

Zoning for Coastal Flood Resiliency

Chapter 10: Hazardous Materials

A. INTRODUCTION

The goal of the hazardous materials assessment is to determine whether a project would lead to a potential increased exposure of hazardous materials to people or the environment or whether the increase exposure would lead to significant public health impacts or environmental damage. As described in the *2020~~14~~ City Environmental Quality Review (CEQR) Technical Manual*, a hazardous material is any substance that poses a threat to human health or the environment. Substances that can be of concern include, but are not limited to, heavy metals, volatile and semi-volatile organic compounds, methane, polychlorinated biphenyls, and hazardous wastes (defined as substances that are chemically reactive, ignitable, corrosive, or toxic).

According to the *CEQR Technical Manual*, the potential for significant impacts from hazardous materials can occur when hazardous materials exist on a site; and an action would increase pathways to their exposure; or an action would introduce new activities or processes using hazardous materials and the risk of human or environmental exposure is increased.

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-Cast 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**.

B. PRINCIPAL CONCLUSIONS

The Proposed Action could potentially result in significant adverse hazardous materials impacts. In accordance with the methodology outlined in the *CEQR Technical Manual*, a hazardous materials assessment of the Prototypical Analysis Sites was conducted. The Proposed Action could result in increased in-ground disturbance in areas where hazardous materials may be present. The assessment analyzed the potential impacts of hazardous materials as they pertain to the Proposed Action and compared the differences between the No-Action and With-Action scenarios on the Prototypical Analysis Sites.

As detailed below, the extent of the effects of hazardous materials are unknown because of the generic nature of the Proposed Action and because it is not possible to determine exactly where and to what extent additional ground disturbance may occur in the future with the Proposed Action. Without an assessment of specific development sites, the absence of hazardous materials cannot be definitively demonstrated. As such, the possibility of impacts related to hazardous materials cannot be eliminated. The extent of potential impacts is expected to be limited. However, as development resulting from the Proposed Action on the Prototypical Analysis Sites would be as-of-right, there would be no mechanism for the City to conduct or require a program to test for hazardous materials contamination or to mandate the remediation of such materials. Therefore, any such impact would remain unmitigated.

C. PRELIMINARY SCREENING

According to the ~~2020~~²⁰¹⁴ *CEQR Technical Manual*, a hazardous material is any substance that poses a threat to human health or the environment. Substances that may be of concern include, but are not limited to, the following:

- Heavy metals, including lead, cadmium, mercury, arsenic, and chromium that are used in smelters, foundries, platers, and metal works and may be components in paint, ink, petroleum products, and coal ash. Heavy metals may be toxic to humans and cause serious physical impairment.
- Volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, total xylenes, methyl tertiary butyl ether, and hexane, as well as chlorinated compounds, such as trichloroethylene and tetrachloroethylene that are commonly used as solvents and cleaners. Volatile organic compound vapors may be toxic, and under certain conditions may result in vapor intrusion and could lead to explosive or ignitable conditions.
- Semivolatile organic compounds, including phenols and other components of creosote and coal tar, as well as polycyclic aromatic hydrocarbons, that may be naturally occurring but are more commonly found at higher levels in combustion byproducts such as ash. Several polycyclic aromatic hydrocarbons are either known to be or suspected to be carcinogenic.

- Methane, which is generated by decomposing plants and other organic materials. Methane is often found in or near filled wetland areas; methane trapped beneath foundations may lead to explosions.
- Polychlorinated biphenyls, which were formerly used in electrical equipment and as a plasticizer. Polychlorinated biphenyls bioaccumulate in aquatic organisms and humans and may cause a variety of neurological and other adverse effects.
- Pesticides, which are substances or mixtures of substances used to destroy or mitigate insects, rodents, fungi, weeds, or other plant life. Many pesticides are toxic to humans and animals.
- Dioxins, which are or were generally formed as by-products of combustion or manufacturing and industrial processing.
- Hazardous wastes are defined by regulations promulgated under the Federal Resource Conservation and Recovery Act and by NYSDEC, found at 6 NYCRR Part 371, as solid wastes that either meet one of the following four characteristics: chemically reactive, ignitable, corrosive, or toxic, or are listed wastes.

Other less commonly encountered hazardous materials include radionuclides (e.g., radiation sources) and biological wastes (e.g., medical waste). When these materials are managed in accordance with applicable regulatory requirements (e.g., in a hospital or laboratory setting), they are not expected to be associated with adverse effects.

Hazardous materials may be present in the soil, groundwater, soil vapor, or buildings and structures on-site as the residue of past or current activities. Manufacturing processes and commercial activities typically use, and thus require, storage and handling of hazardous materials, and leaking and misuse may release these materials to the environment. Additionally, hazardous materials may have been imported to a site as fill or grading material. Elevated levels of hazardous materials are often found in fill of unknown origin, also known as “historic fill,” where neither past nor current activity suggest these types of materials were used. This is especially true for properties that are adjacent to waterways where, historically, large amounts of fill material have been used as part of urban development.

Hazardous materials can migrate to a site from contamination located off-site via surface or groundwater flow or migrating soil vapor. Finally, hazardous materials may be incorporated in on-site buildings and structures; examples are lead in paints or asbestos in insulation, tiling, caulking, roofing materials, or electrical components. For these reasons, any project that involves in-ground disturbance in New York City has the potential to encounter hazardous materials. Hazardous materials usually need to be assessed for actions that would result in any in-ground disturbance. Ground disturbance is any disturbance to an area not previously excavated (or filled) and includes new excavation deeper and/or wider than previous excavations on the same site.

As noted above, the Proposed Action is not expected to induce development on sites where development would not have otherwise been possible. However, for some Prototypical Analysis Sites, the Proposed Action would result in greater in-ground disturbance than the No-Action scenarios. Therefore, the Proposed Action has the potential to result in hazardous materials impacts and, in accordance with the 2020~~14~~ *CEQR Technical Manual*, further assessment is warranted and is provided below.

D. DETAILED ANALYSIS

As mentioned above, hazardous materials usually need to be assessed for actions that would result in additional in-ground disturbance. As detailed in **Chapter 1, “Project Description,”** the Proposed Action is not in-and-of-itself expected to induce development where it would not otherwise have occurred absent the Proposed Action. However, the Proposed Action would alter the permitted bulks, footprints, and mechanical, electrical, and plumbing (MEP) equipment location requirements in the city’s floodplains. Therefore, as detailed in **Table 10-1** below, the Proposed Action would increase the amount of lot coverage for eight of the 14 Prototypical Analysis Sites, 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 increase in-ground disturbance would be permitted as-of-right in the future with the Proposed Action.

Table 10-1: 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. Refer to **Appendix A** for more details.

As detailed in **Chapter 2, “Land Use, Zoning, & Public Policy,”** there are parts of the city’s floodplains that were historically and are currently industrial areas. Therefore, it is possible that some of the Prototypical Analysis Sites could be located on areas with contaminated soils. Development of small residential parcels is generally considered a “Type II” action under the New York State Environmental Quality Review Act (SEQRA), meaning that these actions would not have significant adverse impacts on the environment related to the creation of a hazard to human health or other factors. However, the possibility cannot be ruled out. As such, increased in-ground disturbance on some of the Prototypical Analysis Sites could disturb hazardous materials on the sites, resulting in impacts.

The extent of potential impacts is expected to be limited. However, as development resulting from the Proposed Action on the Prototypical Analysis Sites would be as-of-right, there would be no mechanism for the City to conduct or require a program to test for hazardous materials contamination or to mandate the remediation of such materials. Therefore, any such impact would remain unmitigated.

For developments on sites where commercial or industrial/manufacturing uses are permitted, owners or investors may want to limit their environmental liability by conducting “all appropriate inquiry,” which may include the preparation of a Phase I Environmental Site Assessment (ESA). The Phase I ESA would identify any Recognized Environmental Conditions (RECs) on a site, with recommendations for further testing or remediation if necessary. Therefore, if contamination is identified and remediated, impacts on commercial or industrial/manufacturing sites would be mitigated. However, there is no mechanism for the City to conduct or require these Phase 1 ESAs and mandate the remediation of such materials, as development would continue to occur as-of-right. Therefore, any such impact would remain unmitigated. Additionally, it should be noted that, as part of DCP’s flood resiliency work in industrial areas, coordination occurred with the Department of Environmental Protection (DEP) to implement new rules within the Community Right-to-Know program that address storage of hazardous materials within the floodplain. The rules ensure that businesses located in the floodplain that use hazardous materials comply with safe storage principles. This includes storing chemicals in locations less likely to be flooded; elevating chemicals to at least three feet above the base flood elevation (BFE) when possible; using secure storage cabinets; reducing the number and quantity of chemicals; and sufficiently anchoring above-ground tanks. The rules also prohibit the storage or use of water-reactive chemicals within the 1% annual chance floodplain. The new Right-to-Know rules concerning storage of hazardous materials to prevent spillage and reduce flood risk are contained in Title 15, Section 41-14 of the City Rules; the notice of adoption of the new rules can be found here. Therefore, risks related to hazardous materials and fugitive chemicals during future storm surges and sea level rise are not expected in the future with the Proposed Action.

E. CONCLUSIONS

The Proposed Action could potentially result in significant adverse hazardous materials impacts. The 14 Prototypical Analysis Sites were examined for the potential for increased in-ground disturbances as a result of the Proposed Action. Of the 14 sites, eight would likely result in greater lot coverage in the future with the Proposed Action. The extent of the effects of hazardous materials are unknown because of the generic nature of the Proposed Action and because it is not possible to determine exactly where and to what extent additional ground disturbance may occur in the future with the Proposed Action. Without an assessment of specific development sites, the absence of hazardous materials cannot be definitively demonstrated. As such, the possibility of impacts related to hazardous materials cannot be eliminated. The extent of potential impacts is expected to be limited. However, as development resulting from the Proposed Action on the Prototypical Analysis Sites would be as-of-right, there would be no mechanism for the City to conduct or require a program to test for hazardous materials contamination or to mandate the remediation of such materials. Therefore, any such impact would remain unmitigated.