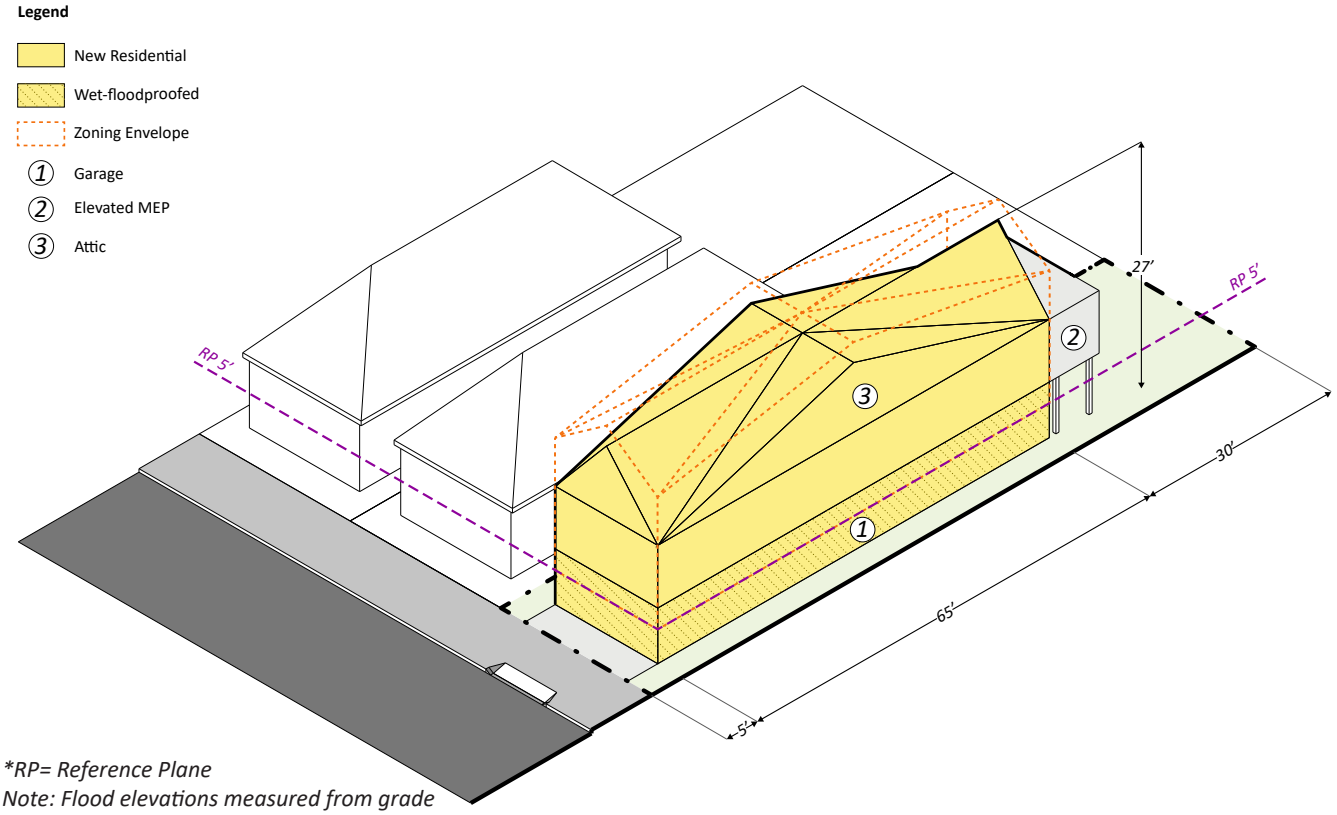


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,880 sf	1,925 sf	+ 45 sf
Zoning Residential Floor Area	1,880 sf	1,925 sf	+ 45 sf
Gross Floor Area	2,110 sf	3,182 sf	+ 1,072 sf
Gross Residential Floor Area	2,110 sf	3,182 sf	+ 1,072 sf
Exempted Floor Area	50 sf	1,257 sf	+ 1,207 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

R4 Residence District

Prototype 11

0.2% Annual Chance Floodplain: With-Action Condition



**RP= Reference Plane*
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0 sf
Zoning Floor Area	1,880 sf	1,925 sf	+ 45 sf
Zoning Residential Floor Area	1,880 sf	1,925 sf	+ 45 sf
Gross Floor Area	2,110 sf	3,461 sf	+ 1,072 sf
Gross Residential Floor Area	2,110 sf	3,461 sf	+ 1,072 sf
Exempted Floor Area	50 sf	1,211 sf	+ 1,207 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 12

R3A Residence District, 25-foot x 100-foot Interior Lot
Single-Family Detached Residence, Retrofit

Introduction

Prototypical Analysis Site 12 utilizes a generic 25-foot by 100-foot interior lot (2,500 sf) in an R3A contextual residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 12 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Allowances for non-complying buildings;
- Floor area exemption for wet-floodproofed ground floor; and
- Permitted obstructions of MEP equipment in the rear yard.

Existing Condition

In the existing condition, Prototypical Analysis Site 12 contains a single-family detached residence with one story and a cellar with an attic. The zoning lot is developed with 1,052 sf of zoning floor area with an FAR of 0.42, less than the maximum permitted FAR of 0.50 in R3A zoning districts (ZR 23-142). The building's gross floor area is 2,204 sf. Floor spaces used for MEP equipment (50 sf) and the cellar (1,102 sf) on Site 12 are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

Prototypical Analysis Site 12 is mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a DFE of seven feet. The total building height is 17 feet with a perimeter wall of 11 feet, fitting within the permitted building height of an R3A zoning district as measured from grade allowing for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-631). However, the building does not comply with front or side yard requirements (ZR 23-45 and ZR 23-46).

There is no parking on the site. The building was built prior to December 15, 1961, and it does not comply with underlying parking regulations (ZR 25-22).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario would not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. In addition, as the building on Site 12 is non-complying, it would not be able to elevate and increase the degree of existing non-compliances or create new non-compliances. The permitted building envelope of an R3A residence district measured from the BFE (ZR 12-10 Definition of a Base Plane) allows for a maximum building height of 40 feet (35 feet plus five feet BFE) and a maximum perimeter wall height of 26 feet (21 feet plus five feet BFE) (ZR 23-631, 12-10 Definition of a Base Plane).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 12 would be retrofitted to elevate the habitable portions of the existing home above the FRCE. The site would accommodate a total of 1,102 sf of zoning floor area with an FAR of 0.44, less than the maximum permitted FAR of 0.50 in R3A zoning districts (ZR 23-142). The building's gross floor area would be 2,254 sf. Floor spaces used for MEP equipment (50 sf) and the wet-floodproofed ground floor (1,102 sf) on Site 12 would be exempted from the zoning floor are (ZR 12-10 Definition of Floor Area).

In the future with the Proposed Action, Prototypical Analysis Site 12 would be mapped with a BFE of five feet above grade, according to FEMA's flood maps, resulting in a FRCE of seven feet. In order to floodproof the building for the long term and exceed minimum Appendix G requirements, the home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, which results in the FSAFE being placed at 10 feet above grade. The below-grade cellar would be filled-in, and the MEP equipment would be moved to the rear of the building as a permitted obstruction located at the "reference plane" of 10 feet above grade. In addition, the MEP equipment would be attached to the building. The total building height would be 25 feet with a perimeter wall of 19 feet, as measured from grade, fitting within the maximum permitted height as measured from a "reference plane" of 10 feet, which would allow for a maximum building height of 45 feet (25 feet plus 10 feet) and a maximum perimeter wall height of 31 feet (21 feet plus 10 feet). Additionally, the building would be allowed to relocate its footprint to the center of the lot, as the distance of the horizontal movement would fit within the regulation's parameters. In the future with the Proposed Action, the first floor of the building on Prototypical Analysis Site 12 would be wet-floodproofed and would include a parking garage with one parking space, complying with underlying zoning regulations (ZR 25-22).

Increment

As a result of the Proposed Action, there would be an additional 50 sf of zoning and gross floor area on Prototypical Analysis Site 12 in the 1% annual chance floodplain. The building on Site 12 would increase by eight feet, and lot coverage would increase from 44 percent to 46 percent as compared to No-Action conditions. Additionally, in the future with the Proposed Action, an enclosed garage would be included in the building on Prototypical Analysis Site 12, adding one parking space to the zoning lot.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 12 is the same as the existing condition because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an R3A residence district is measured from grade since there is no BFE in the 02% floodplain, which allows for a maximum building height of 25 feet and a maximum perimeter wall height of 21 feet (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 12 would be retrofitted through an elevation. The site would accommodate a total of 1,102 sf of zoning floor area with an FAR of 0.44, less than the maximum permitted FAR of 0.50 in R3A zoning districts (ZR 23-142). Additionally, the building's gross floor area would be 2,254 sf. Floor spaces used for MEP equipment (50 sf) and the wet-floodproofed ground floor (1,102 sf) on Site 12 would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

In order to floodproof the building for the long term, the home is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone, and the FSAFE would be placed at 10 feet above grad. , The below-grade cellar would be filled-in, and the MEP equipment would be moved to the rear of the building as a permitted obstruction located at the FSAFE. In addition, the MEP equipment would be attached to the building. In the future with the Proposed Action, the total building height on Site 12 would be 25 feet with a perimeter wall of 19 feet, fitting within the maximum permitted height as measured from a "reference plane" of five feet, which allows for a maximum building height of 30 feet (25 feet plus five feet) and a maximum perimeter wall height of 26 feet (21 feet plus five feet). Additionally, the building on Prototypical Analysis Site 12 would be allowed to relocate its footprint to the center of the lot, as the distance of the horizontal movement fits within the regulation's parameters. In the future with the Proposed Action, the first floor of the building on Site 12 would be wet-floodproofed and would include an enclosed garage with one parking space, complying with underlying zoning regulations (ZR 25-22).

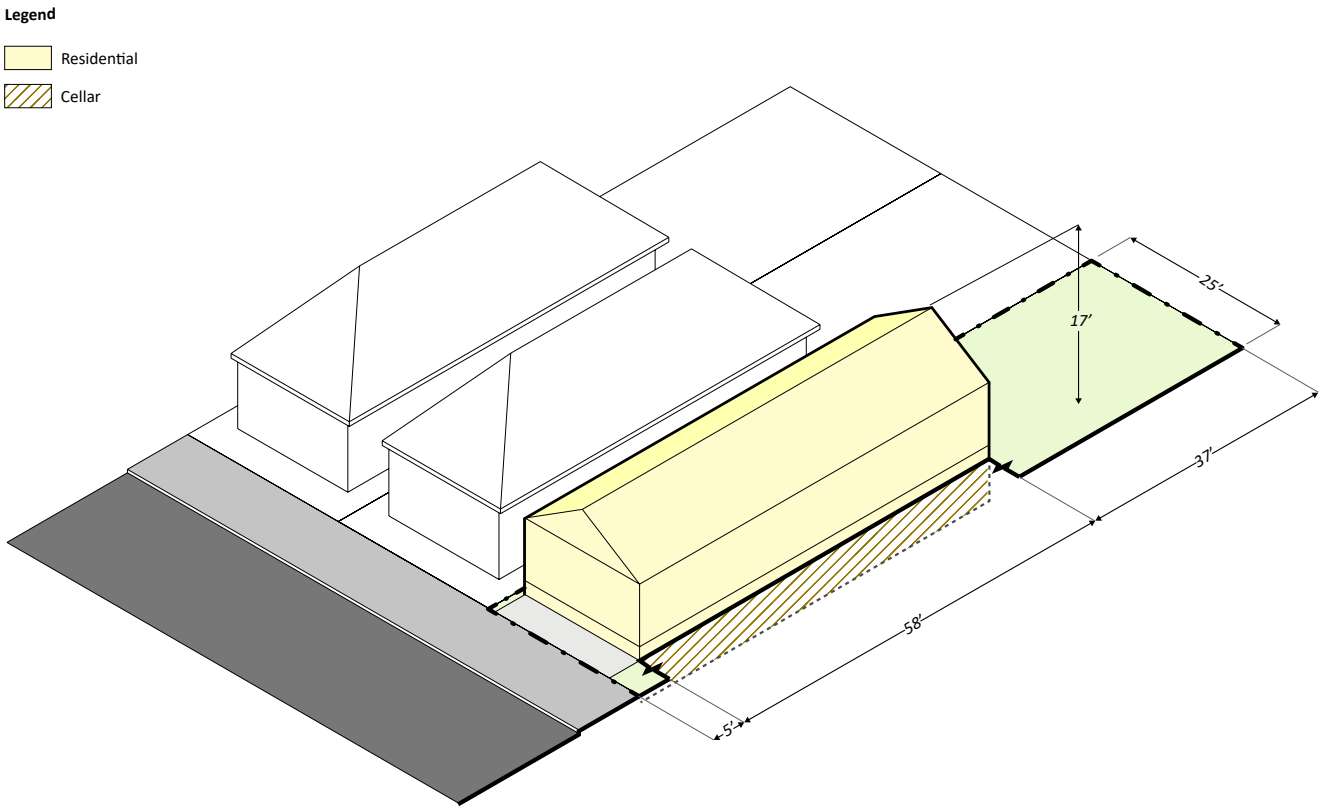
Increment

As a result of the Proposed Action, there would be an additional 50 sf of zoning and gross floor area on Prototypical Analysis Site 12 in the 0.2% annual chance floodplain. The building on Site 12 would increase by eight feet, and lot coverage would increase from 44 percent to 46 percent as compared to No-Action conditions. Additionally, in the future with the Proposed Action, an enclosed garage would be included on Prototypical Analysis Site 12, adding one parking space to the zoning lot.

R3A Residence District

Prototype 12

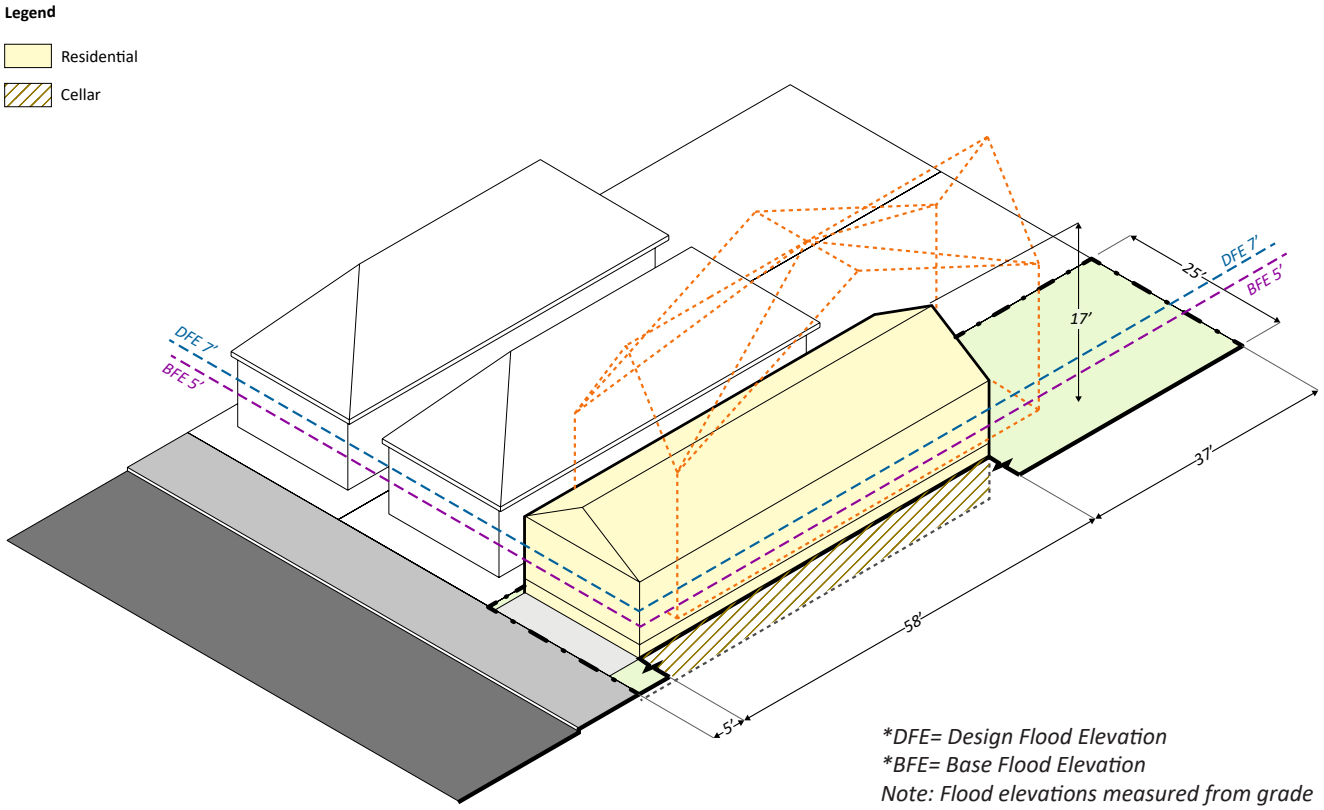
Existing Condition



R3A Residence District

Prototype 12

1% Annual Chance Floodplain: No-Action Condition



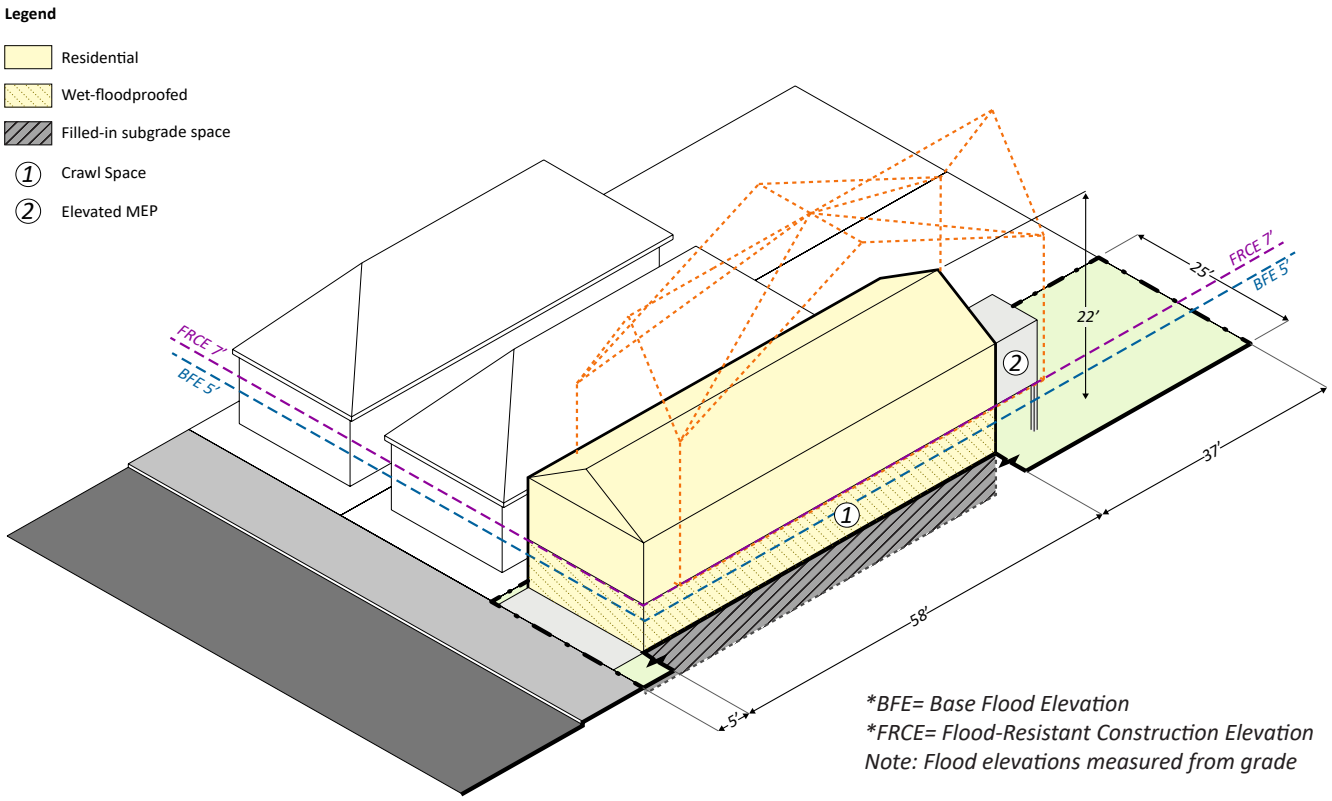
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	1,052 sf	1,102 sf	+ 50 sf
Zoning Residential Floor Area	1,052 sf	1,102 sf	+ 50 sf
Gross Floor Area	2,204 sf	2,254 sf	+ 50 sf
Gross Residential Floor Area	2,204 sf	2,254 sf	+ 50 sf
Exempted Floor Area	1,152 sf	1,152 sf	0
Provided Perimeter Wall/Baseheight	11 ft	19 ft	+ 8 ft
Provided Overall Height	17 ft	25 ft	+ 8 ft
Provided Number of Stories	1 *(+ Cellar)*	2 *(No Cellar)*	+ 1
Lot Coverage / Open Space	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	1	1	0
Parking Spaces	0	1	+ 1

R3A Residence District

Prototype 12

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

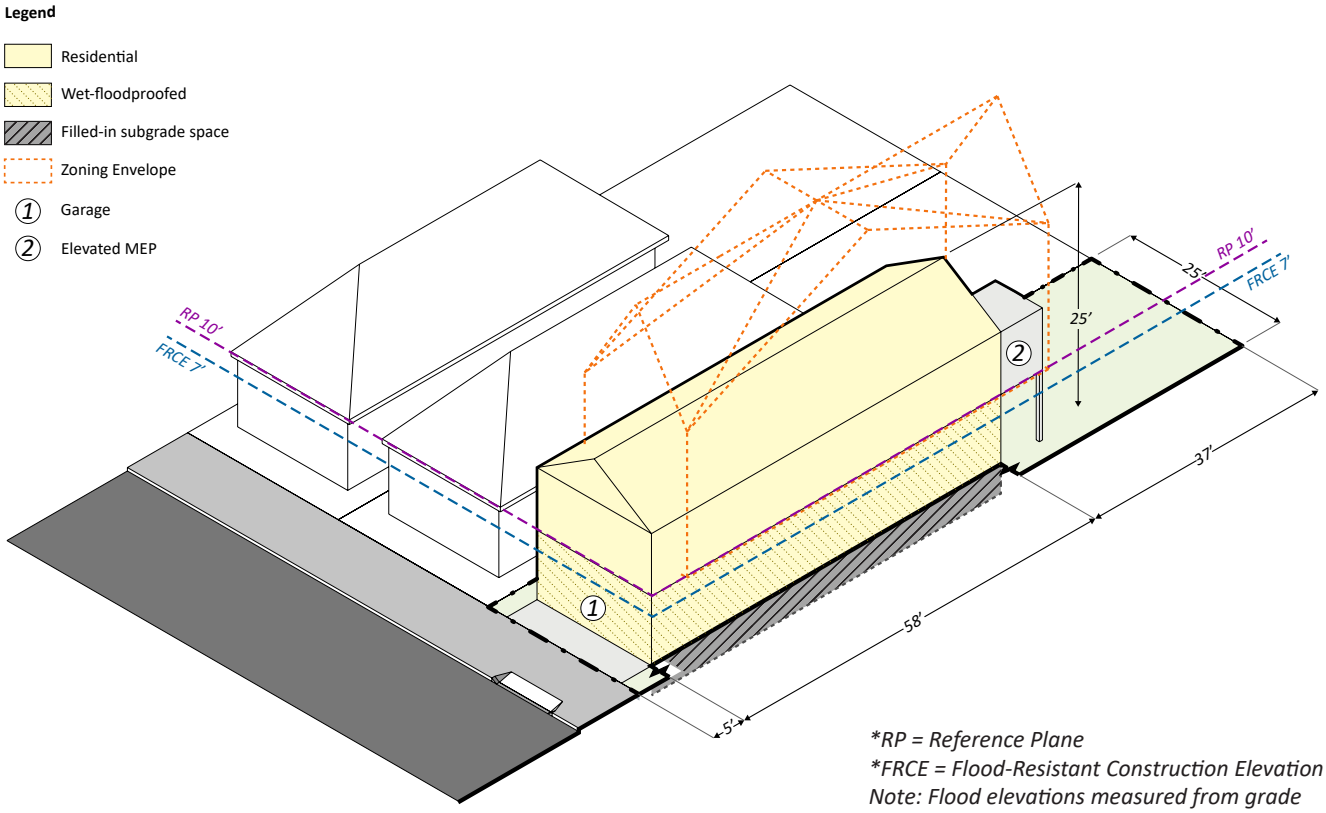
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	2,500 sf	0	0	0
Zoning Floor Area	1,052 sf	1,102 sf	1,102 sf	+ 50 sf	0	+ 50 sf
Zoning Residential Floor Area	1,052 sf	1,102 sf	1,102 sf	+ 50 sf	0	+ 50 sf
Gross Floor Area	2,204 sf	2,254 sf	2,254 sf	+ 50 sf	0	+ 50 sf
Gross Residential Floor Area	2,204 sf	2,254 sf	2,254 sf	+ 50 sf	0	+ 50 sf
Exempted Floor Area	1,152 sf	1,152 sf	1,152 sf	0	0	0
Provided Perimeter Wall/Baseheight	11 ft	16 ft	19 ft	+ 5 ft	+ 3 ft	+ 8 ft
Provided Overall Height	17 ft	22 ft	25 ft	+ 5 ft	+ 3 ft	+ 8 ft
Provided Number of Stories	1 *(+ Cellar)*	2 *(No Cellar)*	2 *(No Cellar)*	+ 1	0	+ 1
Lot Coverage / Open Space	44 % / 56 %	46 % / 54 %	46 % / 54 %	+ 2% / - 2%	0	+ 2% / - 2%
Dwelling Units	1	1	1	0	0	0
Parking Spaces	0	0	1	+ 1	0	+ 1

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

R3A Residence District

Prototype 12

1% Annual Chance Floodplain: With-Action Condition



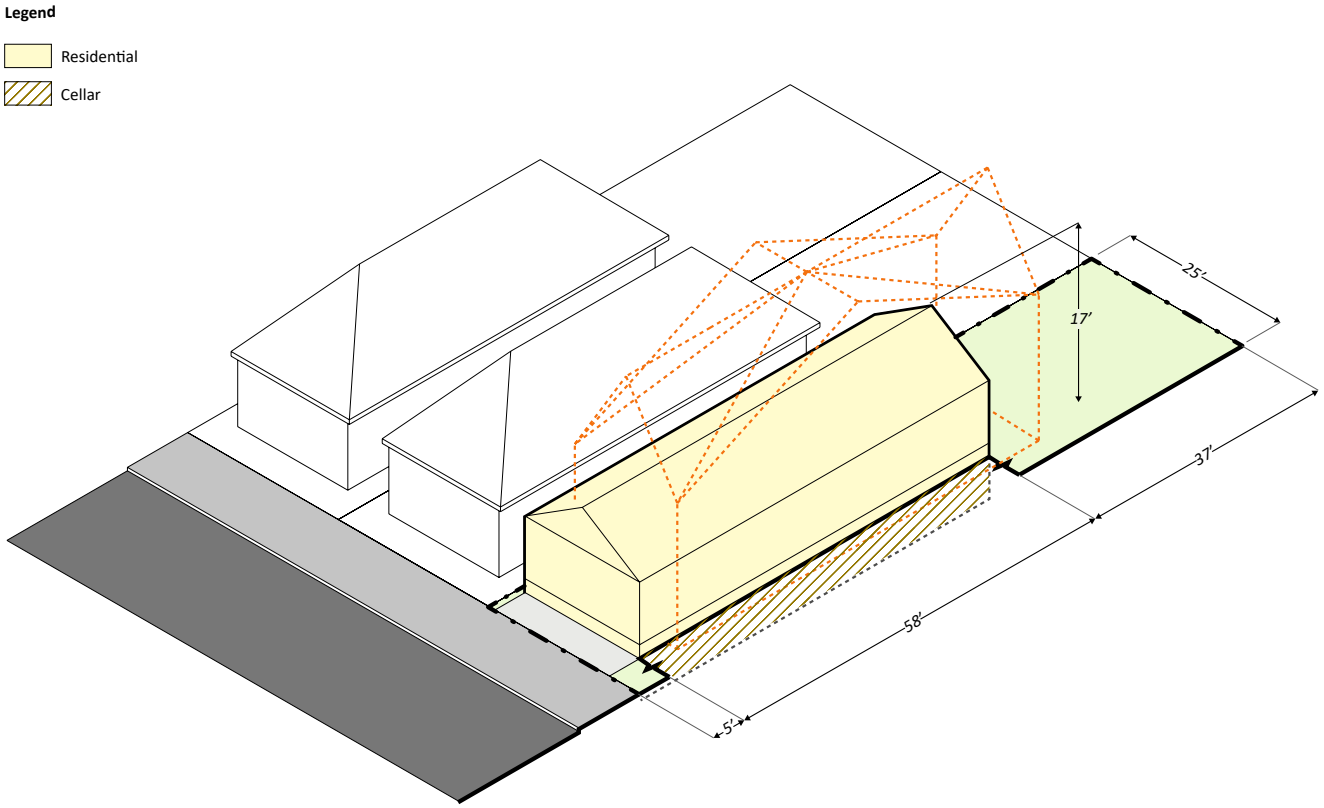
**RP = Reference Plane*
**FRCE = Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	1,052 sf	1,102 sf	+ 50 sf
Zoning Residential Floor Area	1,052 sf	1,102 sf	+ 50 sf
Gross Floor Area	2,204 sf	2,254 sf	+ 50 sf
Gross Residential Floor Area	2,204 sf	2,254 sf	+ 50 sf
Exempted Floor Area	1,152 sf	1,152 sf	0
Provided Perimeter Wall/Baseheight	11 ft	19 ft	+ 8 ft
Provided Overall Height	17 ft	25 ft	+ 8 ft
Provided Number of Stories	1 *(+ Cellar)*	2 *(No Cellar)*	+ 1
Lot Coverage / Open Space	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	1	1	0
Parking Spaces	0	1	+ 1

R3A Residence District

Prototype 12

0.2% Annual Chance Floodplain: No-Action Condition

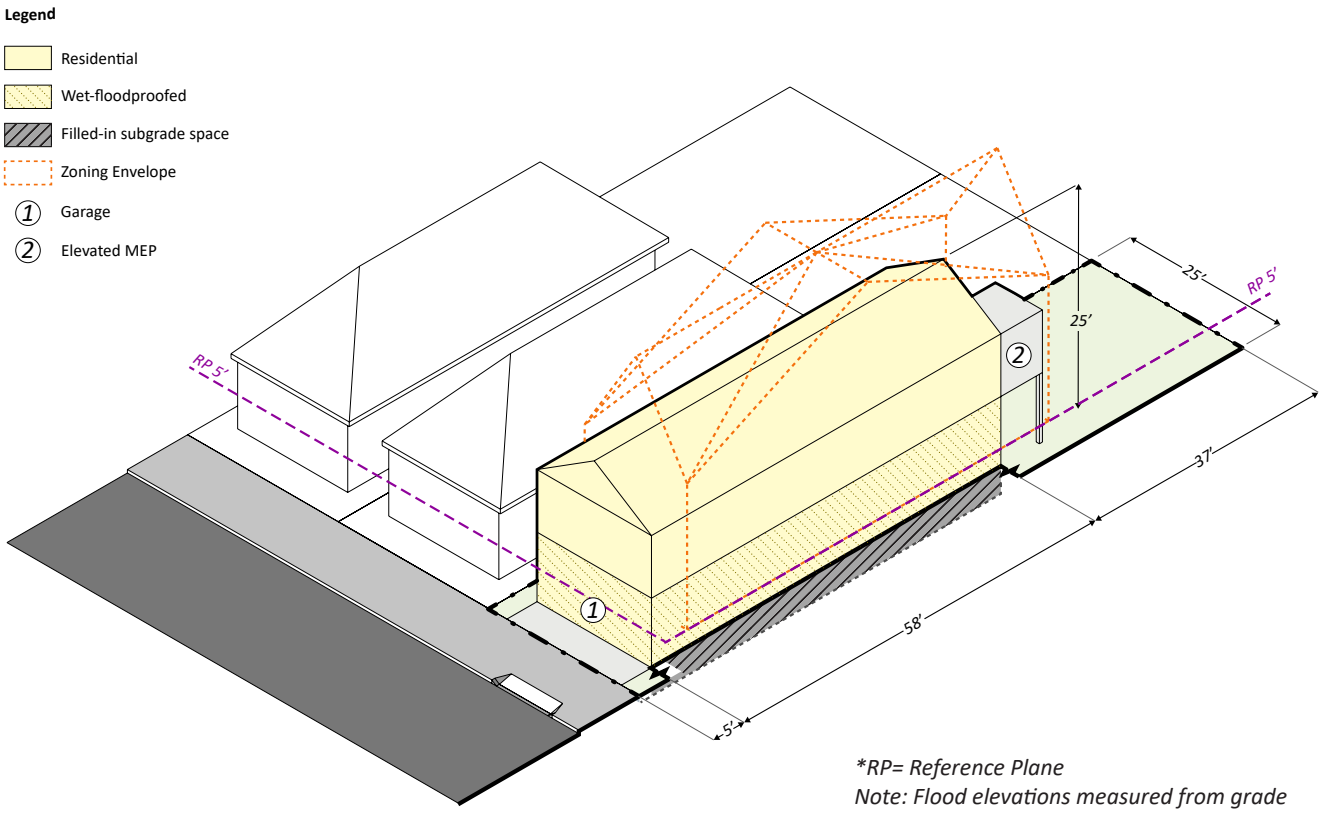


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	1,052 sf	1,102 sf	+ 50 sf
Zoning Residential Floor Area	1,052 sf	1,102 sf	+ 50 sf
Gross Floor Area	2,204 sf	2,254 sf	+ 50 sf
Gross Residential Floor Area	2,204 sf	2,254 sf	+ 50 sf
Exempted Floor Area	1,152 sf	1,152 sf	0
Provided Perimeter Wall/Baseheight	11 ft	19 ft	+ 8 ft
Provided Overall Height	17 ft	25 ft	+ 8 ft
Provided Number of Stories	1 *(+ Cellar)*	2 *(No Cellar)*	+ 1
Lot Coverage / Open Space	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	1	1	0
Parking Spaces	0	1	+ 1

R3A Residence District

Prototype 12

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,500 sf	2,500 sf	0
Zoning Floor Area	1,052 sf	1,102 sf	+ 50 sf
Zoning Residential Floor Area	1,052 sf	1,102 sf	+ 50 sf
Gross Floor Area	2,204 sf	2,254 sf	+ 50 sf
Gross Residential Floor Area	2,204 sf	2,254 sf	+ 50 sf
Exempted Floor Area	1,152 sf	1,152 sf	0
Provided Perimeter Wall/Baseheight	11 ft	19 ft	+ 8 ft
Provided Overall Height	17 ft	25 ft	+ 8 ft
Provided Number of Stories	1 *(+ Cellar)*	2 *(No Cellar)*	+ 1
Lot Coverage / Open Space	44 % / 56 %	46 % / 54 %	+ 2% / - 2%
Dwelling Units	1	1	0
Parking Spaces	0	1	+ 1

Prototype 13

R3X Residence District, 28-foot x 100-foot Interior Lot
Two-Family Attached Residence, Retrofit

Introduction

Prototypical Analysis Site 13 utilizes a generic 28-foot by 100-foot interior lot (2,500 sf) in an R3X contextual residential zoning district. These assumptions were made because they represent typical lot conditions in the 1% and 0.2% annual chance floodplains. Prototypical Analysis Site 13 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on development:

- Up to 10-foot (1% annual chance floodplain) and five-foot (0.2% annual chance floodplain) reference planes;
- Allowances for non-conforming and non-complying buildings; and
- Floor area exemption for wet-floodproofed ground floor.

Existing Condition

In the existing condition, Prototypical Analysis Site 13 contains a non-conforming two-family attached residence with two stories and a cellar. The zoning lot is developed with 1,370 sf of zoning floor area with an FAR of 0.49, close to the maximum permitted FAR of 0.50 in R3X zoning districts (ZR 23-142). The building's gross floor area is 2,100 sf. Floor spaces used for MEP equipment (30 sf) and the cellar (700 sf) are exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

Prototypical Analysis Site 13 is mapped with a BFE of two feet above grade, according to FEMA's flood maps, resulting in a DFE of four feet. The total building height is 20 feet, fitting within the permitted building height of an R3X zoning district as measured from grade, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-631). However, the building does not comply with side yard requirements (ZR 23-46).

Under existing conditions, there are two unenclosed parking spaces in the front yard of Prototypical Analysis Site 13, pursuant to underlying zoning regulations (ZR 25-23); however, the parking spaces do not comply with underlying location requirements (ZR 25-621).

1% Annual Chance Floodplain Scenario

No-Action Condition

For a conservative analysis, the No-Action scenario would not change from the existing condition because it is unlikely for buildings to retrofit when they are not required to comply with Appendix G requirements. In addition, as the building is non-conforming and non-complying, it would not be able to elevate or retrofit and increase the degree of existing non-compliances or create new non-compliances. The permitted building envelope of an R3X residence district measured from the BFE (ZR 12-10 Definition of a Base Plane) allows for a maximum building height of 37 feet (35 feet plus two feet BFE) and a maximum perimeter wall height of 23 feet (21 feet plus two feet BFE) (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 13 would be retrofitted to elevate the habitable portions of the existing home above the FRCE. The site would accommodate a total of 1,400 sf of zoning floor area with an FAR of 0.50, the maximum permitted FAR in R3X zoning districts (ZR 23-142). Additionally, the building on Site 13 would have a gross floor area of 2,130 sf in the future with the Proposed Action. Floor spaces used for MEP equipment (30 sf) and the wet-floodproofed ground floor (700 sf) on Site 13 would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

Prototypical Analysis Site 13 is mapped with a BFE of two feet above grade, according to FEMA's flood maps, resulting in a FRCE of four feet. In order to floodproof the building for the long term and exceed the minimum Appendix G requirements, the home is utilizing the "reference plane" allowance of 10 feet in the 1% flood zone, and the FSAFE would be placed at 12 feet above grade to keep the existing building structure. The below-grade cellar would be filled-in, and the MEP equipment would be moved to the rear of the building located at FSAFE. Additionally, the MEP equipment would be attached to the building. In the future with the Proposed Action, the total building height on Site 13 would be 29 feet, fitting within the maximum permitted height 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 31 feet (21 feet plus 10 feet). The Proposed Action would allow the non-conforming building to retrofit and increase its existing non-compliances as it would fit within set parameters. Under With-Action conditions, the first floor of the building on Site 13 would be wet-floodproofed and would include an enclosed garage with one additional parking space, complying with underlying zoning regulations (ZR 25-22).

Increment

As a result of the Proposed Action, there would be an additional 30 sf of zoning and gross floor area on Prototypical Analysis Site 13 in the 1% annual chance floodplain. The building on Site 13 would increase by nine feet, and an enclosed garage would be included on Prototypical Analysis Site 13, adding one parking space to the zoning lot. No changes to the number of dwelling units or exempted floor area would occur on Site 13 in the future with the Proposed Action. Lot coverage on the site would increase from 25 percent to 26 percent as compared to No-Action conditions.

0.2% Annual Chance Floodplain Scenario

No-Action Condition

The No-Action scenario on Prototypical Analysis Site 13 is the same as the existing condition because buildings in the 0.2% annual chance floodplain don't have to meet the minimum Appendix G requirements. The permitted building envelope of an R3X residence district is measured from grade since there is no BFE in the 0.2% floodplain, which allows for a maximum building height of 35 feet and a maximum perimeter wall height of 21 feet (ZR 23-631).

With-Action Condition

In the future with the Proposed Action, the building on Prototypical Analysis Site 13 would be retrofitted to elevate the habitable portions of the existing home The site would accommodate a total of 1,400 sf of zoning floor area with an FAR of 0.50, the maximum permitted FAR in R3X zoning districts (ZR 23-142). Additionally, in the future with the Proposed Action, the building on Site 13 would have a gross floor area of 2,130 sf. Floor spaces used for MEP equipment (30 sf) and the wet-floodproofed ground floor (700 sf) on Site 13 would be exempted from the zoning floor area (ZR 12-10 Definition of Floor Area).

In order to floodproof the building for the long term and exceed the minimum flood-resistant construction standards, the home is utilizing the "reference plane" allowance of five feet in the 0.2% flood zone, and the FSAFE would be placed at 12 feet above grade to keep the existing building structure. The below-grade cellar would be filled-in, and the MEP equipment would be moved to the rear of the building located at FSAFE. Additionally, the MEP equipment would be attached to the building. The total building height on Prototypical Analysis Site 13 would be 29 feet, fitting within the proposed horizontal plane equivalent to the maximum permitted building height measured from a "reference plane" of five feet, which allows for a maximum building height of 40 feet (35 feet plus five feet) and a maximum perimeter wall height of 26 feet (21 feet plus five feet). The Proposed Action would allow the non-conforming building to retrofit and increase its existing non-compliances as it would fit within set parameters. Additionally, the first floor of the building on Site 13 would be wet-floodproofed and would include an enclosed garage with one additional parking space, complying with underlying zoning regulations (ZR 25-22).

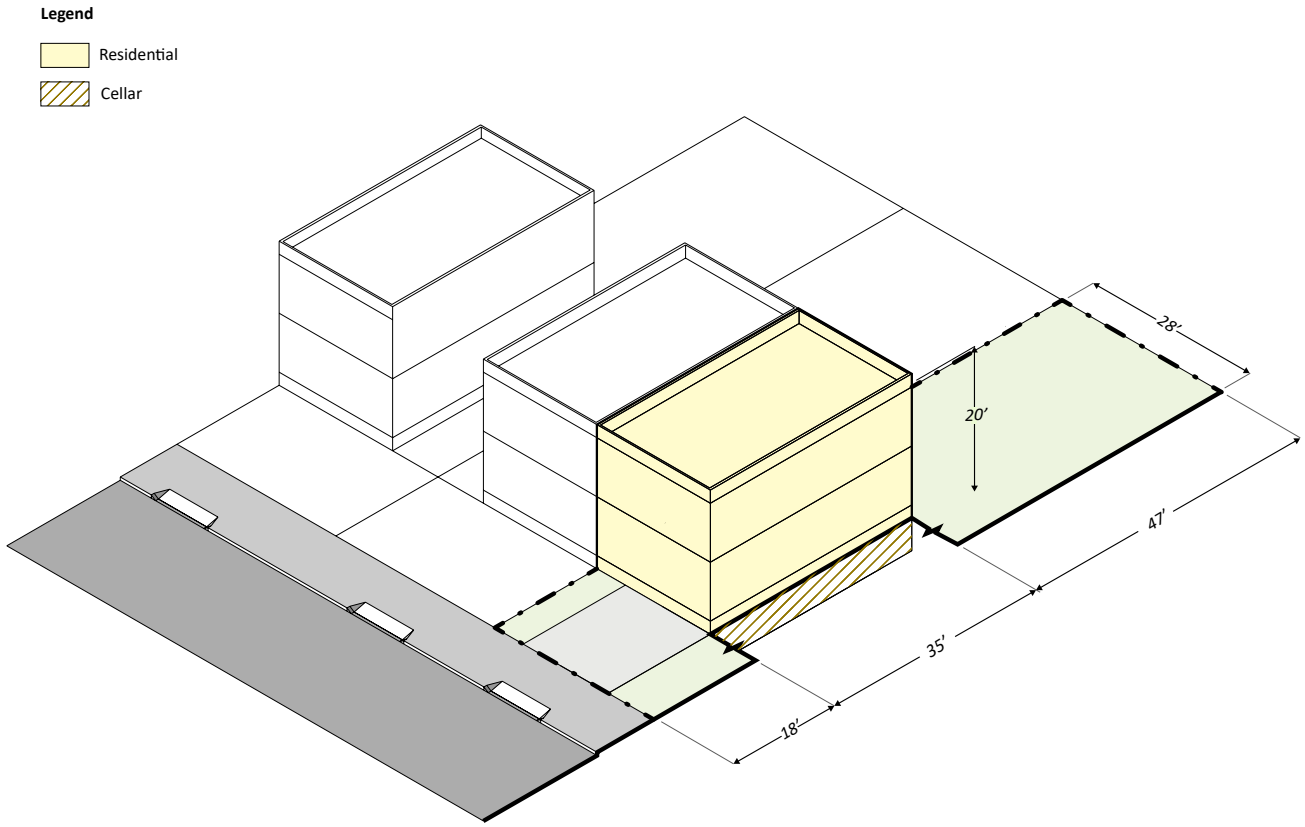
Increment

As a result of the Proposed Action, there would be an additional 30 sf of zoning and gross floor area on Prototypical Analysis Site 13 in the 0.2% annual chance floodplain. The building on Site 13 would increase by nine feet, and an enclosed garage would be included on Prototypical Analysis Site 13, adding one parking space to the zoning lot. No changes to the number of dwelling units or exempted floor area would occur on Site 13 in the future with the Proposed Action. Lot coverage on the site would increase from 25 percent to 26 percent as compared to No-Action conditions.

R3X Residence District

Prototype 13

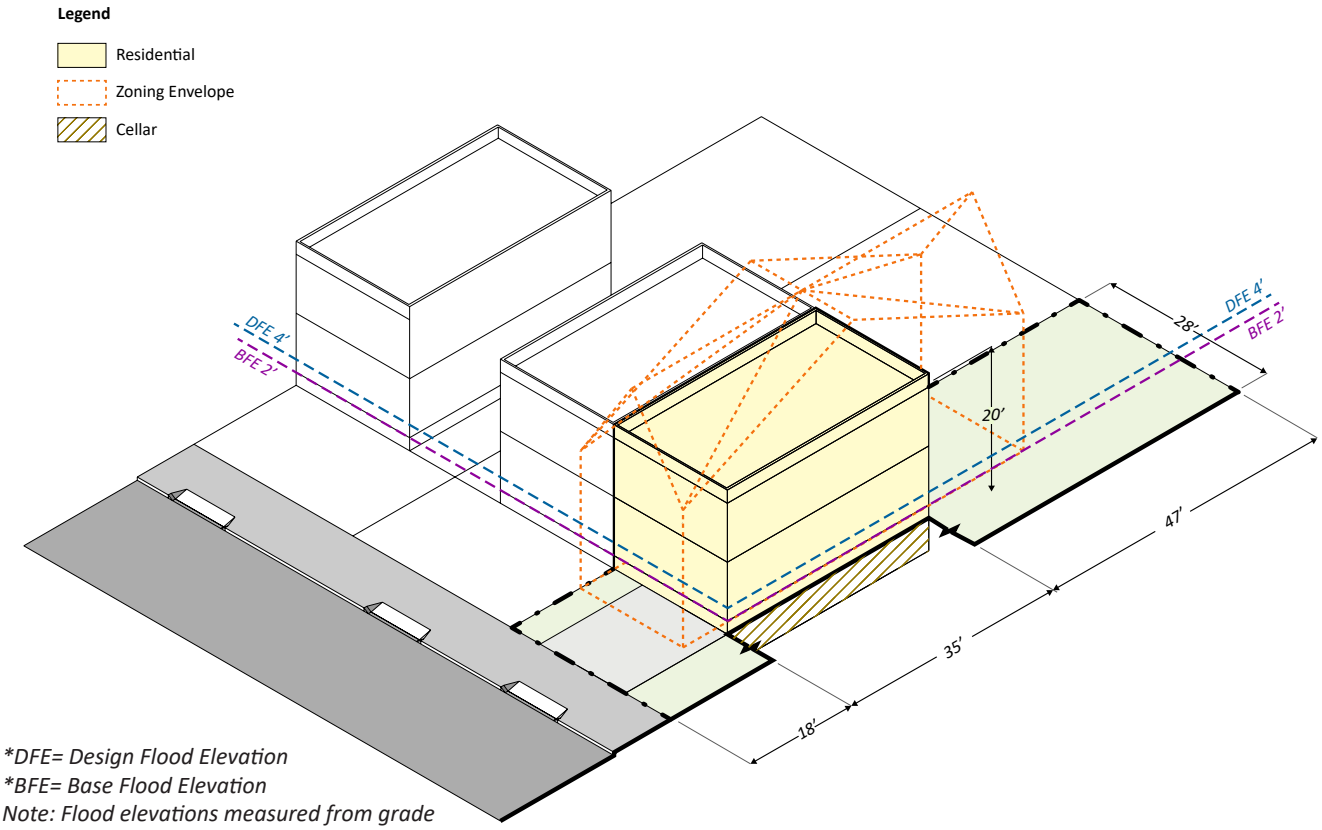
Existing Condition



R3X Residence District

Prototype 13

1% Annual Chance Floodplain: No-Action Condition



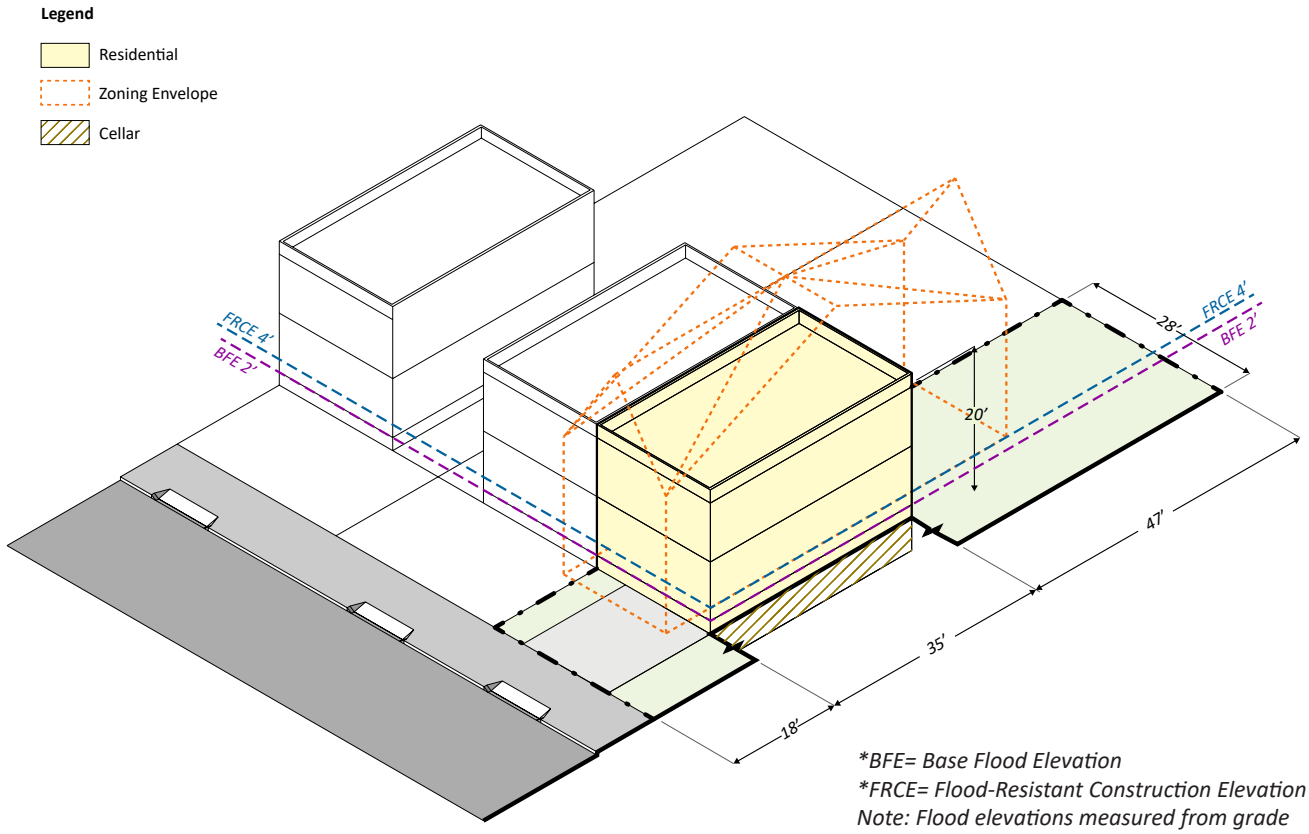
*DFE= Design Flood Elevation
*BFE= Base Flood Elevation
Note: Flood elevations measured from grade

	1% Annual Chance Floodplain: No-Action	1% Annual Chance Floodplain: With-Action	Change N/A to W/A
Lot Area	2,800 sf	2,800 sf	0
Zoning Floor Area	1,370 sf	1,400 sf	+ 30 sf
Zoning Residential Floor Area	1,370 sf	1,400 sf	+ 30 sf
Gross Floor Area	2,100 sf	2,130 sf	+ 30 sf
Gross Residential Floor Area	2,100 sf	2,130 sf	+ 30 sf
Exempted Floor Area	730 sf	730 sf	0
Provided Perimeter Wall/Baseheight	20 ft	29 ft	+ 9 ft
Provided Overall Height	20 ft	29 ft	+ 9 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	25 % / 75 %	26 % / 74 %	+ 1% / - 1%
Dwelling Units	2	2	0
Parking Spaces	2	3	+ 1

R3X Residence District

Prototype 13

1% Annual Chance Floodplain: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

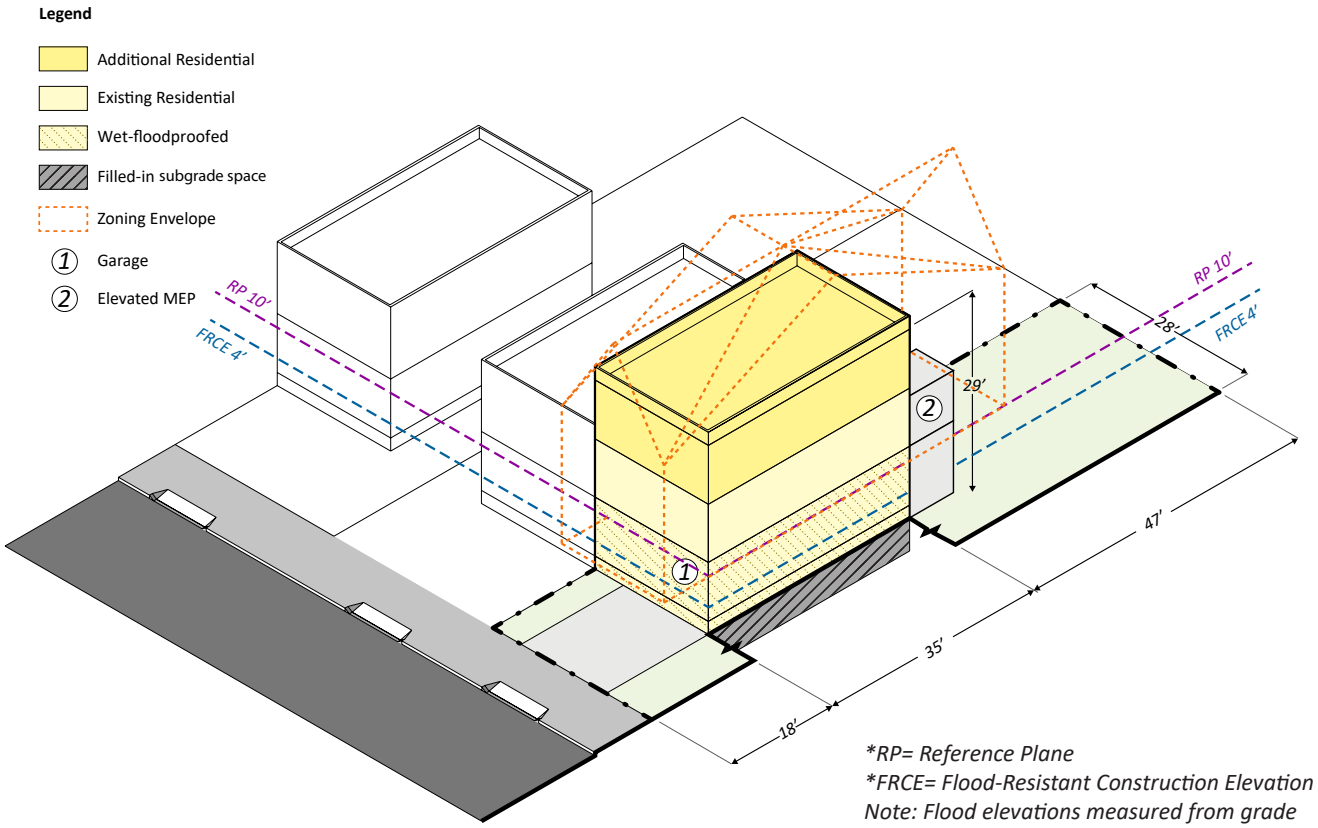
	1% Annual Chance Floodplain: No-Action	**1% Annual Chance Floodplain: FT1**	1% Annual Chance Floodplain: With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	2,800 sf	2,800 sf	2,800 sf	0	0	0
Zoning Floor Area	1,370 sf	1,370 sf	1,400 sf	0	+ 30 sf	+ 30 sf
Zoning Residential Floor Area	1,370 sf	1,370 sf	1,400 sf	0	+ 30 sf	+ 30 sf
Gross Floor Area	2,100 sf	2,100 sf	2,130 sf	0	+ 30 sf	+ 30 sf
Gross Residential Floor Area	2,100 sf	2,100 sf	2,130 sf	0	+ 30 sf	+ 30 sf
Exempted Floor Area	730 sf	730 sf	730 sf	0	0	0
Provided Perimeter Wall/Baseheight	20 ft	20 ft	29 ft	+ 9 ft	0	+ 9 ft
Provided Overall Height	20 ft	20 ft	29 ft	+ 9 ft	0	+ 9 ft
Provided Number of Stories	2 *(+ Cellar)*	2 *(+ Cellar)*	3 *(No Cellar)*	+1	0	+ 1
Lot Coverage / Open Space	25 % / 75 %	26 % / 74 %	26 % / 74 %	+1% / -1%	0	+ 1% / - 1%
Dwelling Units	2	2	2	0	0	0
Parking Spaces	2	3	3	+ 1	0	+ 1

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

R3X Residence District

Prototype 13

1% Annual Chance Floodplain: With-Action Condition



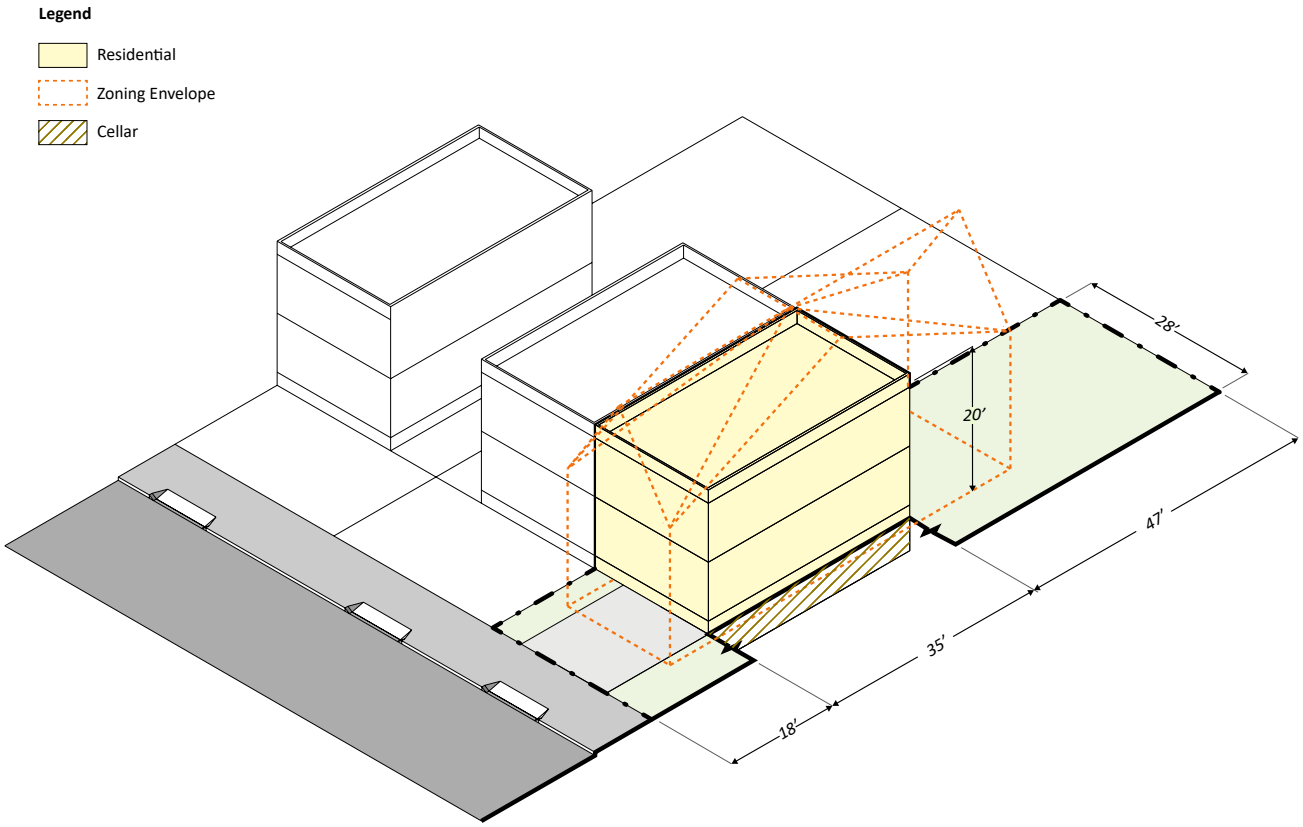
**RP= Reference Plane*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	1% Annual Chance Floodplai: No-Action	**1% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,800 sf	2,800 sf	0
Zoning Floor Area	1,370 sf	1,400 sf	+ 30 sf
Zoning Residential Floor Area	1,370 sf	1,400 sf	+ 30 sf
Gross Floor Area	2,100 sf	2,130 sf	+ 30 sf
Gross Residential Floor Area	2,100 sf	2,130 sf	+ 30 sf
Exempted Floor Area	730 sf	730 sf	0
Provided Perimeter Wall/Baseheight	20 ft	29 ft	+ 9 ft
Provided Overall Height	20 ft	29 ft	+ 9 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	25 % / 75 %	26 % / 74 %	+ 1% / - 1%
Dwelling Units	2	2	0
Parking Spaces	2	3	+ 1

R3X Residence District

Prototype 13

0.2% Annual Chance Floodplain: No-Action Condition

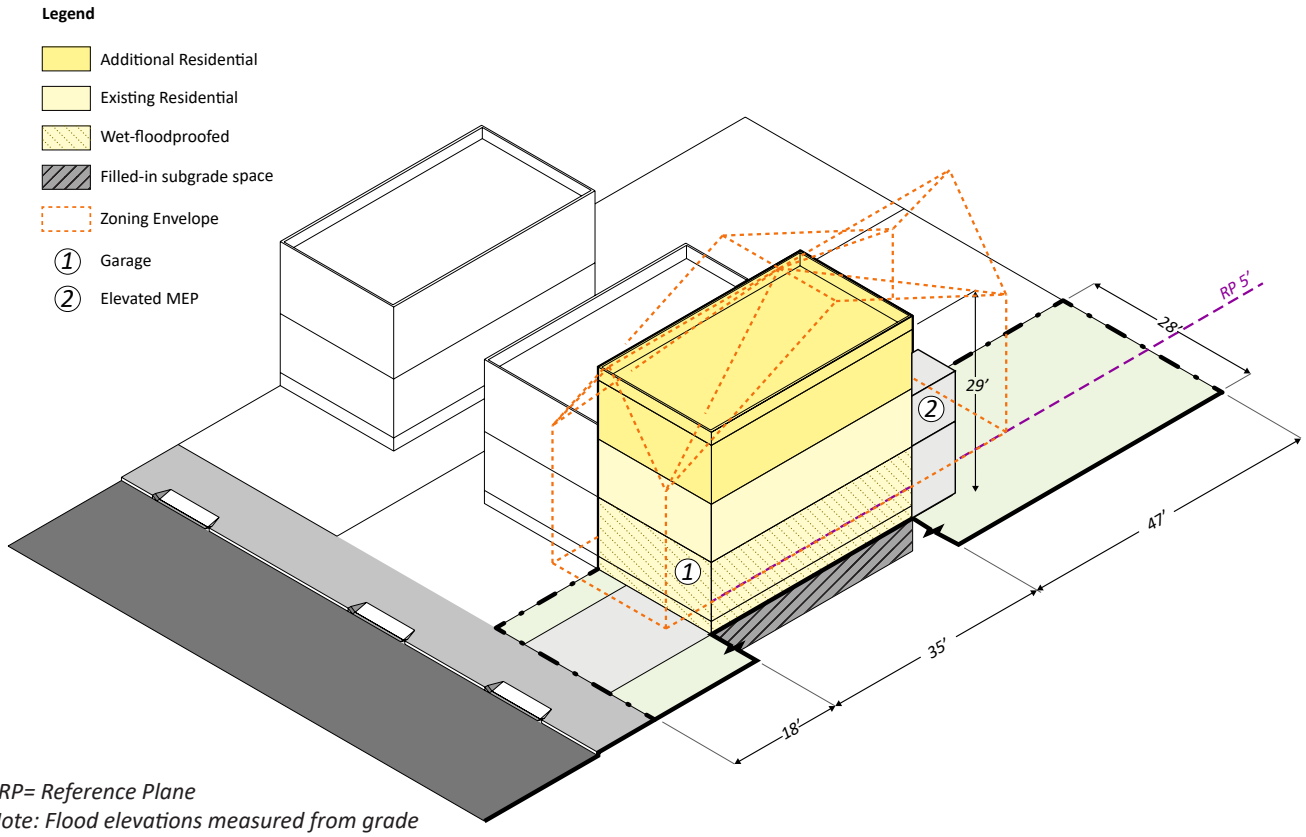


	0.2% Annual Chance Floodplain: No-Action	0.2% Annual Chance Floodplain:With-Action	Change N/A to W/A
Lot Area	2,800 sf	2,800 sf	0
Zoning Floor Area	1,370 sf	1,400 sf	+ 30 sf
Zoning Residential Floor Area	1,370 sf	1,400 sf	+ 30 sf
Gross Floor Area	2,100 sf	2,130 sf	+ 30 sf
Gross Residential Floor Area	2,100 sf	2,130 sf	+ 30 sf
Exempted Floor Area	730 sf	730 sf	0
Provided Perimeter Wall/Baseheight	20 ft	29 ft	+ 9 ft
Provided Overall Height	20 ft	29 ft	+ 9 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Open Space / Lot Coverage	25 % / 75 %	26 % / 74 %	+ 1% / - 1%
Dwelling Units	2	2	0
Parking Spaces	2	3	+ 1

R3X Residence District

Prototype 13

0.2% Annual Chance Floodplain: With-Action Condition



*RP= Reference Plane
Note: Flood elevations measured from grade

	0.2% Annual Chance Floodplain: No-Action	**0.2% Annual Chance Floodplain: With-Action**	**Change N/A to W/A**
Lot Area	2,800 sf	2,800 sf	0
Zoning Floor Area	1,370 sf	1,400 sf	+ 30 sf
Zoning Residential Floor Area	1,370 sf	1,400 sf	+ 30 sf
Gross Floor Area	2,100 sf	2,130 sf	+ 30 sf
Gross Residential Floor Area	2,100 sf	2,130 sf	+ 30 sf
Exempted Floor Area	730 sf	730 sf	0
Provided Perimeter Wall/Baseheight	20 ft	29 ft	+ 9 ft
Provided Overall Height	20 ft	29 ft	+ 9 ft
Provided Number of Stories	2 *(+ Cellar)*	3 *(No Cellar)*	+ 1
Lot Coverage / Open Space	25 % / 75 %	26 % / 74 %	+ 1% / - 1%
Dwelling Units	2	2	0
Parking Spaces	2	3	+ 1

Prototype 14

R8/C2-4 District, 200-foot x 250-foot Waterfront Lot
Waterfront Site Modification

Introduction

Prototypical Analysis Site 14 utilizes a generic 200-foot by 250-foot waterfront zoning lot (50,000 sf) in an R8/C2-4 zoning district. These assumptions were made because they represent typical waterfront lot conditions. Prototypical Analysis Site 14 illustrates the opportunity to understand the effects of the following portions of the Proposed Action on the development site:

- Reduction in the required widths of the waterfront yard and shore public walkway provided there is a tidal wetland area;
- Reduction in planting requirements;
- Reduction in screening buffer; and
- Increased allowance on the maximum retaining wall height.

For the purposes of illustrating the proposed modifications specific to waterfront regulations for open space, the building remains constant for the No-Action and With-Action scenarios for Site 14.

Existing Condition

Under existing conditions, Prototypical Analysis Site 14 is a vacant, 50,000 sf waterfront lot.

No-Action Condition

In the No-Action condition, Prototypical Analysis Site 14 would have a mixed-use residential and commercial building with a public access area. The waterfront zoning lot would be developed with 50,000 sf of zoning floor area and the area of the waterfront public access area would be 10,000 sf. The depth of the waterfront yard and the width of the shore public walkway would both be 40 feet (ZR 62-332 and ZR 62-53).

The lot would be mapped with a BFE of four feet above grade, according to FEMA's flood maps, resulting in a FRCE of five feet. In order to meet Appendix G requirements, the building would be elevated five feet above grade however, the level of the waterfront yard and the shore public walkway would be at grade.

The shore public walkway would be planted with a total area of 5,000 sf which is 50 percent of the total area of the shore public walkway (ZR 62-62), and the planted screening buffer would be at a minimum of 10 feet between the building and any pedestrian paths (ZR 62-62). The retaining wall would be at a maximum height of 18 inches (ZR 62-655).

With-Action Condition

In the future with the Proposed Action, Prototypical Analysis Site 14 would also contain a mixed-use building with a public access area. The waterfront zoning lot would continue to be developed with 50,000 sf of zoning floor area and the area of the waterfront public access area would continue to be 10,000 sf. The depth of the waterfront yard and the width of the shore public walkway would both continue to be 40 feet (ZR 62-332 and ZR 62-53).

The lot is mapped with a BFE of four feet above grade, according to FEMA's flood maps, resulting in a FRCE of five feet. In order to meet Appendix G requirements, a portion of the site would be filled and elevated five feet above grade, resulting in a bi-level walkway with the remaining level of the waterfront yard and the shore public walkway at grade.

Under With-Action conditions, the shore public walkway on Site 14 would be planted with a total area of 3,500 sf, which is 35 percent of the total area of the shore public walkway, and the planted screening buffer would be at a minimum of 6 feet between the building and any pedestrian circulation paths. The retaining wall would be at a maximum height of 36 inches. In addition, a tidal wetland area would span 75 feet of the length of the waterfront yard and shore public walkway at a depth of seven feet (525 sf). The tidal wetland area would also count toward the planted area requirements.

Increment

As a result of the Proposed Action, there would be a decrease in the planted area for the shore public walkway on the waterfront yard of Prototypical Analysis Site 14, in order to provide a bi-level walkway. The screening buffer on Site 14 would decrease by four feet and the retaining wall height would increase by 18 inches. Additionally, while the total area of the shore public walkway would remain the same between the No-Action and the With-Action scenarios, 525 sf of the shore public walkway and the waterfront yard would be allowed as a tidal wetland area as a result of the Proposed Action.

C2-4 Commercial District Mapped Within R8 Residence District

Prototype 14

Waterfront Zoning Lot: No-Action Condition

**BFE= Base Flood Elevation*
**DFE= Design Flood Elevation*
Note: Flood elevations measured from grade

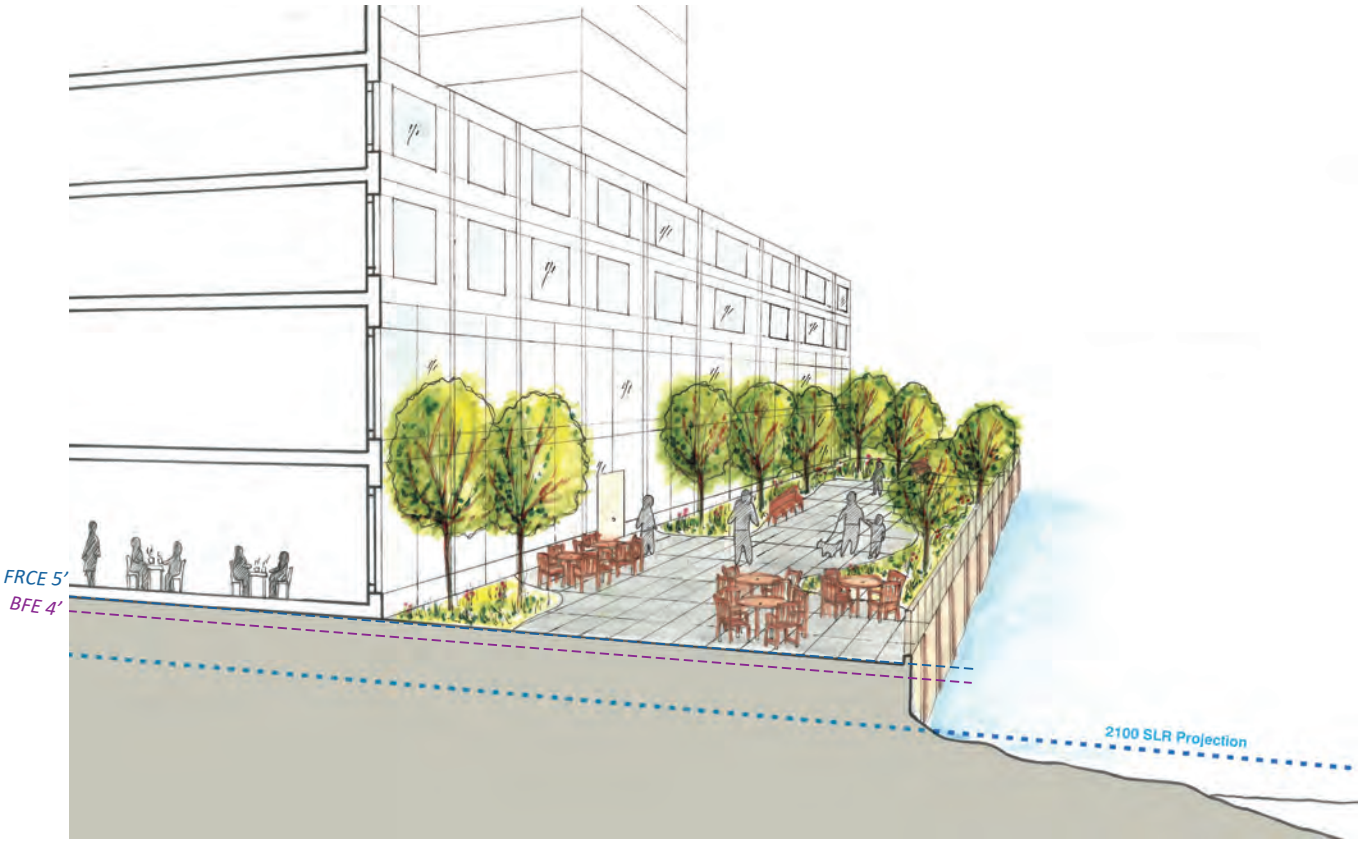
	No-Action	With-Action	**Change**
Lot Area	50,000 sf	50,000 sf	0
Waterfront Yard Width	40 ft	40 ft	0
Shore Public Walkway (SPW) Width	40 ft	40 ft	0
Shore Public Walkway (SPW) Area	10,000 sf	10,000 sf	0
Percentage of Planted Area in SPW	50%	35%	- 15%
Intertidal Planted Area	0 sf	525 sf	+525 sf
Retaining Wall Height	18 in	36 in	+18 in
Screening Buffer Width	10 ft	6 ft	- 4 ft

This chart was modified to illustrate the proposed modifications specific to waterfront regulations shown in this prototype.

C2-4 Commercial District Mapped Within R8 Residence District

Prototype 14

Waterfront Zoning Lot: FT1



**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	No-Action	FT1	With-Action	Change N/A to FT1	Change FT1 to W/A	Change N/A to W/A
Lot Area	50,000 sf	50,000 sf	50,000 sf	0	0	0
Waterfront Yard Width	40 ft	40 ft	40 ft	0	0	0
Shore Public Walkway (SPW) Width	40 ft	40 ft	40 ft	0	0	0
Shore Public Walkway (SPW) Area	10,000 sf	10,000 sf	10,000 sf	0	0	0
Percentage of Planted Area in SPW	50%	50%	35%	0	- 15%	- 15%
Intertidal Planted Area	0 sf	0 sf	525 sf	0	+ 525 sf	+ 525 sf
Retaining Wall Height	18 in	18 in	36 in	0	+ 18 in	+ 18 in
Screening Buffer Width	10 ft	10 ft	6 ft	0	- 4 ft	- 4 ft

This chart was modified to illustrate the proposed modifications specific to waterfront regulations shown in this prototype.

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

C2-4 Commercial District Mapped Within R8 Residence District

Prototype 14

Waterfront Zoning Lot: With-Action Condition

**BFE= Base Flood Elevation*
**FRCE= Flood-Resistant Construction Elevation*
Note: Flood elevations measured from grade

	No-Action	With-Action	Change
Lot Area	50,000 sf	50,000 sf	0
Waterfront Yard Width	40 ft	40 ft	0
Shore Public Walkway (SPW) Width	40 ft	40 ft	0
Shore Public Walkway (SPW) Area	10,000 sf	10,000 sf	0
Percentage of Planted Area in SPW	50%	35%	- 15%
Intertidal Planting Area	0 sf	525 sf	+525 sf
Retaining Wall Height	18 in	36 in	+18 in
Screening Buffer Width	10 ft	6 ft	- 4 ft

This chart was modified to illustrate the proposed modifications specific to waterfront regulations shown in this prototype.

APPENDIX B

Response to Comments on the Draft Scope of Work

ZONING FOR COASTAL FLOOD RESILIENCY

Response to Comments on the Draft Scope of Work for the Draft Environmental Impact Statement

A. INTRODUCTION

This document summarizes and responds to comments on the Draft Scope of Work (DSOW), issued on May 10, 2019, for the Zoning for Coastal Flood Resiliency proposal (the Proposed Action). Oral and written comments were received during the public meeting held by the New York City Department of City Planning (DCP) on June 13, 2019. Written comments were accepted until the close of the public comment period, which ended through the end of the day on Thursday, June 27, 2019. **Appendix 2** contains the written comments received on the DSOW. A Final Scope of Work (FSOW) was issued on October 15, 2020, incorporating comments received on the DSOW where relevant and appropriate, as well as other background and project updates that were made subsequent to publication of the DSOW.

Section B lists the elected officials, organizations, and individuals that provided relevant comments on the DSOW. Section C contains a summary of these relevant comments and a response to each. These summaries convey the substance of the comments made, but do not necessarily quote the comments verbatim. Comments are organized by subject matter and generally parallel the chapter structure of the DSOW.

B. LIST OF ELECTED OFFICIALS, ORGANIZATIONS, AND INDIVIDUALS THAT COMMENTED ON THE DRAFT SCOPE OF WORK

Elected Officials

1. Richard Bearak, Director of Land Use: oral statement on behalf of Brooklyn Borough President Eric Adams at the public scoping meeting.
2. Eric Adams, Brooklyn Borough President: written statement dated June 25, 2019.
3. Gale Brewer, Manhattan Borough President: written statement dated June 19, 2019.

Organizations and Interested Public

4. Thomas Paino: written statement on behalf of the Hunters Point Community Coalition on June 26, 2019.[1]
5. Allegra N. LeGrande: written statement dated June 27, 2019.
6. Ernie Brooks: oral statement at the public scoping meeting.[2]

[1] In May 2019, the Department of City Planning issued a report called "Zoning for Coastal Flood Resiliency" which is sub-headed "Planning for Resilient Neighborhoods." Mr. Paino provided comments on this document, not the "Zoning for Coastal Flood Resiliency Draft Scope of Work for an Environmental Impact Statement" dated May 10, 2019 that is the subject of this response to comments chapter. Although related, these are distinct documents, the latter identifying the proposed scope of environmental review and the former presenting preliminary recommendations that provide the basis for the proposed zoning text amendment, and as such not directly related to the proposed scope of analysis to be provided in the EIS.

[2] During his testimony Mr. Brooks identified himself as a staff person of US Representative Carolyn Maloney, but subsequently clarified that his comments did not necessarily represent an official statement on behalf of Rep. Maloney.

C. COMMENTS AND RESPONSES ON THE DRAFT SCOPE OF WORK

1. Project Description

The Proposed Action:

Comment 1.1: There is not enough said about Long Island City as a special area to be dealt with because it was under a lot of water in Sandy and they keep on building on the waterfront there. So I guess I have many questions whether or not de Blasio's statements about all the new building, which was going to be made much more sustainable and how that was going to be carried out. I guess the biggest question is there is nothing in this report about doing anything in terms of the whole of New York City to be protected from sea level rise. It is just picking out, basically, saying what you have to do with an individual building. (#2 Brooks)

***

The subheading of this document "Planning for Resilient Neighborhoods" is a misnomer.[3] Piecemeal, lot-by-lot guidelines applied to the broad swath of environmental conditions found along New York City's 520 miles of coastline without comprehensive solutions tailored to those conditions are doomed to fail, putting the New Yorkers who followed the arduous guideline procedure in danger through the false security of having achieved resilience. The proposed guidelines may promote resilient buildings, but not neighborhoods. Transposing zoning text to coastal resiliency is too big a leap without comprehensive planning. Zoning is, at best, complementary to coastal resiliency, not the essence of it. (#5 Paino)

***

"Zoning will work in conjunction with coastal protection strategies" – these need to be identified and established BEFORE zoning guidelines to coordinate to the new conditions. Raising street levels and sewer mains must come first to identify the new datum from which the zoning guidelines spring. The whole process is reversed. (#5 Paino)

***

The discussion concerning damage from coastal storms does not include sea-level rise. It is imperative that sea-level rise be front and center throughout this document. In LIC, Gantry State Park already experiences what Miamians refer to as "sunny day flooding" – high tide without storm activity. Walk ways, including the lamp posts, appear to be out in the East River in clear calm weather. Sea-level rise is real and happening now. (#5 Paino)

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Buildings alone will not be able to "accommodate" sea-level rise without comprehensive measures (#5 Paino)

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"Long term resilience", if at all possible considering the circumstances, will depend on the city's comprehensive measures to accommodate sea-level rise and increased storm activity, not zoning options. (#5 Paino)

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[3] The "Zoning for Coastal Flood Resiliency Draft Scope of Work for an Environmental Impact Statement" dated May 10, 2019 that is the subject of this response to comments chapter, is not subheaded "Planning for Resilient Neighborhoods." Also in May 2019, the Department of City Planning issued a report called "Zoning for Coastal Flood Resiliency" which is sub-headed "Planning for Resilient Neighborhoods." Although related, these are distinct documents, the former identifying the proposed scope of environmental review and the latter presenting preliminary recommendations that provide the basis for the proposed zoning text amendment, and as such not directly related to the proposed scope of analysis to be provided in the EIS.

Implying that neighborhoods can "withstand future storms" through zoning alone offers a false and possibly dangerous security. (#5 Paino)

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Reliance on DCP and DOB alone without coordination with other agencies is silo-based leading to bifurcated solutions which circumvent comprehensive, all- encompassing measures required to address the unprecedented circumstances before us. (#5 Paino)

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Retreat from the entire shoreline can only be prevented through all-encompassing and coordinated, comprehensive measures. Solely relying on zoning guidelines offers a false security and is potentially dangerous. (#5 Paino)

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This paragraph seems to be on the right track acknowledging that zoning regulations need to be amended based on managed risk through coastal protection and infrastructure improvements. What are they? The protective measures have to be identified in order for the subsequent zoning to coordinate to them. The process is consistently backward throughout the document. LIC offers an example of what happens with this backwards reasoning. Proposals have been put forward (including a headquarters for one of the world's largest corporations – see "Headquarters in a Floodplain?" report accompanying these comments) in and around the low coastal area known as Anable Basin. Without comprehensive measures to address sea-level rise, owners and developers are left to their own devices using, in some cases, strategies provided by Waterfront Edge Design Guidelines (WEDG) which are wholly inadequate in addressing sea-level rise. Measures proposed, including berms, bi-level esplanades and lawns to justify R-12 densities are ludicrous and, if built, could not only create a state of emergency at the owner sites, but for the entire neighborhood. (#5 Paino)

Response 1.1: **As discussed in the DSOW, the Proposed Action would occur in conjunction with current and future coastal protection strategies and infrastructure improvements by the City and other state and federal agencies. These include geographic-specific climate adaptation measures identified in the City's *Lower Manhattan Climate Resiliency Study* (March 2019), the *East Side Coastal Resiliency Project* projected to be completed by 2023; and the *South Shore of Staten Island Hurricane and Storm Damage Reduction Project* initiated by the U.S. Army Corps of Engineers. Examples of such measures include floodwalls and deployable flip-up barriers to protect upland areas from storm surges.**

The Proposed Action is a zoning text amendment, an action under the jurisdiction of the City Planning Commission and subject to the Uniform Land Use Review Procedure (ULURP), including mandatory review by the City Council. As such it concerns the regulation of use, bulk, and other elements that are controlled by zoning. It does not preclude coastal protection strategies and in fact is intended to be complementary to concurrent and future actions by other agencies. DCP is working in consultation with other City, State, and Federal agencies to coordinate policies and projects, with the respective responsible entity taking the lead for the activities under its jurisdiction. Those actions by others are subject to their own public review and approval processes as they involve other funding sources and decision-makers and are in their nature different from a change in zoning regulations. Measures such as coastal protection infrastructure or raising streets will have different timetables given their complexity and cost. In the meantime, this application is being advanced mindful of the impending expiration of the temporary 2013 Flood and 2015 Recovery zoning text amendments. The proposed zoning regulations would be applied to areas based on the floodplain designations, grades, and base flood elevations in place at the time building permits are sought for a given site. The proposed zoning regulations would also provide greater flexibility to existing buildings seeking to increase their resiliency following changes in floodplain designation or base flood elevations, than would occur if the Proposed Action is not

adopted. As such, the Proposed Action provides flexibility to accommodate changes in conditions such as costal protection strategies, sea level rise, and any other information considered by FEMA that would result in revisions to the geographic scope of floodplain designations and base flood elevations.

As noted in the DSOW, if the Proposed Action is not implemented the temporary Flood Text and Recovery Text would expire and zoning regulations in the floodplain would revert to those in place previously, which would allow new development in the floodplain without the benefit of special zoning relief that would allow buildings to incorporate resiliency improvements and recover from potential future storms.

Comment 1.2: I support this Project application to make permanent the zoning rules that protected the City against damaging storm impacts and allowed for a more streamlined process during reconstruction and resiliency measures. (#4 Brewer)

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In consideration of the impeding expiration dates of the 2013 Flood Text and the 2015 Recovery Text, it is crucial that previously implemented zoning rules become permanent in order to mitigate the City's recovery from and resiliency towards future storm impacts. I support this Project's initiatives that encourage residents and building owners to pre-emptively incorporate resiliency standards beyond FEMA and the City's Building Code requirements. The Project would apply to properties in the City's 1% and 0.2% annual chance floodplains, the latter of which are projected to be the 1% annual floodplain in 2050. I stress that the mechanisms posted by the Project should aim to not financially burden building owners for improving structures for their resiliency, while maintaining neighborhood architectural character and vitality. (#4 Brewer)

Response 1.2: Comments noted.

Comment 1.3: The mechanical equipment being referred to does not take into account carbon neutrality by 2045, nor the recently passed green building legislation. (#5 Paino)

Response 1.3: Comment noted. As is the case throughout the city, mechanical equipment installed and operated on sites in the floodplains subject to the Proposed Action will need to comply with city regulations in effect at the time. The proposed regulations would provide more options on site or within the building for the mechanical equipment to be located above flood risk.

Comment 1.4: Recovery by reconstructing buildings rapidly does not take into account the reality, moving forward, of the infeasibility of reconstruction. How many times will the same building be reconstructed? (#5 Paino)

Response 1.4: Comment noted.

Comment 1.5: As the frequency of flooding increases shoppers will be denied access – the location of the stair will have no effect. Whether elevating or relocating a lower level to a higher elevation incurs substantial cost which may not be recouped if the frequency of flooding increases. Without changes in street level and associated infrastructure, the scenario of having to enter the house by boat becomes more likely as does abandonment. The emphasis to transfer below grade equipment to space that will not count as floor area appeals to the building owner's profits, but ignores the more crucial issue of what happens to the building if it is more frequently surrounded by water due to the effects of climate change. The reality of occupants not having access to the building will have much more impact on the bottom line, than the opportunity to locate equipment in a dry space that does not count as floor area. (#5 Paino)

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The chance of disinvestment leading to vacated businesses is accurate. However, the use of dry-floodproofing in the form of barriers means shoppers cannot get access. Maintaining the business will depend on how often access is denied. The shop owners along Hunters' Point commercial strip have experienced being trapped inside their shops with as little as 1 inch of downpour – an event expected to increase in frequency with climate change. One of the facilities facing the dilemma of choosing protection over access is the New York Blood Supply – a critical supplier for the city's routine and emergency needs. Frequent dry-floodproofing will not work for them. (#5 Paino)

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Reference to "coastal defense strategies" needs to be taken to a much higher level of description and definition. How does one know if the building guidelines even coordinate to these strategies, and not working in conflict with them? This paragraph needs to be greatly expanded. Also, the emphasis with reoccupation during an era of increased sea-level rise does not take into account habitual flooding. A building that sits high and dry, but frequently surrounded by water and severed from utilities may save the building, but not the occupants. (#5 Paino)

Response 1.5: **Comments noted. These comments are outside the scope of environmental review for the Proposed Action. The purpose of the Proposed Action is to establish a permanent zoning framework that would allow buildings to incorporate resiliency improvements and recover from future storms more quickly. As demonstrated by Hurricane Sandy, buildings built to contemporary resilient building standards suffered far less damage than buildings that were not. The Proposed Action would not only remove existing regulatory barriers that may disincentivize building to these standards, but would also allow buildings to be designed to reflect future coastal flood risk. The Proposed Action is also just one element of a broader set of measures being pursued by the City and others that collectively will address future flood risk and sea-level rise, including investments in infrastructure and preparedness planning. The Proposed Action would complement such measures.**

As stated in the DSOW, 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. Therefore, as the DSOW further states, 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. This will be achieved by having zoning automatically adjust to reflect future revisions to the 1% and 0.2% percent chance floodplains by FEMA. The above comments do not address the analysis of potential environmental impacts of the Proposed Action as compared to the No-Action scenario.

Floodproofing requirements are governed by other federal, state, and city regulations and there are dry-floodproofing options that do not create permanent barriers. Additionally, the phrase "coastal defense strategies" is not used in the DSOW. This comment refers to its use in DCP's report, *Zoning for Coastal Flood Resiliency: Planning for Resilient Neighborhoods*, issued in May 2019. The purpose of this report is to share plain-language descriptions of the preliminary recommendations to the proposed action with the public prior to launching the formal public review process and is not a formal part of the CEQR process. To provide context, relative to this topic that report states: "the City's resiliency strategy calls for planning for multiple lines of defense from coastal flooding. This entails pursuing coastal defense strategies to protect from storm surge and sea level rise, as well as retrofitting and upgrading infrastructure systems to withstand climate hazards, including other types of flooding. Furthermore, the strategy also includes preparing residents and business for future events, and promoting the flood-resilient design of buildings, so they can better withstand flooding and therefore be reoccupied faster after a disaster." As the Proposed Action that is

the subject of this environmental review is a zoning application and other costal defense and infrastructure strategies are not subject to this review, detailed information on those initiatives, addressed in other documents, is outside of the scope of environmental review for this project and not warranted for inclusion in the EIS.

Comment 1.6: Eliminating the zoning obstruction to relocating equipment and office space for industrial users does not address impacts from climate change. If the industrial process level is still in the floodplain experiencing frequent flooding, it does not matter that the manager's office was relocated to the dry mezzanine without a floor area deficit. (#5 Paino)

Response 1.6: Comment noted. Many businesses across the city's floodplain have found ways to proactively address flood risk and prepare for future flood events including, but not limited to, relocating equipment and office space above the floodplain. Preparedness planning is also an essential strategy. The Department of City Planning's *Resilient Industry* initiative identifies cost-effective strategies for industrial uses to use to prepare for future floods, minimize damage to facilities, and quickly restore operations following a disruption. The Proposed Action incorporates zoning-related recommendations from *Resilient Industry* but is not a substitute for pursuing other and/or multiple measures to reduce coastal flood risk.

Comment 1.7: Further explanation is needed on the agreement between the federal government and local communities to receive federal assistance based on the implementation of management regulations. Does this zoning proposal count as "management regulations"? Without comprehensive measures being a component of management regulations, the federal assistance will continue to pay for the reconstruction of buildings, some and possibly many of which should not be reconstructed considering future harmful conditions. (#5 Paino)

Response 1.7: Comment noted. See response to comment 1.4, above. The proposed Zoning Text Amendment does not address federal financial assistance or management regulations however, the framework allows for homeowners to be resilient in the long-term and potentially save on flood insurance administered by FEMA.

Comment 1.8: 800 non-conforming residential buildings in industrial areas appears to be a low number. Please confirm this counts those in the 0.2% annual chance floodplain. (#5 Paino)

Response 1.8: The reference to 800 non-conforming residential buildings in industrial areas is not in the DSOW. This comment refers to its inclusion in DCP's report, *Zoning for Coastal Flood Resiliency: Planning for Resilient Neighborhoods*, issued in May 2019. It is confirmed that, per Department of Finance data, there are approximately 800 non-conforming residential buildings in the floodplain, i.e., areas at risk of a 1% or 0.2% annual chance of flood.

Comment 1.9: The length of the term, at this point, cannot be determined. The rate of increase of sea-level rise due to Artic, Antarctic, and Greenland ice melt has yet to be established. The accumulation of CO2 and its effects on increased storm activity has yet to be established. (#5 Paino)

Response 1.9: Comment noted. This comment is outside the scope of CEQR. See Response 1.13, below.

Comment 1.10: The exchange of lot-wide only resiliency compliance for extreme density without comprehensive resiliency measures in currently known floodplains will have catastrophic results. If the city persists on this ill-advised course, a new level of evacuation zones will have to be created in order to accommodate the mass exodus of concentrated populations trapped by the waterfront with only one way out. Who will carry the liability for following this policy? What insurance company will take

on the risk? The policy appears to be pandering to real estate interests and the public's desire for waterfront views. Alternatives to satisfy these desires have to be quickly put into place. (#5 Paino)

Response 1.10: **Comment noted. The proposed regulations aim to support the planned density with very limited increases in floor area to accommodate resiliency. In both the future with and without the Proposed Action, permitted density would generally remain the same, but in future without the Proposed Action, building to or exceeding resilient building standards would be greatly inhibited. Evacuation procedures and flood insurance policies, although programmatically related to the proposed action, are not within the scope of this action or its environmental review.**

Comment 1.11: The DEIS and FSOW should include studies that are derived from lessons learnt from the 2013 Flood Text and 2015 Recovery Text for a more robust understanding of the Project's potential impacts. (#4 Brewer)

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I highlight some of the text in Section I "Lessons Learned since the 2013 Flood Text and the 2015 Recovery Text" that remains to be addressed. I urge the DEIS to incorporate further study of low-quality spaces developed as a result of the 2013 Flood Text that allows floor area exemptions within the 1% annual chance floodplain. The 2013 Flood Text allowed 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 Design Flood Elevation (DFE). This has benefitted buildings with moderate and high DFE levels to achieve the fully permitted floor area. But this provision has also resulted in low-quality spaces as a result of lower ground-floor ceiling heights to get the floor area discount. The DEIS should include a screening assessment of the quality of buildings and community facilities that have been built or retrofitted according to the 2013 Flood Text, and the types of existing usage below the DFE. (#4 Brewer)

Response 1.11: **The Proposed Action would address the concerns expressed in this comment by modifying the threshold height at which floor area exemptions are available, thus discouraging low-quality ground floors. However, the additional suggested assessments outline in this comment are outside the scope of CEQR impact analyses per the guidance provided in the 2014 *CEQR Technical Manual* and therefore would not be appropriate for inclusion in the EIS. The EIS is analyzing the anticipated effects of the proposed zoning changes as compared to No-Action baseline in which the 2013 Flood Text and 2015 Recovery Text expire. While outcomes identified as a result of those temporary actions have informed the proposed action to be studied in the EIS, the EIS is not conducting an impact analysis of such measures. Furthermore, while there are many similarities between the 2013 and 2015 temporary and currently proposed permanent zoning changes, the measures are not identical, as the current proposal seeks to improve upon the previous measures. To ensure quality ground floors, the proposed floor area exemptions will not depend on the ground floor ceiling height's relation to the flood elevation and the exemptions will also come with design controls, such as compliance with streetscape regulations. The EIS will analyze the effects of the Proposed Action on Urban Design and Visual Resources.**

Comment 1.12: I also urge that the DEIS include an impact study of illegal basement or cellar apartments in the 1% and 0.2% area. This will help ensure that the Project does not displace tenants or cause the loss of this housing stock. (#4 Brewer)

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I urge the City to study the number of apartments in inland areas [outside the 1% and 0.2% floodplains] that could potentially be brought into safe and legal use while maintaining the resiliency requirements listed in the Project. This study would include the amount of displacement that would occur, alternatives in building envelope design, the uses of underground cellar or basement spaces,

and the potential for the conversion of cellar or basement spaces in inland areas into residential use that are wet-floodproofed, in order to help mitigate the City's housing shortage. (#4 Brewer)

Response 1.12: **Comments noted. These comments are outside of the scope of environmental review for this proposal. The proposed framework would allow buildings to be elevated, retrofitted or reconstructed pursuant to certain limits. The specific types of resiliency measures that are practically achievable for different categories of buildings depend on a wide range of factors, including their physical configuration, flood vulnerability, financial and regulatory status, and cannot be determined in the absence of detailed building-specific information.**

As the Proposed Action primarily concerns development within the 1% and 0.2% floodplains, the suggested study is not within the scope of this CEQR analysis.

Comment 1.13: Using data based on Superstorm Sandy should not be the sole indicator of future flooding. This needs to be combined with more sophisticated predictive technologies. As an example, my lots located in the 1% annual chance floodplain, did not flood during this storm, yet nearby lots in the 0.2% annual floodplain did. (#5 Paino)

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Parts of the 0.2% annual chance floodplain flooded two years in a row. Merely providing the same zoning guidelines as 1% annual chance floodplain properties without comprehensive measures will have the same disastrous results. Of course, it is better than doing nothing, but not much. (#5 Paino)

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Use the most pessimistic forecast for storm surge and flood risk. This includes considering flood risk (e.g., KatRisk) maps from the private insurance sector that may be more extensive than FEMA maps. (#6 LeGrande)

Response 1.13: **The delineation of the floodplain is not within the scope of this application. The determination of flood risk as reflected by defining the floodplain is made by FEMA for purposes of the National Flood Insurance Program. However, to supplement and inform future flood risk, the City relies on the findings of the New York City Panel on Climate Change (NPCC). The NPCC is a group of scientists and private sector experts that provides climate change projections for the city. NPCC's most recent report, released in early 2019, provides the latest estimates for sea level rise (SLR) in the city. The projections take into account different climate change scenarios and inputs to arrive at high- and low-range SLR projections for the 2020s, 2050s, 2080s, and 2100. The City uses the NPCC's sea level rise projections for the 2050s as its actionable data to inform and use and capital planning considerations, including this proposed zoning text amendment. The City continues to monitor the NPCC's projections as they evolve over time because the science and underlying data are not static and will continue to advance. Part of the purpose of the Proposed Action is to enable individual building owners to take into consideration and incorporate measures to address potential longer-term risks from sea level rise.**

Comment 1.14: Insurance companies do not work "long term". Premiums are renewed annually and so far, the insurance companies have taken advantage of ambiguous mapping to charge the maximums. Also, when applying for a mortgage for a property in the floodplain, banks require signing a form giving them the sole option on deciding what floodplain the property is in, negating the FEMA designation. (#5 Paino)

Response 1.14: **Comment noted. Changes to the National Flood Insurance Program are outside the scope of environmental review for this proposal.**

Comment 1.15: It is curious that the insurance industry's response to NYC's BFE is at least a 4 foot freeboard before premiums will be reduced. If that is the insurance industry's capacity for risk, should not the city's be the same? In other words, if safety is only achieved at 4 feet above BFE, then everything should be at that elevation – the public right-of-way, infrastructure, public open space, community facilities, etc. Again, the lack of comprehensive resiliency means the buildings will be safe, but not the occupants. (#5 Paino)

Response 1.15: Comment noted. This comment is outside the scope of CEQR. The National Flood Insurance Program also gives homeowners options to reduce flood insurance premiums by retrofitting buildings below the four-foot threshold. For example, filling in a basement would result in reduced flood insurance costs. The proposed changes give most buildings flexibility to elevate the first occupiable floor well above the DFE, allowing homeowners and business owners to be able to maximize long-term flood insurance premium reductions in the 1% annual chance floodplain.

Comment 1.16: Consider allowing expensive insurance premiums in flood zones to discourage building there; do not work to incentivize building in high risk areas by artificially deflating insurance cost; provide framework for paid scrutiny of EDC/DCP with socio-economic fairness, environmentally sound, and climate change mitigation as principal goals of independent group. (#6 LeGrande)

Response 1.16: Comment noted. This is outside the scope of environmental review for this proposal. Further, the National Flood Insurance Program, including rate-setting, is not within the City's jurisdiction as it is a federal program managed by FEMA.

Analytical Framework:

Comment 1.17: The tendency to create typologies in order to establish across the board consistency does not work in NYC. Extracting a community to conform to one of the four types in an effort to alleviate zoning issue obstructions is futile. LIC consists of an intimate blend of three of the types listed and could not possibly benefit by following the guidelines for just one of them. (#5 Paino)

Response 1.17: Comment noted. The Proposed Action would affect a large area with a significant number of properties in New York City. Per guidance in Chapter 2, "Establishing the Analysis Framework" in the 2014 *CEQR Technical Manual*, generic actions that would have wide-applicability may consider "typical" cases that may reasonably typify the conditions and impacts of the proposal, and a discussion of the range of conditions under which the action may take place, so that the full range of impacts may be identified. A total of 13 typologies, using the standard methodologies pursuant to the *CEQR Technical Manual* were chosen to represent typical buildings in all affected neighborhoods, spanning across a full range of zoning designations in the affected floodplain areas. The range of building typologies, prevalent zoning districts and lot conditions, and types of construction are some of the characteristics that were analyzed in both the 1% and the 0.2% annual chance floodplains to identify the representative sites. The DSOW stated that 13 Typologies would be considered for analysis, but only included detailed explanations of five of the Typologies. These five and the remaining Typologies are described in detail in the FSOW and DEIS.

Comment 1.18: Two details are missing from the bravado around the 1,323 homes benefiting from the Build it Back program. What was the cost per home and what is the expected shelf-life considering increased sea-level rise. (#5 Paino)

Response 1.18: **Comment noted. A financial assessment of the Build it Back is outside the scope of CEQR. Information related to the Build it Back program is available on the New York City Mayor's Office of Housing Recovery Operations' website: https://www1.nyc.gov/site/housingrecovery/index.page**

Comment 1.19: The parking/storage use with wet-floodproofing alternative will not work with the expected increase in frequency of inundation resulting in the lack of comprehensive measures. Dry-floodproofing will not work because it breaks down over time with frequent inundation. Every time it occurs, access to the cars or storage items is denied. In most medium and high density areas, the car alternative is not available because additional curb cuts are not permitted. Also, relaxing height restrictions and counting only that floor area above DFE can satisfy zoning compliance and support BSA applications, but it ignores the realities of structurally adding another story. Under the NYC Building Code a building with four or more structural levels must meet the seismic code including those filing under substantial renovation. Adding the required structural elements to existing, attached masonry structures is nearly impossible without demolishing the building, not to mention cost prohibitive. (#5 Paino)

Response 1.19: **Comment noted. The City's resiliency strategy includes preparing residents and business for future climate events and promoting flood-resilient building design. As part of the City's multi-layered resiliency strategy, DCP worked with floodplain communities to develop neighborhood-specific strategies to address climate risks, as well as created and applied a range of zoning tools to respond to unique resiliency challenges. In 2017, three Special Coastal Risk Districts were established in low-lying coastal neighborhoods in Queens and Staten Island to limit future density in light of their high risk of future daily tidal flooding.**

Comment 1.20: Adjusting height limitations based on flexible reference plain will help protect the building, but not the occupants if accompanying comprehensive measures are not in place. Storm surge, downpours and eventually tides will gush through the low points (the lots and public spaces not complying with the guidelines) engulf the buildings trapping the occupants inside. Inundation is temporary, but will increase in frequency in the decades to come. Emphasis is on the 2050's - a 30 year solution. What about beyond? Application of the guidelines, especially to masonry buildings, will come at too high a cost for a life expectancy of 30 years – the length of time for most mortgages. Allowing increase in the degree of non-conformance/non-compliance makes it legally possible, but at what cost and for how long? (#5 Paino)

Response 1.20: **Comment noted.**

Comment 1.21: The concept of encouraging street level use, at its current level, through extra floor area in exchange for dry-floodproofing will result in both chaos and delusion. Chaotic because there is no guarantee that all property owners on a particular block will agree to the same alternative resulting in some buildings with visible retail at street level (dry-floodproofed) while others with parking and building access (wet-floodproofed) only resulting in an incomprehensible street scape. Delusional because, as previously discussed, dry-floodproofing degrades over time. Furthermore, your own report indicates this solution is good for only 30 years. After that the City will have to consider raising the street elevation or retreat. Again, the purpose to rewrite the zoning regulations seems to be to appease building owner's profit desires rather than the realities of sea-level rise. (#5 Paino)

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The solution to the blank wall problem is to raise the front garden. Doesn't this simply move the blank wall from the house to the garden which would be immediately adjacent to the sidewalk? When will city planning start working on raising the elevation of sidewalks and streets? (#5 Paino)

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The residential blank wall solution illustrated shows a turn in the exterior stairway which for some, apparently, creates a more pleasing street façade. Closer analysis of the rendering implies serious revisions to the existing building at greatly increased cost. The internal vertical circulation would have to flip from its current location requiring the floor plan to be reversed at every level. Furthermore, because of the neighbor dependent revision in the stair access, every property owner on the block would have to agree to the changes at the same time. (#5 Paino)

Response 1.21: These comments are outside of the scope of CEQR.

Comment 1.22: It is unfortunate that City Planning's desire to ameliorate external stairs is not consistent across the city. The project (still under construction) at 11th Street and 46th Avenue in LIC has a phalanx of three-story external front yard staircases extending right to the sidewalk – at 14 foot intervals to provide access to the upper unit of each illegally undersized-width "row house". Mixed in with the gas meters and garbage bins this phalanx creates a most unpleasant and possibly dangerous streetscape. (#5 Paino)

Response 1.22: Comment noted. The referenced project is outside the scope of this action.

Comment 1.23: Allowing professional office space on ground floor of buildings in residential districts will help to maintain streetscape, but like almost every other suggested measure in this report, the solution is temporary. Your own report indicates that the conditions being designed for will at best last 30 years. (#5 Paino)

Response 1.23: Comment noted. The report indicates that by the 2050s, the NPCC projects that the city could experience 28 inches of sea level rise at the high end of its estimation. This estimate is at the 90th percentile, meaning it is a conservative estimate of future flood risk. It is being used as a proxy for the possible future location of the 1% annual chance floodplain. The current 0.2% annual chance floodplain closely overlaps with the high-end estimate for the 1% annual chance floodplain in the 2050. As a result, proposed framework is providing allowances for buildings to future-proof and expanding these allowances to the current 0.2% annual chance floodplain geography.

Comment 1.24: Incremental resiliency in an era of increasing risk due to climate change will not work because it will be impossible to catch-up to the new conditions. The owner will have moved mechanical equipment above the DFE, but then will have to deal with more frequent inundation and inaccessibility to the building. (#5 Paino)

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The entire discussion on mechanical equipment including emergency generators does not take into account the new green building legislation calling for a reduction in carbon emissions. This discussion needs to be revised to include and encourage the measures suggested and eventually required by this new legislation. Again, whether low carbon emission or not, these solutions for buildings in the current floodplain are at best interim. (#5 Paino)

Response 1.24: Comments noted.

Comment 1.25: Flood barriers, retaining walls, raised yards, flood berms, floodgates all degrade over time especially with increased frequency of inundation. The newly constructed levies in New Orleans in response to Hurricane Katrina are already sinking and need repair. Water always wins out over land. (#5 Paino)

Response 1.25: Comment noted.

Comment 1.26: To accelerate the rebuild scenario when a state of emergency is declared is nonsensical. How many times will the same structure be re-built? Where will the money come from? Fortifying a structure that depends on right-of-ways and infrastructure that will not get fortified is not a comprehensive plan. (#5 Paino)

Response 1.26: Comment noted. This comment is outside of the scope for environmental review for this project. The proposed discretionary emergency rules would enable the City to conduct a faster recovery process from an unknown future disaster in an unknown affected area, based on current rather than past standards for buildings. The rules are not limited to flood-related disasters.

Comment 1.27: With regard to the illustration, how is fire prevention assured when tax lots pretend to be zoning lots? (#5 Paino)

Response 1.27: Comment noted. As part of the proposed disaster recovery provisions that could be made available through a text amendment when a disaster occurs, the tax lots would have the option to follow all of the zoning regulations, including bulk rules that dictate yard requirements and distances between buildings. Building Code would continue to apply with regard to fire and safety.

Comment 1.28: Increasing the permit renewal through the BSA from 5 years to 10 years does not appear to be associated with employing resiliency strategies, without which, results in nothing but a giant loophole. As you point out, these are perhaps the most vulnerable facilities in the city. The Crab House in LIC flooded into the second floor during Superstorm Sandy. They need realistic solutions, not loopholes. (#5 Paino)

Response 1.28: Comment noted. 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). 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.

Comment 1.29: Added to vulnerable populations should be luxury residential towers that the city continues to encourage and propose along floodplain waterfronts without adequate non-building resiliency measures being put into place. These future vulnerable populations will be trapped inside their buildings (possibly without heating/cooling, water and elevator) if they did not evacuate as required or trapped outside if they did evacuate and are not allowed back in. The residents of the then newly constructed Gantry Condominium in LIC were not allowed back into their homes for months after Superstorm Sandy. (#5 Paino)

Response 1.29: Comment noted. The Proposed Action applies to zoning regulations affecting all buildings located in New York City's floodplain. The purpose of the Proposed Action is to permit and encourage resiliency measures at the building scale and waterfront sites. The Proposed Action is not intended to create shelter-in-place facilities and the City works through the New York

City Office of Emergency Management to encourage and facilitate evacuation when necessary. However, the proposed action does also seek to modify use regulations as it relates to nursing home development within the 1% annual chance floodplain and in other geographies with very limited access. The Department's analysis found that nursing home residents are uniquely and significantly vulnerable to coastal flood events, especially during the evacuation process. As a result, the Department proposes to restrict new nursing homes and limit the enlargement of existing nursing homes to limit increases in this exceptionally vulnerable population.

Comment 1.30: Required yard reduction should trigger increase in fire prevention construction to avoid fire spread. (#5 Paino)

Response 1.30: Comment noted. The Proposed Action's optional yard reduction regulations were developed in coordination with the current Building Code.

Comment 1.31: Allowing an increase in the non-compliance and/or non-conformance of existing buildings if they meet resiliency standards – does this mean the intent of the original zoning resolution was wrong? Again, the effort and expense it will take to re-create a structure in a floodplain with a life span of perhaps 30 years does not make economic sense. Other options should be on the table. (#5 Paino)

Response 1.31: Comment noted. 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. While such buildings are encouraged to conform to the current planning goals overtime, these buildings also have resiliency needs. For example, 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. For these buildings to be resilient while maintaining the current plan for the area, they need to be able to increase their non-compliance and/or non-conformances with certain parameters.

Comment 1.32: The proposed rules for emergency generators place them in sensitive areas. Will noise abatement code requirements apply? Who will enforce this? (#5 Paino)

Response 1.32: The Building Code and Noise Code would continue to apply with regard to noise regulations.

Comment 1.33: Because of its unique conditions, resiliency issues in LIC cannot be addressed by most of what is in this report. It is striking that LIC is not one of the communities singled out for neighborhood specific zoning. Perhaps the conditions are too overwhelming – includes some of the lowest elevation along the Brooklyn/Queens coast, the fastest growing residential community in the nation, zero comprehensive planning for coastal resiliency except for Hunters Point South park which had the advantage of higher ground and 200 foot coastal setback and most infrastructure improvement is done under emergency contract due to lack of planning it can never catch up to the scale and pace of new development. According to DEP, emergency contract work is three times the cost of conventional. (#5 Paino)

Response 1.33: Comment noted. As it is in the floodplain, the LIC neighborhood would be subject to the new provisions applicable in floodplain areas. New buildings would be constructed to higher flood resistance standards than the existing buildings in the surrounding area, and would have the option to exceed these standards in a manner that would not be possible in the future without the Proposed Action. In addition, as laid out in the report *OneNYC: The Plan for a Strong and*

***Just City*, first issued in 2015, the City's resiliency strategy calls for planning for multiple lines of defense from coastal flooding. This entails pursuing coastal defense strategies to protect from storm surge and sea level rise, as well as retrofitting and upgrading infrastructure systems to withstand climate hazards. Furthermore, the strategy also includes preparing residents and business for future events, and promoting the flood-resilient design of buildings, so they can better withstand flooding and therefore be reoccupied faster after a disaster.**

Comment 1.34: It is significant that an acknowledgement for collaboration with other agencies to form multiple lines of defense to achieve coastal protection does not appear until the end of the report. This needs to be ramped up at least exponentially and put at the beginning of the next report. (#5 Paino)

Response 1.34: As discussed in the DSOW, the Proposed Action would occur in conjunction with coastal protection strategies and infrastructure improvements that are being pursued by the City and other state and federal agencies. See Response to Comment 1.1 above.

Comment 1.35: For commercial and R4+ zones, alter RWCDS year to use (e.g.,) 2080s and 2100s flood risk to reflect the longer lifetimes of these buildings. Justify chosen scenario year with defensible building lifetime. Round up in time to the estimated lifetime of a building for sea level rise base year. Provide this measure with a new acronym (climate-aware RWCDS given NPCC3 90% high probability flood: CA-RWCDS-NPCC3_90. (#6 LeGrande)

Response 1.35: The 2014 *CEQR Technical Manual* notes that for some actions where the build-out depends on market conditions and other variables, and the build year cannot be determined with precision, a 10-year build year is generally considered reasonable. This timeframe 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, per CEQR guidance, an analysis year of 2029 will be utilized for the EIS.

Comment 1.36: Provide common units for expressing risk including "today's" dollar exposure to risk given a maximum development scenario plus a 1% and 0.2% flood event, link to common reporting tool below. (#6 LeGrande)

***

Provide the carbon footprints per person per building block today and in the maximum development scenario, put into context of overall NYC, NYC 2030 (and future) goals, US overall, developed nations overall, and link to reporting tool below. (#6 LeGrande)

***

Set expiration dates on generated sea level rise related 1% and 0.2% flood risk maps and fund regular updates (~5 years or after each flood event meeting 1% or 0.2% flood risk level). In this document, and all future documents, create an acronym to identify "which" flood zone text refers to – e.g., never report "1%", instead say "1% FEMA15" to resolve ambiguity. (#6 LeGrande)

***

Develop a framework for considering extreme precipitation and fund regular updates (~2 years or after each flood event meeting 1% or 0.2% flood risk level). (#6 LeGrande)

***

Consider changing low density, high flood risk places into parkland, wetlands, dunes, and other resilient space; provide ample funding for this change to encourage movement to safer elevations. (#6 LeGrande)

***

Add provisions to estimate the full cost of a flood event should the zoned areas be developed for equal or greater density; determine and public ALL entities that bear this cost and at what fraction. (#6 LeGrande)

Response 1.36: Comments noted. These comments are outside the scope of CEQR.

Comment 1.37: Provide funding and public access to a climate risk assessment for each property. Redesign NPCC2 ArcGis page to include the extreme scenario of West Antarctic Ice Sheet Collapse as per NPCC3. (9.5') Plan and report 1% and 0.2% flood risk for the 'high' scenario otherwise (6.25' by 2100). Cite the relevant scenario. E.G., instead of saying "approximately 28 inches of sea level rise by the 2050s", be specific and accurate. E.G. 2050s sea level rise of 30 inches (NPCC2_90). (#6 LeGrande)

Response 1.37: Comment noted. This is outside the scope of CEQR. The EAS and DSOW are clear that the NPCC's high-end sea level rise projection for the 2050s is the projection being used for planning purposes. The City uses the NPCC's sea level rise projections for the 2050s as its actionable data to inform and use and capital planning considerations, including this proposed zoning text amendment. The City continues to monitor the NPCC's projections as they evolve over time because the science and underlying data are not static and will continue to advance.

Comment 1.38: Consider alterations that raise the density of a block separately from improvements of existing structures. (#6 LeGrande)

Response 1.38: The proposed regulations aim to support the planned density with very limited increases in floor area to accommodate resiliency. The purpose of the Proposed Action is to generally support planned density by providing flexibility in zoning for building owners to upgrade their buildings to limit damage from coastal flooding. Furthermore, per the guidance in the 2014 *CEQR Technical Manual*, Chapter 1: Procedures and Documentation, the effects of a proposed action should be considered as a whole, and not segmented into parts.

Comment 1.39: Set stricter standards for new construction of higher density. (#6 LeGrande)

Response 1.39: Comment noted. Building construction standards are established by the New York City Building Code, changes of which are outside of the scope of environmental review for this project.

Comment 1.40: Consider building elevated sidewalks to avoid blank walls. (#6 LeGrande)

Response 1.40: This is outside the scope of CEQR. The proposed rules will allow flexibility in street wall locations for buildings to incorporate access, such as elevated sidewalks.

Comment 1.41: Design a framework that does not pit ADA accessibility against climate resiliency. (#6 LeGrande)

Response 1.41: Comment noted. All buildings meeting flood-resistant construction standards would also have to meet ADA standards. The proposed regulations would provide incentives for building owners to take future risk into account and to provide a more accessible design.

Comment 1.42: Stop using the terms "100-year" and "500-year" flood plain since these terms may be confused with the return period of a certain level of flooding. (#6 LeGrande)

Response 1.42: As in the EAS and DSOW, the EIS for the Proposed Action will utilize the terms 1% annual chance floodplain and 0.2% annual chance floodplain.

3. Socioeconomic Conditions

Comment 3.1: I ask that the DEIS also include the visual and socioeconomic impacts of allowing commercial use on the second floor within the 1% and 0.2% floodplains. Specifically, the DEIS should review the impact of blank street walls within retail corridors and disruptive signage where second floor retail conversions are allowed. (#4 Brewer)

Response 3.1: Comment noted. As discussed in the DSOW, the EIS will disclose any impacts that may affect land use patterns or economic investment in a way that changes the socioeconomic character of the area. The EIS will include socioeconomic assessments of direct and indirect business displacement and adverse effects on specific industries (Task #3) per 2014 *CEQR Technical Manual* guidance, including analysis of retail corridors. Additionally, the EIS will include an assessment of the Proposed Action's potential to adversely affect urban design and visual resources (Task #8) pursuant to 2014 *CEQR Technical Manual* guidance. This will include an analysis of streetwalls and signage requirements in the futures without and with the Proposed Action.

Comment 3.2: Consider socioeconomic risk for maximum development by demographic measures (race, gender, income, education, etc.) and consider whether climate risk is disproportionately held by a particular demographic. (#6 LeGrande)

Response 3.2: The Proposed Action is not anticipated to result in significant changes in the amount of development permitted overall or its distribution among neighborhoods. The primary difference between the future with the Proposed Action and without would be that existing and new buildings could be improved to higher standards for flood resiliency. The population at risk from adverse climate events is a characteristic of existing conditions and climate risks, and not attributable to the Proposed Action.

8. Urban Design and Visual Resources

Comment 8.1: Through the Project, mechanical, electrical, and plumbing (MEP) equipment would be allowed to be relocated from basements and cellars to the bulkhead, required rear yards, open space, or to another location within the building. I ask that the DEIS review the visual impacts of such MEP equipment when it is located outdoors. When MEP equipment is placed within an entirely new structure built to house such equipment, I urge that the minimum distance between buildings in low-density residential zoning districts be reduced to allow for these new MEP structures, and also require them to be screened from view to maintain the contextual character of neighborhoods. (#4 Brewer)[4]

Response 8.1: Comment noted. The EIS will include an assessment of the Proposed Action's potential to adversely affect urban design and visual resources (Task #8) pursuant to 2014 *CEQR Technical Manual* guidance. This will include an analysis of MEP equipment/structures in the futures without and with the Proposed Action. The proposed rules allow MEP equipment to be placed in rear yards and open spaces as permitted obstructions for low-density residential

[4] See related comment 17.1 pertaining to MEP equipment noise.

buildings. This equipment would be required to be screened when placed outside of the building.

Comment 8.2: I ask that the DEIS also include the visual and socioeconomic impacts of allowing commercial use on the second floor within the 1% and 0.2% floodplains. Specifically, the DEIS should review the impact of blank street walls within retail corridors and disruptive signage where second floor retail conversions are allowed. (#4 Brewer)

Response 8.2: Comment noted. See response to 3.1.

11. Water and Sewer Infrastructure

Comment 11.1: In Long Island City, there are serious problems with infrastructure. When there is even not serious flooding, there is backing up in the storm drains. There is what is combined sewage overflows, which goes into the creek in the East River. These are the issues. In the report, is there much about that, about the repairs of the infrastructure? (#2 Brooks)

Response 11.1: Comment noted. See response to 1.1.

16. Greenhouse Gas Emissions and Climate Change

Comment 16.1: Consider climate change risk in all of its facets for CEQR/SEQRA – surface air temperature changes, atmospheric chemistry changes, extreme precipitation changes, drought risk changes – in each EAS/EIS for each block. Do not relegate climate risk to a single chapter/task item (climate risk is not limited to chapter 15 ghg). (#6 LeGrande)

Response 16.1: Comment noted. The suggestions in this comment are outside the scope of CEQR, which requires assessment of the Proposed Action for its effects on the environment, rather than evaluation of the implications of climate change generally as part of any Proposed Action.

17. Noise

Comment 17.1: Through the Project, mechanical, electrical, and plumbing (MEP) equipment would be allowed to be relocated from basements and cellars to the bulkhead, required rear yards, open space, or to another location within the building. I ask that the DEIS review the noise impacts of such MEP equipment when it is located outdoors. When MEP equipment is placed within an entirely new structure built to house such equipment, I urge that the minimum distance between buildings in low-density residential zoning districts be reduced to allow for these new MEP structures, and also require them to be screened to control for noise. (#4 Brewer)[5]

Response 17.1: Comment noted. The EIS will include 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, in accordance with the 2014 *CEQR Technical Manual.* This will include an analysis of MEP equipment/structures in the futures without and with the Proposed Action. Please see Response 8.2, above.

[5] See related comment 17.1 pertaining to MEP equipment noise.

22. Alternatives

Comment 22.1: Explicitly consider managed retreat scenario: not maintaining or increasing density, but decreasing density. (#6 LeGrande)

Response 22.1: Comment noted. Per the 2014 *CEQR Technical Manual*, Chapter 23: Alternatives, an EIS should consider alternatives that "would reduce or eliminate a project's impacts and that are feasible, considering the objectives and capabilities of the project sponsor." A managed retreat alternative was not studied as it would not meet the goals and objectives of the Proposed Action, the purpose of which is to permit zoning changes to allow resiliency measures in existing retrofitted or new buildings currently permitted as of right in the study area.

25. General Comments

Comment 25.1: Zoning for Coastal Flood Resiliency provides homeowners, business owners, and practitioners working in the City's floodplains the option to design or otherwise retrofit buildings to reduce damage from future flood events. The text provides for zoning allowances that, together with enhanced design requirements, would allow building owners to better accommodate sea level rise projections, while ensuring an accessible design that also promotes a more inviting streetscape. The intent is that these changes would strengthen long-term flood resiliency of structures in coastal flood plains while making such buildings safer for their residents and communities. Such building modifications would reduce long-term flood insurance costs for homeowners and improve the ability of flood-prone neighborhoods to weather future storms. (#3 Adams)

Response 25.1: Comment noted.

Comment 25.2: One matter that continues to concern me is the added cost of making construction improvements to achieve flood resiliency. Many households in the city's floodplain are already challenged by the monthly carrying cost to maintain their homes and are not in a position to take on new monthly housing payments to finance the reconstruction of their buildings. Adding to homeowners' monthly costs creates significant financial pressure on households and increases the possibility of foreclosure. I have consistently urged representatives of DCP to advocate to the City Administration the need for a relief valve for cost-burdened households such as a consideration of real estate tax offsets. I look forward to such financial consideration being announced along with the distribution of the zoning actions. (#3 Adams)

Response 25.2: Comment noted. Financial considerations of the nature discussed in this comment are outside the scope of CEQR.

Comment 25.3: The scale and urgency of the problem must be understood. Most will agree the largest threat from climate change to NYC is sea-level rise. Release of carbon emissions is causing global ice melt. Despite the aspirations of the Paris Climate accord, 2018 CO2 emissions were the highest ever recorded. Banks have funded an additional $30B globally since 2014 to construct new coal-fired power plants. Global ice will melt more rapidly than currently predicted. If it all goes, seas will rise approximately 64 meters. From Greenland alone, which in May had the highest level of ice melt ever recorded, the rise would be 20 feet. The New York Panel on Climate Change (NPCC), which does not include Greenland ice melt in its estimates, predicts a sea-level rise of 30 inches by 2050 – JFK Airport would flood on a regular basis. (#5 Paino)

Response 25.3: Comment noted. The City uses the NPCC's sea level rise projections for the 2050s as its actionable data to inform and use and capital planning considerations, including this proposed zoning text amendment. The City continues to monitor the NPCC's projections as they evolve over time because the science and underlying data are not static and will continue to advance.

Comment 25.4: Considering the severity and urgency of the problem, large scale comprehensive planning including large scale water absorption methods, artificial wetlands, water detention, hydrological strategies, water gates/berms in select areas, and retreat driven by sophisticated predictive technologies is imperative. Every neighborhood presents differing environmental circumstances – Long Island City (LIC), the one I am most familiar with, ranges from relatively high land at Hunter's Point South to some of the lowest land elevation in the city at Anable Basin. Once the large-scale measures addressing these differences are in place, then lot-by-lot guidelines that complement and coordinate to the large measures can be implemented. This document presents the reverse order which will not only fail, but falsely suggests that a property will be safeguarded from flooding. (#5 Paino)

Response 25.4: As discussed in the DSOW, the Proposed Action would occur in conjunction with coastal protection strategies and infrastructure improvements that are being pursued by the City and other state and federal agencies. See Response to Comment 1.1 above.

Comment 25.5: Translate documents for EAS, SOW, EIS into 6 most common languages (Spanish, Mandarin, etc.) (#6 LeGrande)

Response 25.5: Comment noted. The Department of City Planning's website https://www1.nyc.gov/site/planning/plans/climate-resiliency/climate-resiliency.page includes two page info briefs that provide overviews on flood resilient zoning, flood risk, flood insurance, and resilient construction in eight languages. These documents are helpful for broadening the public's understanding of the city's coastal flood related challenges and the strategies the City is pursuing to address them.

Comment 25.6: Provide independent panels to consider climate risk of zoning decisions separately from economic development potential; public findings/opinions in peer-reviewed journals; provide a quantitative determination of financial risk held by both the public and private sectors for each block give a CA-RWCDS-NPCC90 scenario. (#6 LeGrande)

Response 25.6: This is outside the scope of CEQR, which is to address the potential environmental impacts of the Proposed Action.

Comment 25.7: Provide criteria to evaluate the EIS/EAS for climate risk accuracy and report this as uncertainty bounds in point 1. Provide a failure criterion (accuracy falls below a threshold of e.g., 66%) to trigger a complete re-evaluation by an independent, outside, funded third party. (#6 LeGrande)

Response 25.7: This is outside the scope of CEQR.

Comment 25.8: Assess the validity of probability distributions above annually (provide funding). (#6 LeGrande)

Response 25.8: Comment noted. Financial considerations of the nature discussed in this comment are outside the scope of CEQR.

Comment 25.9: Compare the income taxes generated by the maximum allowable property development to the tax payer exposure to damages generate by a 1% and 0.2% flood given NPCC3-90 scenario over the building lifetime; determine amount of time required for cross over. (#6 LeGrande)

Response 25.9: This is outside the scope of CEQR.

Comment 25.10: Sandy was not a hurricane when it hit land in NYC, it was a tropical storm. (#5 Paino)

***

Hurricane Sandy was downgraded to tropical storm when it reached NYC. This type of misinformation should not be acceptable in a report of this importance. (#5 Paino)

Response 25:10: Per *Tropical Cyclone Report Hurricane Sandy (AL182012) 22 – 29 October 2012* issued by the National Hurricane Center, "although Sandy made landfall as an extratropical low, its strong winds, heavy rains and storm surge had been felt onshore for many hours while Sandy was still a hurricane." Furthermore, as *A Stronger, More Resilient New York*, issued by the City in 2013 explains, "the storm never lost its large wind field or its large radius of maximum wind (which is why weather experts still considered it a "hurricane strike" when it hit the New York region)." Accordingly, it is often referred to as Hurricane Sandy. Note that the nomenclature used has no substantive implications for the Proposed Action or the analysis of its effects on the environment.

APPENDIX C

Written Comments on the Draft Scope of Work

OFFICE OF THE BROOKLYN BOROUGH PRESIDENT

ERIC L. ADAMS
President

June 25, 2019

Olga Abinader
Acting Director
Environmental Assessment and Review Division
New York City Department of City Planning
120 Broadway, 31st Floor
New York, NY 10271-3100

Re: Zoning for Coastal Flood Resiliency Draft Scope of Work Comments

Dear Acting Director Abinader:

I am writing to submit comments in response to the proposed scope of work for the Draft Environmental Impact Statement (DEIS) for the proposed Zoning for Coastal Flood Resiliency text.

Zoning for Coastal Flood Resiliency provides homeowners, business owners, and practitioners working in the City's floodplains the option to design or otherwise retrofit buildings to reduce damage from future flood events. The text provides for zoning allowances that, together with enhanced design requirements, would allow building owners to better accommodate sea level rise projections, while ensuring an accessible design that also promotes a more inviting streetscape. The intent is that these changes would strengthen long-term flood resiliency of structures in coastal flood plains while making such buildings safer for their residents and communities. Such building modifications would reduce long-term flood insurance costs for homeowners and improve the ability of flood-prone neighborhoods to weather future storms.

I look forward to formally reviewing the zoning text and related zoning map amendments when the applications are deemed complete. However, one matter that continues to concern me is the added cost of making construction improvements to achieve flood resiliency. Many households in the city's floodplain are already challenged by the monthly carrying cost to maintain their homes and are not in a position to take on new monthly housing payments to finance the reconstruction of their buildings. Adding to homeowners' monthly costs creates significant financial pressure on households and increases the possibility of foreclosure. I have consistently urged representatives of the New York City Department of City Planning (DCP) to advocate to the City Administration the need for a relief valve for cost-burdened households such as a consideration of real estate tax offsets.

I look forward to such financial consideration being announced along with the distribution of the zoning actions.

I have no formal comments on the Draft Scope of Work.

Should you have any questions, please feel free to contact Richard Bearak, my director of land use, at (718) 802-4057 or rbearak@brooklynbp.nyc.gov.

Thank you for your consideration.

Sincerely,

Eric L. Adams
Brooklyn Borough President

Enc.

cc: Chairs, Brooklyn Community Boards
Winston Von Engel, Brooklyn office director, New York City Department of City Planning

ELA/rb

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Gale A. Brewer, Borough President

Olga Abinader, Acting Director
Environmental Assessment and Review Division
Department of City Planning
120 Broadway, 31st Floor
New York, New York 10271

June 19, 2019

Re: Comment on the Draft Scope of Work to Prepare a Draft Environmental Impact Statement for Zoning for Coastal Flood Resiliency, CEQR No. 19DCP192Y
ULURP No. Pending

To Director Abinader,

I am pleased to submit this comment for the Draft Scope of Work for the Project, Zoning for Coastal Flood Resiliency (CEQR No. 19DCP192, ULURP No. Pending). 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 40 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 the recovery from 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 be released in the next few years. The 2015 Recovery Text is likewise set to expire in 2020. This application titled "Zoning for Coastal Flood Resiliency" (the "Project") is to improve upon and make permanent, existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text. Features of the Project include an expanded geography of both the City's 1% and 0.2% annual chance floodplain, enhanced building design envelope requirements, alternatives for the relocation of mechanical, electrical, and plumbing equipment, and a zoning framework that is intended to facilitates recovery from future disasters.

In consideration of the impending expiration dates of the 2013 Flood Text and the 2015 Recovery Text, it is crucial that previously implemented zoning rules become permanent in order to mitigate the City's recovery from and resiliency towards future storm impacts. I support this Project's initiatives that encourage residents and building owners to pre-emptively incorporate resiliency standards beyond FEMA and the City's Building code requirements. The Project would apply to properties in the City's 1% and 0.2% annual chance floodplains, the latter of which are projected to be the 1% annual flood plain in 2050. I stress that the mechanisms posted by the Project should aim to not financially burden building owners for improving structures for their resiliency, while maintaining neighborhood architectural character and vitality.

I highlight some of the text in Section I "Lessons Learned since the 2013 Flood Text and the 2015 Recovery Text" that remains to be addressed. I urge the DEIS to incorporate further study of low-quality spaces developed as a result of the 2013 Flood Text that allows floor area exemptions within the 1% annual chance floodplain. The 2013 Flood Text allowed 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 Design Flood Elevation (DFE). This has benefitted buildings with moderate and high DFE levels to achieve the fully permitted floor area. But this provision has also resulted in low-quality spaces as a result of lower ground-floor ceiling heights to get the floor area discount. The DEIS should include a screening assessment of the quality of buildings and community facilities that have been built or retrofitted according to the 2013 Flood Text, and the types of existing usage below the DFE.

I also urge that the DEIS include an impact study of illegal basement or cellar apartments in the 1% and 0.2% area. This will help ensure that the Project does not displace tenants or cause the loss of this housing stock. In addition, I urge the City to study the number of apartments in inland areas that could potentially be brought into safe and legal use while maintaining the resiliency requirements listed in the Project. This study would include the amount of displacement that would occur, alternatives in building envelope design, the uses of underground cellar or basement spaces, and the potential for the conversion of cellar or basement spaces in inland areas into residential use that are wet-floodproofed, in order to help mitigate the City's housing shortage.

Through the Project, mechanical, electrical, and plumbing (MEP) equipment would be allowed to be relocated from basements and cellars to the bulkhead, required rear yards, open space, or to another location within the building. I ask that the DEIS review the noise and visual impacts of such MEP equipment when it is located outdoors. When MEP equipment is placed within an entirely new structure built to house such equipment, I urge that the minimum distance between buildings in low-density residential zoning districts be reduced to allow for these new MEP structures, and also require them to be screened from view to maintain the contextual character of neighborhoods and control for noise.

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Gale A. Brewer, Borough President

I ask that the DEIS also include the visual and socioeconomic impacts of allowing commercial use on the second floor within the 1% and 0.2% floodplains. Specifically, the DEIS should review the impact of blank street walls within retail corridors and disruptive signage where second floor retail conversions are allowed.

In conclusion, I support this Project application to make permanent the zoning rules that protected the City against damaging storm impacts and allowed for a more streamlined process during reconstruction and resiliency measures. Nonetheless, the DEIS and Final Scope of Work should include studies that are derived from lessons learnt from the 2013 Flood Text and 2015 Recovery Text for a more robust understanding of the Project's potential impacts.

I look forward to reviewing the final application.

Gale A. Brewer

Gale Brewer

Manhattan Borough President

Hunters Point Community Coalition

June 26, 2019

Olga Abinader, Director
Environmental Assessment and Review Division
Department of City Planning, City of New York
120 Broadway, 31st Floor
New York, NY 10271

Re: CEQR: 19DCP192Y – EAS Zoning for Coastal Flood Resiliency

Zoning for Coastal Flood Resiliency (May 2019) comments

The subheading of this document "Planning for Resilient Neighborhoods" is a misnomer. Piecemeal, lot-by-lot guidelines applied to the broad swath of environmental conditions found along New York City's 520 miles of coastline without comprehensive solutions tailored to those conditions are doomed to fail putting the New Yorkers who followed the arduous guideline procedure in danger through the false security of having achieved resilience.

First and foremost the scale and urgency of the problem must be understood. Most will agree the largest threat from climate change to NYC is sea-level rise. Release of carbon emissions is causing global ice melt. Despite the aspirations of the Paris Climate accord, 2018 CO2 emissions were the highest ever recorded. Banks have funded an additional $30B globally since 2014 to construct new coal-fired power plants. Global ice will melt more rapidly than currently predicted. If it all goes, seas will rise approximately 64 meters. From Greenland alone, which in May had the highest level of ice melt ever recorded, the rise would be 20 feet. The New York Panel on Climate Change (NPCC), which does not include Greenland ice melt in its estimates, predicts a sea-level rise of 30 inches by 2050 – JFK Airport would flood on a regular basis.

Secondly, considering the severity and urgency of the problem, large scale comprehensive planning including large scale water absorption methods, artificial wetlands, water detention, hydrological strategies, water gates/berms in select areas, and retreat driven by sophisticated predictive technologies is imperative. Every neighborhood presents differing environmental circumstances – Long Island City (LIC), the one I am most familiar with, ranges from relatively high land at Hunter's Point South to some of the lowest land elevation in the city at Anable Basin. Once the large scale measures addressing these differences are in place, then lot-by-lot guidelines that complement and coordinate to the large measures can be implemented. This document presents the reverse order which will not only fail, but falsely suggests that a property will be safeguarded from flooding.

Finally, only arrogance would allow the words "long term" found throughout the document to be used under such drastic circumstances. No one, at this point, knows the severity and time line of sea-level rise. However, based on the recommendations from the NPCC, the highest risk scenario or better should be heeded. If that is the case, the guidelines in this document would be good, at most, for 30

years – the length of the average mortgage. The envisioning of the Manhattan grid has lasted well over 200 years, Central Park over 165. Those were long term visions - Zoning for Coastal Flood Resiliency is not.

Most of this document wallows, Soduku style, in the machinations of floor area and height limitations appealing to the financial interests of real estate developers and emotional needs of homeowners while the major coastal planning issues to address unprecedented sea-level rise remain unaddressed. This is analogous to tweaking the playlist for the dance band on the Titanic instead of attending to the lifeboats.

The following comments are preceded by a page number and paragraph which corresponds to the specific text in the document triggering the comment:

Title page, zoning guidelines cannot equate to resilient neighborhoods. Neighborhood scale requires comprehensive planning sensitive to future coastal conditions using sophisticated predictive technologies to envision solutions such as natural water absorbing barriers (wetlands), temporary water detention, hydrological/topographical strategies , floating structures and retreat – to name a few.

Executive Summary

p. 3, ¶ 1, The proposed guidelines may promote resilient buildings, but not neighborhoods for the reasons given in the previous comment. Also, Sandy was not a hurricane when it hit land in NYC, it was a tropical storm. And finally, transposing zoning text to coastal resiliency is too big a leap without comprehensive planning. Zoning is, at best, complementary to coastal resiliency, not the essence of it.

p. 3, ¶ 2, "Long term resilience", if at all possible considering the circumstances, will depend on the city's comprehensive measures to accommodate sea-level rise and increased storm activity, not zoning options. Also, insurance companies do not work "long term". Premiums are renewed annually and so far, the insurance companies have taken advantage of ambiguous mapping to charge the maximums. Also, when applying for a mortgage for a property in the floodplain, banks require signing a form giving them the sole option on deciding what floodplain the property is in, negating the FEMA designation. Finally, implying that neighborhoods can "withstand future storms" through zoning alone offers a false and possibly dangerous security.

p.3, ¶ Features 2, Buildings alone will not be able to "accommodate" sea-level rise without comprehensive measures – see previous related comments.

p. 3, ¶ Features 3, The mechanical equipment being referred to does not take into account carbon neutrality by 2045, nor the recently passed green building legislation.

p. 3, ¶ Features 4, Recovery by reconstructing buildings rapidly does not take into account the reality, moving forward, of the infeasibility of reconstruction. How many times will the same building be reconstructed?

p. 3, last statement on the page, "zoning will work in conjunction with coastal protection strategies" – these need to be identified and established BEFORE zoning guidelines to coordinate to the new conditions. Raising street levels and sewer mains must come first to identify the new datum from which the zoning guidelines spring. The whole process is reversed.

Introduction

p. 5, ¶ 2, The discussion concerning damage from coastal storms does not include sea-level rise. It is imperative that sea-level rise be front and center throughout this document. In LIC, Gantry State Park already experiences what Miamians refer to as "sunny day flooding" – high tide without storm activity. Walk ways, including the lamp posts, appear to be out in the East River in clear calm weather. Sea-level rise is real and happening now.

p. 5, ¶ 3, Further explanation is needed on the agreement between the federal government and local communities to receive federal assistance based on the implementation of management regulations. Does this zoning proposal count as "management regulations"? Without comprehensive measures being a component of management regulations, the federal assistance will continue to pay for the reconstruction of buildings, some and possibly many of which should not be reconstructed considering future harmful conditions.

p. 5, ¶ 4, Some of the data in this paragraph does not match that in the accompanying map. This should be checked for accuracy.

p. 5, ¶ 5, Using data based on Superstorm Sandy should not be the sole indicator of future flooding. This needs to be combined with more sophisticated predictive technologies. As an example, my lots located in the 1% annual chance floodplain, did not flood during this storm, yet nearby lots in the 0.2% annual floodplain did.

p. 5, ¶ 6, Reliance on DCP and DOB alone without coordination with other agencies is silo-based leading to bifurcated solutions which circumvent comprehensive, all- encompassing measures required to address the unprecedented circumstances before us.

p.6, ¶ 4, Parts of the 0.2% annual chance floodplain flooded two years in a row. Merely providing the same zoning guidelines as 1% annual chance floodplain properties without comprehensive measures will have the same disastrous results. Of course, it is better than doing nothing, but not much.

p. 8, ¶ 2, Reference to "coastal defense strategies" needs to be taken to a much higher level of description and definition. How does one know if the building guidelines even coordinate to these strategies, and not working in conflict with them. This paragraph needs to be greatly expanded. Also, the emphasis with reoccupation during an era of increased sea-level rise does not take into account habitual flooding. A building that sits high and dry, but frequently surrounded by water and severed from utilities may save the building, but not the occupants.

p. 8, ¶ 3, Two details are missing from the bravado around the 1,323 homes benefiting from the Build it Back program. What was the cost per home and what is the expected shelf-life considering increased sea-level rise.

p. 9, ¶ 1, Retreat from the entire shoreline can only be prevented through all-encompassing and coordinated, comprehensive measures. Solely relying on zoning guidelines offers a false security and is potentially dangerous.

p. 9, ¶ 2, This paragraph seems to be on the right track acknowledging that zoning regulations need to be amended based on managed risk through coastal protection and infrastructure improvements. Again, what is inconceivably missing is, what are they? The protective measures have to be identified in order for the subsequent zoning to coordinate to them. The process is consistently backward throughout the document. LIC offers an example of what happens with this backwards reasoning. Proposals have been put forward (including a headquarters for one of the world's largest corporations – see "Headquarters in a Floodplain?" report accompanying these comments) in and around the low coastal area known as Annable Basin. Without comprehensive measures to address sea-level rise, owners and developers are left to their own devices using, in some cases, strategies provided by Waterfront Edge Design Guidelines (WEDG) which are wholly inadequate in addressing sea-level rise. Measures proposed, including berms, bi-level esplanades and lawns to justify R-12 densities are ludicrous and, if built, could not only create a state of emergency at the owner sites, but for the entire neighborhood.

p. 9, ¶ 3, The exchange of lot-wide only resiliency compliance for extreme density without comprehensive resiliency measures in currently known floodplains will have catastrophic results. If the city persists on this ill-advised course, a new level of evacuation zones will have to be created in order to accommodate the mass exodus of concentrated populations trapped by the waterfront with only one way out. Who will carry the liability for following this policy? What insurance company will take on the risk? The policy appears to be pandering to real estate interests and the public's desire for waterfront views. Alternatives to satisfy these desires have to be quickly put into place.

Current Challenges

p. 11, ¶ 1, The tendency to create typologies in order to establish across the board consistency does not work in NYC. Extracting a community to conform to one of the four types in an effort to alleviate zoning issue obstructions is futile. LIC consists of an intimate blend of three of the types listed and could not possibly benefit by following the guidelines for just one of them.

p. 11, ¶ 5, It is curious that the insurance industry's response to NYC's BFE is at least a 4 foot freeboard before premiums will be reduced . If that is the insurance industry's capacity for risk, should not the city's be the same? In other words, if safety is only achieved at 4 feet above BFE, then everything should be at that elevation – the public right-of-way, infrastructure, public open space, community facilities, etc. Again, the lack of comprehensive resiliency means the buildings will be safe, but not the occupants.

p. 11, ¶ 6, As the frequency of flooding increases shoppers will be denied access – the location of the stair will have no effect.

p. 12, ¶ 2, Whether elevating or relocating a lower level to a higher elevation incurs substantial cost which may not be recouped if the frequency of flooding increases. Without changes in street level and associated infrastructure, the scenario of having to enter the house by boat becomes more likely as does abandonment. As the city shuns its duties to plan seriously for climate change, the individual home owner is given the false hope of resiliency.

p. 13, ¶ 2, The emphasis to transfer below grade equipment to space that will not count as floor area appeals to the building owner's profits, but ignores the more crucial issue of what happens to the building if it is more frequently surrounded by water due to the effects of climate change. The reality of occupants not having access to the building will have much more impact on the bottom line, than the opportunity to locate equipment in a dry space that does not count as floor area.

p. 14, ¶ 2, The chance of disinvestment leading to vacated businesses is accurate. However, the use of dry-floodproofing in the form of barriers means shoppers cannot get access. Maintaining the business will depend on how often access is denied. The shop owners along Hunters' Point' commercial strip have experienced being trapped inside their shops with as little as 1 inch of downpour – an event expected to increase in frequency with climate change. One of the facilities facing the dilemma of choosing protection over access is the New York Blood Supply – a critical supplier for the city's routine and emergency needs. Frequent dry-floodproofing will not work for them.

p. 15, ¶ 2, Eliminating the zoning obstruction to relocating equipment and office space for industrial users does not address impacts from climate change. If the industrial process level is still in the floodplain experiencing frequent flooding, it does not matter that the manager's office was relocated to the dry mezzanine without a floor area deficit.

p. 15, ¶ 3, 800 non-conforming residential buildings in industrial areas appears to be a low number. Please confirm this counts those in the 0.2% annual chance floodplain.

Zoning Recommendations

p. 17, ¶ Goal 2, The length of the term, at this point, cannot be determined. The rate of increase of sea-level rise due to Artic, Antarctic, and Greenland ice melt has yet to be established. The accumulation of CO2 and its effects on increased storm activity has yet to be established.

p. 17, ¶ Goal 4, None of the four goals can be achieved without comprehensive, full scope strategies based on topographical and hydrological conditions based on predictive technology modeling.

p. 18, whole page, Relying on 1% and 0.2% annual chance floodplain FEMA mapping is inadequate and misleading. Inundation flooding does not respect agency-drawn lines on a map. (Some of these lines are drawn at right angles.) Sophisticated predictive technology modeling take into account topography, hydrology, historical precedence, storm patterns, and extent of hard surfacing to produce the most accurate mapping. Furthermore, they can easily be updated as the effects of climate change become

more established. Also, planners can use the maps as a tool when determining the efficacy of comprehensive resiliency measures such as hard and soft surfaces along coastlines.

p. 19, ¶ 3, The parking/storage use with wet-floodproofing alternative will not work with the expected increase in frequency of inundation resulting in the lack of comprehensive measures. Dry-floodproofing will not work because it breaks down over time with frequent inundation. Every time it occurs, access to the cars or storage items is denied. In most medium and high density areas, the car alternative is not available because additional curb cuts are not permitted. Also, relaxing height restrictions and counting only that floor area above DFE can satisfy zoning compliance and support BSA applications, but it ignores the realities of structurally adding another story. Under the NYC Building Code a building with four or more structural levels must meet the seismic code including those filing under substantial renovation. Adding the required structural elements to existing, attached masonry structures is nearly impossible without demolishing the building, not to mention cost prohibitive. The diagram on p. 19 and the illustration on p.23 do not take this into account.

p. 20, ¶ 1, Adjusting height limitations based on flexible reference plain will help protect the building, but not the occupants if accompanying comprehensive measures are not in place. Storm surge, downpours and eventually tides will gush through the low points (the lots and public spaces not complying with the guidelines) engulf the buildings trapping the occupants inside. Inundation is temporary, but will increase in frequency in the decades to come. Emphasis is on the 2050's - a 30 year solution. What about beyond? Application of the guidelines, especially to masonry buildings, will come at too high a cost for a life expectancy of 30 years – the length of time for most mortgages.

p. 21, ¶ 1, Allowing increase in the degree of non-conformance/non-compliance makes it legally possible, but at what cost and for how long? (See previous comment).

Building Design

p. 22, ¶ 3, The concept of encouraging street level use, at its current level, through extra floor area in exchange for dry-floodproofing will result in both chaos and delusion. Chaotic because there is no guarantee that all property owners on a particular block will agree to the same alternative resulting in some buildings with visible retail at street level (dry-floodproofed) while others with parking and building access (wet-floodproofed) only resulting in an incomprehensible street scape. Delusional because, as previously discussed, dry-floodproofing degrades over time. Furthermore, your own report indicates this solution is good for only 30 years. After that the City will have to consider raising the street elevation or retreat. Again, the purpose to rewrite the zoning regulations seems to be to appease building owner's profit desires rather than the realities of sea-level rise.

p. 23, ¶ 1, The solution to the blank wall problem is to raise the front garden. Doesn't this simply move the blank wall from the house to the garden which would be immediately adjacent to the sidewalk? When will city planning start working on raising the elevation of sidewalks and streets?

p. 23, illustration 1, The residential blank wall solution illustrated shows a turn in the exterior stairway which for some, apparently, creates a more pleasing street façade. Closer analysis of the rendering

implies serious revisions to the existing building at greatly increased cost. The internal vertical circulation would have to flip from its current location requiring the floor plan to be reversed at every level. Furthermore, because of the neighbor dependent revision in the stair access, every property owner on the block would have to agree to the changes at the same time.

p. 23, illustration 2, It is unfortunate that City Planning's desire to ameliorate external stairs is not consistent across the city. The project (still under construction) at 11th Street and 46th Avenue in LIC has a phalanx of three-story external front yard staircases extending right to the sidewalk – at 14 foot intervals to provide access to the upper unit of each illegally undersized-width "row house". Mixed in with the gas meters and garbage bins this phalanx creates a most unpleasant and possibly dangerous streetscape.

p. 23, illustration 4, The mixed use illustration does not account for the new or relocated elevator/stair to the front of the retail space (an undesirable location for merchandising).

Special Conditions

p. 24, ¶ 3, Allowing professional office space on ground floor of buildings in residential districts will help to maintain streetscape, but like almost every other suggested measure in this report, the solution is temporary. Your own report indicates that the conditions being designed for will at best last 30 years.

p. 24, ¶ 5, Incremental resiliency in an era of increasing risk due to climate change will not work because it will be impossible to catch-up to the new conditions. The owner will have moved mechanical equipment above the DFE, but then will have to deal with more frequent inundation and inaccessibility to the building.

p. 25, ¶ 2, The entire discussion on mechanical equipment including emergency generators does not take into account the new green building legislation calling for a reduction in carbon emissions. This discussion needs to be revised to include and encourage the measures suggested and eventually required by this new legislation. Again, whether low carbon emission or not, these solutions for buildings in the current floodplain are at best interim.

p. 25, ¶ 3, Flood barriers, retaining walls, raised yards, flood berms, floodgates all degrade over time especially with increased frequency of inundation. The newly constructed levies in New Orleans in response to Hurricane Katrina are already sinking and need repair. Water always wins out over land.

p. 26, ¶ 1, Hurricane Sandy was downgraded to tropical storm when it reached NYC. This type of misinformation should not be acceptable in a report of this importance.

p. 26, ¶ 2, The feasibility of rebuilding in place in flood zones across the country is rapidly coming into focus. Insurance companies and FEMA increasingly deny funding rebuilds especially in communities, such as NYC, that have no comprehensive resiliency plan in place. To accelerate the rebuild scenario when a state of emergency is declared is nonsensical. How many times will the same structure be re-built? Where will the money come from? Fortifying a structure that depends on right-of-ways and infrastructure that will not get fortified is not a comprehensive plan.

p. 26, illustration 2, With regard to the illustration, how is fire prevention assured when tax lots pretend to be zoning lots?

p. 27, ¶ 1, Increasing the permit renewal through the BSA from 5 years to 10 years does not appear to be associated with employing resiliency strategies, without which, results in nothing but a giant loophole. As you point out, these are perhaps the most vulnerable facilities in the city. The Crab House in LIC flooded into the second floor during Superstorm Sandy. They need realistic solutions, not loopholes.

p. 27, ¶ 2, Added to vulnerable populations should be luxury residential towers that the city continues to encourage and propose along floodplain waterfronts without adequate non-building resiliency measures being put into place. These future vulnerable populations will be trapped inside their buildings (possibly without heating/cooling, water and elevator) if they did not evacuate as required or trapped outside if they did evacuate and are not allowed back in. The residents of the then newly constructed Gantry Condominium in LIC were not allowed back into their homes for months after Superstorm Sandy.

p. 28, cottage envelope, Required yard reduction should trigger increase in fire prevention construction to avoid fire spread.

p. 29, cottage envelope, Allowing an increase in the non-compliance and/or non-conformance of existing buildings if they meet resiliency standards – does this mean the intent of the original zoning resolution was wrong? Again, the effort and expense it will take to re-create a structure in a floodplain with a life span of perhaps 30 years does not make economic sense. Other options should be on the table.

p. 33, mechanical equipment, The proposed rules for emergency generators place them in sensitive areas. Will noise abatement code requirements apply? Who will enforce this?

p. 35, Because of its unique conditions, resiliency issues in LIC cannot be addressed by most of what is in this report. It is striking that LIC is not one of the communities singled out for neighborhood specific zoning. Perhaps the conditions are too overwhelming – includes some of the lowest elevation along the Brooklyn/Queens coast, the fastest growing residential community in the nation, zero comprehensive planning for coastal resiliency except for Hunters Point South park which had the advantage of higher ground and 200 foot coastal setback and most infrastructure improvement is done under emergency contract due to lack of planning it can never catch up to the scale and pace of new development. According to DEP, emergency contract work is three times the cost of conventional.

p. 39, ¶ 3, It is significant that an acknowledgement for collaboration with other agencies to form multiple lines of defense to achieve coastal protection does not appear until the end of the report. This needs to be ramped up at least exponentially and put at the beginning of the next report.

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From: Allegra N. LeGrande
To: 19DCP192Y_DL
Subject: 19DCP192Y - Comment on the DSOW for NYC Climate Resilient Zoning
Date: Thursday, June 27, 2019 12:40:44 PM

NYC Zoning for climate resiliency comments

From Allegra N. LeGrande, PhD ; resident of Inwood, Upper Manhattan ; parent of school aged children ; professional climate scientist

• Explicitly Consider managed retreat scenario : not maintaining or increasing density, but decreasing density
• Consider climate change risk in all of its facets for CEQR/SEQRA— surface air temperature changes, atmospheric chemistry changes, extreme precipitation changes, drought risk changes — in each EAS/EIS for each block. Do not relegate climate risk to a single chapter/task item (climate risk is not limited to chapter 15 ghg).
• Translate documents for EAS, SOW, EIS into 6 most common languages (Spanish, Mandarin, etc.)
• For commercial and R4+ zones, alter RWCDS year to use (e.g.,) 2080s and 2100s flood risk to reflect the longer lifetimes of these buildings. Justify chosen scenario year with defensible building lifetime. Round up in time to the estimated lifetime of a building for sea level rise base year. Provide this measure with a new acronym (climate-aware RWCDS given NPCC3 90% high probability flood: CA-RWCDS-NPCC3_90)
• Provide common units for expressing risk including "today's" dollar exposure to risk given a maximum development scenario plus a 1% and 0.2% flood event, link to common reporting tool below.

• Provide the carbon footprint per person per building block today and in the maximum development scenario, put into context of overall NYC, NYC 2030 (and future) goals, US overall, developed nations overall, and link to reporting tool below.

• Provide funding and public access to a climate risk assessment for each property. Redesign NPCC2 ArcGis page to include the extreme scenario of West Antarctic Ice Sheet Collapse as per NPCC3. (9.5') Plan and report 1% and 0.2% flood risk for the 'high' scenario otherwise (6.25' by 2100). Cite the relevant scenario. E.g., instead of saying "approximately 28 inches of sea level rise by the 2050s", be specific and accurate. E.G. 2050s sea level rise of 30 inches (NPCC2_90).
• Use the most pessimistic forecast for storm surge and flood risk. This includes considering flood risk (e.g., KatRisk) maps from the private insurance sector that may be more extensive than FEMA maps.
• Set expiration dates on generated sea level rise related 1% and 0.2% flood risk maps and fund regular updates (~5 years or after each flood event meeting 1% or 0.2% flood risk level). In this document, and all future documents, create an acronym to identify "which" flood zone text refers to— e.g., never report "1%",

instead say “1% FEMA15” to resolve ambiguity.
• Develop a framework for considering extreme precipitation and fund regular updates (~2 years or after each flood event meeting 1% or 0.2% flood risk level)

• Consider socio-economic risk for maximum development by demographic measures (race, gender, income, education, etc.) and consider whether climate risk is disproportionately held by a particular demographic

• Provide independent panels to consider climate risk of zoning decisions separately from economic development potential ; publish findings/opinions in peer-reviewed journals; provide a quantitative determination of financial risk held by both the public and private sectors for each block given a CA-RWCDS-NPCC90 scenario

• Provide a criteria to evaluate the EIS/EAS for climate risk accuracy and report this as uncertainty bounds in point 1. Provide a failure criterion (accuracy falls below a threshold of e.g., 66%) to trigger a complete re-evaluation by an independent, outside, funded third party

• Consider allowing expensive insurance premiums in flood zones to discourage building there ; do not work to incentivize building in high risk areas by artificially deflating insurance cost ; provide framework for paid scrutiny of EDC / DCP with socio-economic fairness, environmentally sound, and climate change mitigation as principal goals of independent group

• Assess the validity of probability distributions above annually (provide funding)
• Consider changing low density, high flood risk places into parkland, wetlands, dunes, and other resilient space ; provide ample funding for this change to encourage movement to safer elevations
• Consider alterations that raise the density of a block separately from improvements of existing structures.
• Set more strict standards for new construction of higher density
• Add provisions to estimate the full cost of a flood event should the zoned areas be developed for equal or greater density ; determine and publish ALL entities that bear this cost and at what fraction
• Compare the income of taxes generated by the maximum allowable property development to the tax payer exposure to damages generated by a 1% and 0.2% flood given NPCC3-90 scenario over the building lifetime; determine amount of time required for cross over
• Consider building elevated sidewalks to avoid blank walls.
• Design a framework that does not pit ADA accessibility against climate resiliency
• Stop using the terms “100-year” and “500-year” flood plain since these terms may be confused with the return period of a certain level of flooding.