Zoning for Coastal Flood Resiliency
Chapter 9: Natural Resources

A. INTRODUCTION

As detailed in **Chapter 1, "Project Description,"** 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" (the "2013 Flood Text") and "Special Regulations for Neighborhood Recovery" (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), which is anticipated to occur within 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 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 mostly affect New York City's current 1% annual and 0.2% annual chance floodplains. However, select provisions of the Proposed Action would be applicable citywide. To help the City prepare for or respond to other disasters, select provisions in the Proposed Action regarding power systems and other mechanical equipment, ramps and lifts, vulnerable populations, and disaster recovery rules, would be applicable citywide.

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 otherwise 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 construction 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, 14 representative Prototypical Analysis Sites containing either new developments, infill, reconstructions, or retrofits of existing buildings in the city's 1% and 0.2% annual chance floodplains were 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, as detailed further in **Chapter 1**.

Per 20202~~14~~ *City Environmental Quality Review* (CEQR) *Technical Manual* guidance, this chapter examines the potential impacts of the Proposed Action on natural resources and floodplains. The chapter includes the:

- Regulatory programs that protect floodplains and natural resources;
- The existing conditions of the floodplains and natural environment in the natural resources study area; and

- Potential impacts of the Proposed Action on the floodplains and natural resources.

B. PRINCIPAL CONCLUSIONS

The analysis below concludes that the Proposed Action would not result in any significant adverse impacts to natural resources. Future development as projected with the prototypical sites would not adversely affect floodplains, or increase flooding on the Prototypical Analysis Sites or the adjacent properties. All development is also required to comply with New York City Building Codes for construction within the 1% annual and 0.2% annual chance floodplains, and the Proposed Action would not affect that requirement.

The Proposed Action and associated RWCDS would not induce development or otherwise affect the many natural areas and parkland located in the floodplain. Development projected under the RWCDS with the Proposed Action is expected to occur exclusively on the Prototypical Analysis Sites, resulting in the disturbance of sites previously developed with commercial and residential uses including structures, paved roads/paths, domestic lawns with trees, or urban yard habitats. These conditions of the Prototypical Analysis Sites within the built environment of the floodplain provide limited habitat for vegetation and wildlife apart from the species common to the city's built environments. It is therefore concluded that the Proposed Action and the related potential changes in land cover would not result in any significant adverse impacts to the natural environment or populations of plant and wildlife species in New York City or the metropolitan region.

Therefore, it is concluded that no further analysis is warranted and there would be no potential for significant adverse natural resource impacts with the Proposed Action.

C. PRELIMINARY SCREENING

Existing Conditions

The natural resources study area is the area within and around the urban landscapes of the 14 Prototypical Analysis Sites. Natural resources, as defined by the *CEQR Technical Manual,* are limited in the 14 study areas, where the landcover consists primarily of built streets and yards with domestic lawns, trees, and urban vegetation in both built and vacant lot settings.

The Federal Emergency Management Agency (FEMA) has published 2015 Preliminary Flood Insurance Rate Maps (PFIRMs) that represent the Best Available Flood Hazard Data at this time and FEMA encourages communities to use these FIRMs and PFIRMs when making decisions about floodplain management.[1] The 14 Prototypical Analysis Sites are all assumed to be within these floodplains. New York City is affected by local flooding (e.g., flooding of inland portions of the city from short-term, high-intensity rain events with flooding in areas with poor drainage), fluvial flooding (e.g., rivers and streams overflowing their banks due to runoff in their watersheds), and coastal flooding (e.g., long and short wave surges that affect the city's shorelines along the Atlantic Ocean and tidally influenced rivers and straits such as the Hudson River, Harlem River, and East River). Because the floodplains affecting the 14 Prototypical Analysis Sites are associated with astronomic tide and meteorological forces (e.g., nor'easters and hurricanes), the prototypical sites are not expected to have the potential to adversely affect

[1] It should be noted that, in October 2016, FEMA announced that the City had won its appeal of FEMA's 2015 PFIRMs, and agreed to revise New York City's flood maps. This will result in new flood maps to provide New York City residents with more precise flood risk data for current conditions, in addition to providing a new map product for future conditions that accounts for climate change.

the floodplain or result in increased coastal flooding within the floodplain, or affect flooding at adjacent sites or in the 14 study areas.

The ecological communities of the Prototypical Analysis Sites consist primarily of domestic yards with lawns, walkways, and driveways that would be characterized by the *CEQR Technical Manual* and Edinger et al. (2014) as "Terrestrial Cultural" communities. These communities include paved road/paths,[2] urban structures,[3] urban vacant lots,[4] and mowed lawns with trees.[5] Vegetation in these settings is limited primarily to domestic landscaping and street trees.

Given the projected terrestrial cover conditions at the prototypical sites, natural habitat available to terrestrial wildlife in the study area is also limited. As such, only the most urban-adapted, generalist species that can tolerate highly impacted natural environments and the more intensive presence of human activity are expected to be present in the 14 study areas at and around the prototypical sites.

Additionally, given the habitat conditions, no federal- or state-listed endangered, threatened, and special concern species, or significant natural communities considered are expected in these study areas.

The Future With the Proposed Action (With-Action Condition)

Introduction

As described in detail in **Chapter 1, "Project Description,"** the Proposed Action is a zoning text amendment that will update the Special Regulations in Flood Hazard Areas (ZR Article VI, Chapter 4). In doing so, the Proposed Action would improve upon and make permanent the relevant provisions of the existing temporary zoning rules of the 2013 Flood Text and 2015 Recovery Text. 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 also provisions within various Special Purpose Districts. The Proposed Action would mostly affect New York City's current 1% annual and 0.2% annual floodplains, however, select provisions of the Proposed Action would apply citywide.

Implementation of the Proposed Action would improve the resilience of the city's many flood-prone structures and neighborhoods to withstand storm events and recover more rapidly after the storm events. The Proposed Action would not result in any significant adverse impacts or conflicts with zoning in the city's floodplains, but would provide enhanced zoning allowances and design requirements that would support property owners in better accommodating the effects of projected sea level rise and intensified storm events when designing new buildings or retrofitting existing structures, without creating incongruous and uninviting streetscapes or affecting natural environments.

[2] Edinger et al. (2014) define this community as "a road or pathway that is paved with asphalt, concrete, brick, stone, etc. There may be sparse vegetation rooted in cracks in the paved surface."

[3] Edinger et al. (2014) define this community as "the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area. These sites may be sparsely vegetated with lichens, mosses, and terrestrial algae; occasionally vascular plants may grow in cracks. Nooks and crannies may provide nesting habitats for birds and insects and roosting sites for bats."

[4] Edinger et al. (2014) define this community as "an open site in a developed urban area that has been cleared either for construction or following the demolition of a building. Vegetation may be sparse, with large areas of exposed soil, and often with rubble or other debris."

[5] Edinger et al. (2014) define this community as "residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and forbs, and is shaded by at least 30 percent of trees. Ornamental and/or native shrubs may be present, usually with less than 50 percent cover. The groundcover is maintained by mowing and broadleaf herbicide application."

The Proposed Action is not expected to induce development and the overall number, type, and location of developments within the 14 affected areas is not anticipated to change due to the Proposed Action.

Zoning Text Analysis

Below are descriptions of the specific zoning text amendments under the Proposed Action and the potential for natural resources impacts, which are detailed further in **Chapter 1, "Project Description."**

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. The Proposed Action would continue to provide additional building height where building owners are required or are opting to meet Appendix G floodproofing standards, and 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. 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. These zoning modifications to height allowances and building envelope regulations would not affect any natural resource habitats.

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, and are described in further detail in **Chapter 1** under five categories: wet-floodproofed spaces, dry-floodproofed spaces, cellars, street wall location, and ground floor use requirements. These elements of the Proposed Action would affect structural layout and internal design, but would not affect natural resource habitats.

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.

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. Additionally, the Proposed Action would continue to encourage single- and two-family residences on narrow lots to have parking be located below the building. The Proposed Action would also promote resiliency for the large number of existing buildings and land uses that do not adhere to the zoning rules that are currently applicable. Since these zoning modifications would only affect yard area in built neighborhoods, they are not expected to result in any impacts on natural resource habitats.

Accommodating Current and Future Flood Elevations in Special Conditions

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. Additionally, 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. These provisions of the Proposed Action would affect yard area and internal layouts that could result in incremental changes in land cover conditions and may require additional grading or clearing. However, where structural elements may require additional land area to site mechanical elements on the property this is expected to primarily affect non-native habitats and disturbed areas and would not impact sensitive natural resource habitats.

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. 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.

These modifications are expected to be implemented in land use settings that were previously built or disturbed and are therefore not expected to affect natural resource habitats. While no significant impacts are expected on wetland habitats as a result of these zoning modifications and any incremental affects due to raised grades, at sites that front wetlands, each site design would also need to be evaluated for the applicability of State and Federal wetland protection laws and to also minimize impacts on these natural features.

Prototypical Site Analyses

While the Proposed Action would not allow increases in maximum permitted floor area, modifications in allowable building placement, setbacks, yards, lot coverage, and heights would result in the construction of slightly different buildings than under No-Action conditions, with minor changes to total square footages, lot coverage, and building heights (see also **Chapter 1, "Project Description"**). These potential modifications were analyzed as 14 Prototypical Analysis Sites. The Proposed Action and associated RWCDS would not induce development or otherwise affect the many natural areas and parkland located in the floodplain.

As detailed in **Table 9-1** below, the Proposed Action would result in increased in-ground disturbance on eight of the 14 Prototypical Analysis Sites in the future with the Proposed Action (Sites 1, 2, 3, 6, 9, 11, 12, and 13), and decrease or maintain the same amount of lot coverage for the remaining six Prototypical Analysis Sites as compared to the No-Action scenarios.

The increased in-ground disturbance on Sites 1, 2, 3, 6, 9, 11, 12, and 13 in the future with the Proposed Action would be permitted as-of-right. However, the additional affected area is expected to be previously disturbed residential yard areas with low natural resources value. As the expected increases in lot coverage on these Prototypical Analysis Sites is limited and is expected to result in disturbance to lands that are not sensitive for natural resources, it is therefore concluded that the Proposed Action would not result in any significant adverse impacts on natural resource conditions, habitats, ground surface, or protected species.

Table 9-1: No-Action vs. With-Action Lot Coverage on the Prototypical Analysis Sites

Prototypical Analysis Site	No-Action Lot Coverage (1% Floodplain Scenario)	With-Action Lot Coverage (1% Floodplain Scenario)	No-Action Lot Coverage (0.2% Floodplain Scenario)	With-Action Lot Coverage (0.2% Floodplain Scenario)
1	**23 %**	**24 %**	**23 %**	**24 %**
2	29 %	29 %	**21 %**	**29 %**
3	**46 %**	**52 %**	**46 %**	**52 %**
4	55 %	55 %	55 %	55 %
5	65 %	65 %	65 %	65 %
6	**54 %**	**61 %**	**54 %**	**61 %**
7	46 %	46 %	46 %	46 %
8	62 %	62 %	62 %	62 %
9	**42 %**	**50 %**	**42 %**	**50 %**
10	100 %	100 %	100 %	100 %
11	**36 %**	**42 %**	**35 %**	**44 %**
12	**44 %**	**46 %**	**44 %**	**46 %**
13	**25 %**	**26 %**	**25 %**	**26 %**
14	N/A	N/A	N/A	N/A

Note: Site 14 illustrates the proposed modifications to waterfront regulations for open space. See **Appendix A** for more details.

D. CONCLUSIONS

Based on the above, it is concluded that the Proposed Action would not result in any significant adverse impacts on natural resources. Projected development in the future with the Proposed Action as represented by the 14 prototypes would not adversely affect floodplains, or increase flooding on the Prototypical Analysis Sites or the adjacent properties. All development would also need to comply with the New York City Building Code for construction within the 1% annual and 0.2% annual chance floodplains, and the Proposed Action would not affect that requirement.

The Proposed Action and associated RWCDS would not induce development or otherwise affect the many natural areas and parkland located in the floodplain. Development projected under the RWCDS is expected to occur exclusively on Prototypical Analysis Sites, resulting in the disturbance of sites previously developed with paved road/paths, mowed lawns with trees, developed lots, or urban yard habitats. These ecological communities of the Prototypical Analysis Sites within the built environment of the floodplain possess limited habitat value for vegetation and wildlife species apart from those that are common to the city's built settings and environments. The Proposed Action and potential changes in land cover would also not constitute a significant adverse impact to vegetation or wildlife species in the New York City metropolitan region.

Construction activities would not eliminate any high quality or valuable habitats for wildlife or affect wildlife diversity or populations in the city. Similarly, the Proposed Action would not result in any significant adverse impacts to wildlife at either the individual or citywide population level. Only urban-

adapted, generalist species are expected to be present in these developed settings. Terrestrial wildlife habitats are limited to domestic lawns and landscaping, urban settings, and paved road/path communities in an urbanized environment. The minimal reduction in this habitat under certain prototype scenarios would not significantly affect individual wildlife and any limited effects on these common species would not be a significant adverse natural resources impact.

Indirect impacts to wildlife due to construction would be minimal as urban-tolerant species are acclimated to the increased noise and human activities of urban settings such as those present in the prototypical study areas. As disturbance from construction activities would also be temporary, any wildlife individuals temporarily displaced during project construction would be expected to relocate and return post-construction.

In addition, there are no federal- or state-listed endangered, threatened, and special concern species, or significant natural communities that would be impacted as a result of the Proposed Action. Therefore, for the reasons described above, no further analysis is warranted and there would be no potential for significant adverse natural resource impacts with the Proposed Action.