

**Environmental Assessment  
HHC Bellevue Hospital Hazard Mitigation  
New York City, New York County, NY**

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## **LIST OF ACRONYMS**

ACM – Asbestos-containing materials

APE – Area of Potential Effects

BAD – Best Available Data

BFE – Base Flood Elevation

CAA – Clean Air Act

CEHA – Coastal Erosion Hazard Area

CEQ – Council on Environmental Quality

CFR – Code of Federal Regulations

CHASP – Construction-Related Health and Safety Plan

CMP – Coastal Management Plan

CO – Carbon monoxide

COC – Community of Concern

CRIS – Cultural Resources Information System

CWA – Clean Water Act

CZMA – Coastal Zone Management Act

CZMP – Coastal Zone Management Plan

dB/dBA - Decibels

EA – Environmental Assessment

ED – Emergency Department

EFH – Essential Fish Habitat

EHP – Environmental and Historic Preservation

EIS – Environmental Impact Statement

EJ – Environmental Justice

EO – Executive Order

EPA – United States Environmental Protection Agency

ESA – Endangered Species Act

FEIS – Final Environmental Impact Statement

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

FONSI – Finding of No Significant Impact

GHG – Greenhouse gas

HHC – New York City Health and Hospitals Corporation

HVAC – Heating, ventilation, and air conditioning

IPaC – Information, Planning, and Conservation

IPCC – Intergovernmental Panel on Climate Change

$L^{dn}$  – Day night noise level

$L_{eq}$  – Equivalent noise level

LBP – Lead-based paint

LQG – Large Quantity Generator

LWRP – Local Waterfront Revitalization Plan

MBTA – Migratory Bird Treaty Act

MEP – Mechanical, electrical, and plumbing

MLD – Multiple Lines of Defense

NAA – Non-attainment area

NAAQS – National Ambient Air Quality Standards

NAVD88 – North American Vertical Datum of 1988

NEPA – National Environmental Policy Act

NFIP – National Flood Insurance Program

NHPA – National Historic Preservation Act

NMFS – National Marine Fisheries Service

NOAA –National Oceanic and Atmospheric Administration

NO<sub>2</sub> - Nitrogen dioxide

NO<sub>x</sub> - Nitrogen oxides

NPCC – New York City Panel on Climate Change

NPDES – National Pollution Discharge Elimination System

NRCS – Natural Resources Conservation Service

NRHP – National Register of Historic Places

NYCBC – New York City Building Code

NYCDEP – New York City Department of Environmental Protection

NYCDPR – New York City Department of Parks and Recreation

NYCLPC – New York City Landmarks Preservation Commission

NYCRR – New York Code, Rules and Regulations

NYNHP – New York Natural Heritage Program

NYPA – New York Power Authority

NYSDEC – New York State Department of Environmental Conservation

NYSDHSES – New York State Division of Homeland Security and Emergency Services

NYSDOS – New York State Department of State

NYSHPO – New York State Historic Preservation Office

NWI – National Wetland Inventory

OCMC – New York City Department of Transportation’s Office of Construction Mitigation and Coordination

OSHA – Occupational Safety and Health Administration

PBS – Petroleum Bulk Storage

PCB – polychlorinated biphenyl

PM – Particulate matter

RCRA – Resource Conservation and Recovery Act

REC – Recognize Environmental Condition

SIP – State Implementation Plan

SPDES – State Pollutant Discharge Elimination System

SPL – Sound pressure level

SO<sub>2</sub> – Sulfur dioxide

SRIA – Sandy Recovery Improvement Act

ULSD – Ultra-low-sulfur diesel

USACE – United States Army Corps of Engineers

USDA – United States Department of Agriculture

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

VOC – Volatile organic compound

WPA – Works Progress Administration



## **1.0 INTRODUCTION**

On October 29, 2012, Hurricane Sandy caused storm damage to several areas of New York City including Bellevue Hospital in New York County, New York. President Barack Obama declared Hurricane Sandy a major disaster on October 30, 2012. The declaration authorized federal public assistance to affected communities and certain non-profit organizations per Federal Emergency Management Agency (FEMA) 4085-DR-NY and in accordance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5172) as amended; the Sandy Recovery Improvement Act (SRIA) of 2013 and the accompanying Disaster Relief Appropriations Act, 2013. The New York City Health and Hospitals Corporation (HHC) (Subgrantee), which operates the city's public healthcare system has applied to FEMA for financial assistance for a comprehensive flood mitigation project for Bellevue Hospital, its healthcare facility located in the Kips Bay neighborhood on the east side of Manhattan. The New York State Division of Homeland Security and Emergency Services (NYS DHSES) is the Grantee partner for the proposed action.

Hurricane Sandy inundated the Bellevue Hospital campus with contaminated floodwaters, causing the loss of critical electrical and mechanical systems ultimately requiring evacuation of all patients and staff. HHC is seeking funding from FEMA pursuant to sections 406 and 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act for the Proposed Project, which would prevent damage to the hospital from future storm or flooding events by providing a flood barrier around the hospital campus as well as elevated and/or hardened space for critical mechanical, electrical, and plumbing (MEP) equipment. The Proposed Project would also provide redundant systems for important hospital infrastructure to ensure that the hospital is fully operational under backup systems.

This Environmental Assessment (EA) has been prepared in accordance with Section 102 of the National Environmental Policy Act (NEPA) of 1969, as amended; and the Council on Environmental Quality (CEQ) Regulations for Implementation of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 to 1508). The purpose of the EA is to analyze the potential environmental impacts of the proposed project and alternatives, including a no action alternative, and to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). In accordance with above referenced regulations and FEMA's regulations for NEPA compliance found at 44 CFR Part 10, FEMA is required, during decision making, to fully evaluate and consider the environmental consequences of major federal actions it funds or undertakes.

## **2.0 PURPOSE AND NEED**

FEMA’s Public Assistance and Hazard Mitigation programs foster the protection of health, safety, and welfare of citizens, assists communities in recovering from and mitigating damages caused by disasters, and reduces future losses resulting from natural disasters. The purpose of this project is to prevent future flood damage to critical hospital spaces and redundant systems for important hospital infrastructure to ensure that the hospital is fully operational under backup systems. The need for this project is to repair, rehabilitate, and increase the resiliency of the hospital to minimize damage to the critical facility’s infrastructure due to future storm events and to ensure the hospital remains fully operational during and after future storm or flooding events. An additional need for the project is to incorporate the principles of a Multiple-Lines-of-Defense (MLD) strategy as recommended by the U.S. Army Corps of Engineers for improving resiliency for critical infrastructure. The primary goals of the MLD mitigation strategy are to prevent floodwaters from entering the hospital through vulnerable points on the hospital campus and to allow the hospital to fully operate under backup systems for electricity and steam in the event that utility services are shut off.

## **3.0 PROJECT LOCATION AND BACKGROUND**

Bellevue Hospital, located in the Kips Bay neighborhood on the east side of Manhattan, is the oldest continuously operating hospital in the United States. Bellevue was established in 1736 in Lower Manhattan, and moved to its present location along First Avenue in 1794. Bellevue is the flagship hospital of HHC, a public benefit corporation and the largest municipal healthcare system in the United States. HHC provides quality medical, mental health, and substance abuse services to 1.4 million New Yorkers. Bellevue provides a wide range of services, including renowned emergency and trauma services and behavioral health services, and is a critical part New York City’s health care network: with over 4,000 employees and 828 beds. It sees about 30,000 inpatient visits, 125,000 emergency room visits, and 500,000 outpatient clinic visits annually. Bellevue Hospital is also a Level 1 Trauma Center, the only one in Manhattan south of 59th Street.

The Bellevue Hospital campus is located on a superblock, is a large, contiguous site, which is larger than a traditional block and often has the effect of discontinuing a portion of a street grid bounded by First Avenue, East 28th Street, FDR Drive, and East 26th Street (see Appendix B, Figure 1-1). The campus is located on a portion of First Avenue that contains a collection of hospitals and other medical facilities, commonly referred to as “Hospital Row”; the remaining Kips Bay neighborhood, located to the west of First Avenue, is predominantly residential. The Bellevue Hospital campus contains several interconnected buildings (see Appendix B, Figure 1-2). These buildings are:

- Ambulatory Care Building: a 5-story building located on the west side of the campus along First Avenue;
- Administration Building: a 10-story building located east of the Ambulatory Care Building near 28th Street;
- C&D Building: a 9-story building located on the south side of the campus near 26th Street;
- F&G Building: a 1-story building located between the Administration Building and the Hospital Building near 28th Street, which contains the Emergency Department (ED) on the ground floor;
- Hospital Building: a 24-story building located on the east side of the campus along FDR Drive that contains the main inpatient Hospital functions. The Hospital Building also contains loading docks at the cellar level, with entrance and exit ramps connecting to the campus' southeast and northeast corners and an underground driveway connecting the ramps; and
- I&K Building: a below-grade structure located on the north side of the campus underneath East 28th Street, the remaining cellar level of a building formerly located on the site that was demolished.

The hospital was severely impacted by flooding due to Hurricane Sandy, with inundation of the cellar by sewage and contaminated sea water (between approximately 20 and 62 inches), categorized as “black water”, ultimately requiring evacuation of all patients and staff. The storm knocked out normal Consolidated Edison (Con Ed) and New York Power Authority (NYPA) power to the hospital, which relied on backup generators located on the 13th floor of the Hospital Building to provide power during the early part of the storm. Due to severe flooding in the basement and cellar, with water entering the building from sewer connections and the loading dock ramps, numerous mechanical systems were rendered inoperable, including the fuel pumps serving the backup generators, the water pumps supplying domestic water to the rooftop tanks, the elevators, and the medical gas systems. The loss of the fuel pumps resulted in the total loss of emergency power, and the hospital was fully evacuated in the days immediately following the storm.

Due to the flood damage, which included major damage to electrical and mechanical/heating, ventilation, and air conditioning (HVAC) systems, telecommunications, architectural/structural systems, fire protection systems, and maintenance shops and storage areas in the cellar, the hospital was completely out of service for almost three weeks following evacuation, with facilities and departments gradually reopening beginning in late November 2012. The hospital did not return to its full pre-storm operations until February 7, 2013, a period of over three months following Sandy. Since Hurricane Sandy, a number of storm-related repairs to mechanical, electrical, HVAC, and plumbing utilities have been made to Bellevue to bring the buildings back to a state of good repair.

## **4.0 ALTERNATIVES**

Several alternative courses of action were evaluated for the Bellevue Hospital hazard mitigation project. The alternatives were evaluated based upon engineering constraints, environmental impacts and available property. Budgetary constraints were considered for feasibility of alternatives, but were not the controlling factor.

Guidance provided in 40 CFR 1502.14 regarding the NEPA provision of an alternative analysis states that an agency must rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their elimination. Additionally, a No Action Alternative must be included. This section discusses the No Action Alternative, also known as the “Future without Federal Project Condition”, the feasible alternatives that would provide for the purpose and need and the alternative that was eliminated from full analysis.

### **4.1 Alternative 1: No Action Alternative**

Under the No Action Alternative, no additional alterations would be made to the Bellevue Hospital campus or facilities. No federal funds would be provided for protection against future losses and the status quo would be maintained. Bellevue Hospital would remain in its current condition with hospital facilities operating under temporary repair measures. The hospital would continue to operate with temporary repair measures to existing MEP systems installed following Hurricane Sandy, and no hazard mitigation would be pursued to enhance the hospital’s resiliency. The Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with repetitive financial losses and disruption of critical healthcare services. The surrounding community would experience service interruptions that could delay health care due to the loss of facility functions, particularly emergency care, in the event a future storm or flooding event causes a partial or full cessation of operations at Bellevue Hospital.

### **4.2 Alternative 2: Proposed Alternative: Comprehensive Mitigation System**

Under this alternative, a perimeter boundary protection system would be constructed consisting of a series of connected permanent and removable walls with integrated flood gates that form a tight protection around the 7-acre campus. The floodwalls would be designed to the 0.2 percent annual probability flood (“500-year flood”) elevation for the campus plus three feet of freeboard to account for sea level rise and one foot for wave action (Elevation 18 feet using the North American Vertical Datum of 1988, NAVD88). In addition, the roof of the I&K building, which is located below-grade on the northern part of the campus and would be submerged during a flooding event, would be replaced and reinforced to withstand the loads caused by flooding (see Appendix B, Figure 4-1a).

In addition to the perimeter boundary protection system, the Proposed Alternative would include the following mitigation measures:

- The walls of the north and south vehicular loading dock areas would be strengthened with vertical steel beams to handle the loads caused by flooding and new flood gates would be installed at the ramp entrances.
- Two new flood-pumping stations would be installed to convey sanitary and storm flows to the sewer during a flood event.
- A new bank of exterior elevators would be constructed on the exterior side of the Hospital Building to provide up to four new service elevators, which would allow for critical operational needs. An emergency power source would be provided for the new bank of exterior elevators and all controls would be placed on the roof of the structure, well above the proposed design elevation. The exterior elevators will also be dry flood proofed, flood planks would be installed in front of the elevators, and sump pumps would be installed in the elevator pits to protect the elevators from flood damage.
- The existing 22 elevators in the Hospital Building would be mitigated by installing sump pumps in the elevator pits, waterproofing walls and floors in each elevator pit, installing flood barriers in the front of each elevator, applying salt water resistant coating to the traveling cables, enclosing hoistway wiring in seal tight conduits, and providing high water level switches in each elevator pit.
- A secondary domestic water pumping system would be installed in the mechanical rooms in the Hospital Building to provide the hospital with continuous domestic water service during a flooding event.
- The oxygen tank vault would be hardened and the medical gas piping system would be reworked in order to provide continuous medical gas and vacuum to the ED.
- A backup heating system would be installed in case utility steam service is cut off, including a series of mobile boilers on the service road outside of the ambulatory care building.
- HVAC equipment, including the air handling units in the cellar of the Hospital Building, would be relocated to new mechanical rooms in the building located above the “500-year” design flood elevation.
- Several improvements would be made to the normal and emergency power systems throughout the campus, including elevating the backup generator located on the loading dock, dry floodproofing the fuel oil pump room, installing a backup fuel oil pumping system for the emergency generators on the 13th floor of the hospital building, elevating the exhaust vents and tank fill port for the below-grade fuel oil tank, and relocating and elevating the service switchgears from the basement of the Ambulatory Care Building.

#### **4.3 Alternatives Considered and Dismissed**

The Subgrantee considered another alternative, Alternative 3: Perimeter Boundary Protection. This alternative would include the perimeter boundary protection system described above, with a

series of connected permanent and removable walls with integrated flood gates designed to the 500-year flood elevation for the Bellevue Hospital campus plus three feet of freeboard to account for sea level rise and one foot for wave action. No other mitigation measures would be included in the Perimeter Boundary Protection alternative.

This alternative was dismissed because while the floodwall provides a comparable level of protection as the Proposed Alternative, it does not achieve the goals of the MLD strategy that is recommended for critical infrastructure and would not provide the redundant systems for hospital infrastructure that are required for Bellevue Hospital. If floodwaters were to overtop the floodwall, the hospital would be inundated by flooding due to no other mechanisms to handle the floodwaters and would be susceptible to the same outcomes that occurred during Hurricane Sandy, necessitating evacuation of patients and staff and cessation of hospital operations.

The Subgrantee also considered a fourth alternative, Alternative 4: Relocation. Relocating the existing Bellevue Hospital to another location outside of the 500-year floodplain is not practicable. Significant infrastructure investments have been made to the hospital over its nearly 300-year existence by the local, state, and federal government. Abandoning those investments is not practical. In addition, there are no sites in the vicinity of the Project Site that are of sufficient size and outside of the 500-year floodplain that are available to the Subgrantee. Therefore, relocation of the hospital complex is deemed impractical.

#### **4.4 Summary of Alternatives**

Three alternatives were considered by the Subgrantee for implementation at Bellevue Hospital. Two alternatives—Alternative 3 (Perimeter Boundary Protection) and Alternative 4 (Relocation)—was dismissed. The remaining alternatives are:

- 1) No Action Alternative
- 2) Comprehensive Mitigation System (Proposed Alternative)

The following section focuses impact analysis on environmental and cultural resources in regards to the No Action and Proposed alternatives.

## **5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS**

### **5.1 Geology, Topography, and Soils**

#### **5.1.1 Existing Conditions**

The Project Site is on the lower east side of Manhattan between East 26th and East 28th Streets and east of First Avenue. It is located within a developed urban area with predominantly flat or gently sloped areas. Soils in the northwest quarter of the Project Site are classified as UtA (urban land, till substratum, 0 to 3 percent slopes). Soils in the northeastern quarter of the Project Site

are classified as UrA (urban land, reclaimed substratum, 0 to 3 percent slopes). Soils in the southeastern quarter of the Project Site are classified as ULA (urban land-Laguardia complex, 0 to 3 percent slopes). Soils in the southwestern portion of the Project Site are classified as UGA (urban land-Greenbelt complex, 0 to 3 percent slopes) (see Appendix B, Figure 5.1-1). Urban lands consist of paved areas or areas of highly disturbed land and are considered “nonsoil areas” by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS).

Historical topographical mapping (Viele, 1865) indicates that the original shoreline of Manhattan was just east of First Avenue, and landfilling was performed to extend the bulkhead line eastward to an area which would be where the current-day FDR Drive is located. The landfill materials were placed on existing marshland along the coast, allowing for eastward development of the island. Historic borings from the Works Progress Administration (WPA) include some of the original borings made at the site for “New Bellevue Hospital.” These borings show that the upper 20 to 35 feet of soil at the site comprises miscellaneous fill underlain by usually 10 to 15 feet of organic soils. The thickness of fill increases moving from First Avenue towards the East River. Below the fill and organic soils, more competent soils – typical of glacial deposits – are found.

Historical borings from the WPA confirm more recent geologic mapping of the area (Baskerville, 1994) which indicate a thrust fault is located in the area of the hospital (Inwood Hill Trust Fault). Calcite-dolomite marble, believed to be part of the Inwood Marble formation, is present beneath the site; the folding action of the thrust fault also may include bedrock consisting of gneiss and schist. Bedrock beneath the site is estimated to be between 20 to more than 100 feet below existing ground surface, with the top of rock sloping eastward to the East River and the general area of the thrust fault.

### **5.1.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

As discussed above under “Existing Conditions,” the Project Site is heavily developed with highly disturbed soils. No development or other significant alterations to soils, topography, or geology would occur on this land in the near future. Therefore, soils, topography, and geology within the Project Site under Alternative 1 would be largely the same as at present and would not be affected by the No Action Alternative.

#### **Alternative 2: Proposed Alternative**

As discussed above under “Existing Conditions,” the Project Site is heavily developed with highly disturbed soils. Construction and operation of the Proposed Alternative would not result in significant alterations to topography or geology (including bedrock) within the Project Site.

Installation of the perimeter boundary protection system would require excavation of existing soils but it will be minimal and would not result in adverse effects to soil resource. Similarly, installation of the perimeter boundary protection system is not expected to require removal of bedrock. Best management practices (BMPs) would be used to prevent erosion and soil loss. Therefore, these resources within the Project Site under the Proposed Alternative would be largely the same as at present and would not be affected by the Proposed Alternative.

## **5.2 Air Quality**

As required by the Clean Air Act (CAA), primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), ozone, respirable particulate matter (both particles with an aerodynamic diameter of less than or equal to 2.5 micrometers [PM<sub>2.5</sub>], and particles with an aerodynamic diameter of less than or equal to 10 micrometers [PM<sub>10</sub>]), sulfur dioxide (SO<sub>2</sub>), and lead. The primary standards represent levels that are required to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary standards are generally either the same as the secondary standards or more restrictive. The NAAQS are presented in Appendix C, Table 5.2-1. The NAAQS for CO, annual NO<sub>2</sub>, and 3-hour SO<sub>2</sub> have also been adopted as the ambient air quality standards for New York State but are defined on a running 12-month basis rather than for calendar years only. New York State also has standards for total suspended particulate matter, settleable particles, non-methane hydrocarbons, 24-hour and annual SO<sub>2</sub>, and ozone which correspond to federal standards that have since been revoked or replaced and for the non-criteria pollutants of beryllium, fluoride, and hydrogen sulfide.

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by the United States Environmental Protection Agency (EPA), the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment.

The conformity requirements of the CAA and regulations promulgated thereunder limit the ability of federal agencies to assist, fund, permit, and approve projects that do not conform to the applicable SIP. When subject to this regulation, the federal agency is responsible for demonstrating conformity for its proposed action. Conformity determinations for federal actions other than those related to transportation plans, programs, and projects which are developed, funded, or approved under title 23 U.S.C. or the Federal Transit Act (49 U.S.C. 1601 et seq.) must be made according to the requirements of 40 CFR Part 93 (federal general conformity regulations).



Under the general conformity regulations, a determination for federal actions is required for each criteria pollutant or precursor in non-attainment or maintenance areas where the action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed *de minimis* rates for that pollutant. In the case of this project, the prescribed annual rates are 50 tons of volatile organic compounds (VOCs) and 100 tons of nitrogen oxides (NO<sub>x</sub>) (ozone precursors, ozone non-attainment area in transport region), 100 tons of CO (CO maintenance area), and 100 tons of PM<sub>2.5</sub>, SO<sub>2</sub>, or NO<sub>x</sub> (PM<sub>2.5</sub> and precursors in PM<sub>2.5</sub> attainment area).

The general conformity requirements do not apply to federal actions that:

- Do not exceed the prescribed emissions threshold levels;
- Occur in an attainment area;
- Are related to transportation plans, programs, and projects developed, funded, or approved under Title 23 U.S.C. or the Federal Transit Act (49 U.S.C. 1601); or
- Qualify for exemptions or where the emissions are not reasonably foreseeable as defined in § 93.153.

The regulation assumes that a proposed federal action whose criteria pollutant emissions have already been included in the local SIP's attainment or maintenance demonstrations conforms to the SIP.

The emissions from construction activities are subject to air conformity review. Therefore, a qualitative assessment was conducted to evaluate whether the construction of the Proposed Project would have the potential to result in adverse effects on air quality.

### **5.2.1 Existing Conditions**

The existing background ambient air quality in the area of the Project Site is based on the air quality monitoring data collected by the New York State Department of Environmental Conservation (NYSDEC) in Region 2 at air quality monitoring stations nearest to the study area. The summary of the concentrations of all criteria pollutants in the vicinity of the project site are presented in Appendix C, Table 5.2-2. All data statistical forms and averaging periods are consistent with the definitions of the NAAQS. These existing concentrations are based on recent published measurements, averaged according to the NAAQS (e.g., PM<sub>2.5</sub> concentrations are averaged over the three years); the background concentrations are the highest values in past years and are used as a conservative estimate of the highest background concentrations for future conditions. As shown in the table, there were no monitored violations of the NAAQS for the pollutants at these sites.

New York City has been designated as in attainment for CO, PM<sub>2.5</sub>, and Lead and is currently in attainment of the annual-average NO<sub>2</sub> standard. Manhattan has been designated as a moderate NAA for PM<sub>10</sub>. In June 2012 and again in March 2015, New York State formally requested that the EPA reclassify the area as a moderate NAA. New York State has begun submitting SIP

documents in December 2014. EPA has designated the entire state of New York as “unclassifiable/attainment” of the 1-hour NO<sub>2</sub> standard effective February 29, 2012; since additional monitoring is required for the 1-hour standard, areas will be reclassified once three years of monitoring data are available (likely 2017). EPA has established a 1-hour SO<sub>2</sub> standard, and based on the available monitoring data, all New York State counties currently meet the 1-hour standard; draft attainment designations were published by EPA in February 2013, indicating that EPA is deferring action to designate areas in New York State and expects to proceed with designations once additional data are gathered.

Bellevue Hospital has a State Facility Permit issued by NYSDEC pursuant to 6 NYCRR Part 201. The permitted sources include seven (7) generators. The current operating permit will expire in November 2023 (see Appendix A, Document 5.2-1). The facility also operates several exempt sources, including two (2) emergency generators, five (5) underground storage fuel tanks, and three (3) above-ground storage fuel tanks. The State Facility Permit limits the facility’s emissions for NO<sub>x</sub> to 24.9 tons per year.

## **5.2.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

Under the No Action Alternative, no additional alterations would be made to the Bellevue Hospital campus or its facilities. Bellevue Hospital would remain in its current condition with hospital facilities operating under temporary repair measures. Therefore, there would be no adverse effects on air quality under this alternative. The seven (7) on-site generators would continue operating under the existing State Facility Permit, which will not expire until November 2023.

### **Alternative 2: Proposed Alternative**

Under the Proposed Alternative, several improvements would be made to the normal and emergency power systems throughout the campus, including elevating the backup generator located on the loading dock, dry floodproofing the fuel oil pump room, installing a backup fuel oil pumping system for the emergency generators on the 13th floor of the Hospital Building, elevating the exhaust vents and tank fill port for the below-grade fuel oil tank, and relocating and elevating the service switchgears from the basement of the Ambulatory Care Building. The relocation of generators, which operate under the existing State Facility Permit, may require a notification to NYSDEC if the exhaust points are changed. However, the Proposed Alternative would not introduce new sources that would require a major modification of the existing NYSDEC State Facility Air Permit. Construction activities would be carried out in accordance with all applicable regulatory requirements. As required by EPA regulations, ultra-low-sulfur diesel (ULSD) fuel would be used for all construction-related vehicles and non-road construction

equipment. In addition, all necessary measures would be implemented to ensure adherence to the New York City Air Pollution Control Code regulating construction-related dust emissions.

In addition, temporary emergency generators and mobile boilers would be available for use during construction but the use of this equipment would be limited and would only operate if existing service is interrupted. Accordingly, as the potential operational and construction emissions are expected to be below the applicable *de minimis* levels, no general conformity analysis would be required, and the Proposed Alternative would not result in adverse effects on air quality.

### **5.3 Wetlands and Water Quality**

Congress enacted the Federal Water Pollution Control Act in 1948 which was later reorganized and expanded in 1972 and became known as the Clean Water Act (CWA) in 1977. The CWA regulates discharge of pollutants into water with sections falling under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the EPA. Section 404 of the CWA establishes the USACE permit requirements for discharging dredged or fill materials into Waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters is also authorized under the 1899 Rivers and Harbors Act. Under the National Pollution Discharge Elimination System (NPDES), the EPA regulates both point and non-point pollutant sources, including stormwater and stormwater runoff. Activities that disturb one acre of ground or more are required to apply for an NPDES permit, called a State Pollutant Discharge Elimination System (SPDES) permit through NYSDEC as authorized by the EPA. Executive Order (EO) 11990 Wetlands Management requires Federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever there are practicable alternatives.

#### **5.3.1 Existing Conditions**

The majority of the Project Site is heavily developed and occupied by existing hospital buildings, asphalt-paved parking lots, and small patches of upland vegetation. The Project Site is more than 290 feet from the East River, which is the closest surface water feature. It is separated from the East River by FDR Drive. FEMA uses the National Wetlands Inventory, state-specific mapping tools and on-site surveys to identify wetlands. The U.S. Fish & Wildlife Service's (USFWS) National Wetland Inventory (NWI) map for the Project Site (see Appendix B, Figure 5.3-1) does not indicate any NWI-mapped wetlands on or within the vicinity of the Project Site. The NYSDEC wetlands map for the Project Site (see Appendix B, Figure 5.3-2) indicates that there are no NYSDEC-mapped wetlands on or within the vicinity of the Project Site. Because the Project Site is more than 150 feet from the East River, mapped as NYSDEC Littoral Zone Tidal Wetlands and separated from the East River by FDR Drive, there is no NYSDEC Tidal Wetlands Adjacent Area within the Project Site. In addition, there are no other surface waters considered

Waters of the United States on or in the vicinity of the Project Site. The project site is not located within a sole source aquifer system.

### **5.3.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

As discussed above under “Existing Conditions,” there are no NWI- or NYSDEC-mapped wetlands, NYSDEC-regulated wetland adjacent areas or other Waters of the United States within or in the vicinity of the Project Site. Therefore, Alternative 1 would not adversely affect wetlands or water quality although, during future flooding events it is possible that there would be localized water quality effects from contaminated floodwaters as occurred during Hurricane Sandy.

#### **Alternative 2: Proposed Alternative**

Similar to the No Action Alternative, because the Project Site is located in a highly urbanized area served by a storm sewer system, and because there are no NWI- or NYSDEC-mapped wetlands, NYSDEC-regulated wetland adjacent areas, or other Waters of the United States on or in the vicinity of the Project Site, the Proposed Alternative would not adversely affect wetlands or water quality. Construction of the Proposed Alternative would require the preparation of a Stormwater Pollution Prevention Plan (SWPPP) and adherence to the conditions of SPDES General Permit for Stormwater Discharges Permit No. GP-0-15-002, if the soil disturbance would be greater than or equal to one acre. The proposed perimeter boundary protection system and stormwater management practices would minimize potential for future flood events to cause localized water quality effects from contaminated floodwaters. BMPs (e.g., silt fences, inlet protection) would be used to prevent adverse effects on water quality during construction.

### **5.4 Floodplain**

Executive Order (EO) 11988 (Floodplain Management) requires that a Federal agency avoid direct or indirect support of development within the floodplain whenever there is a practicable alternative. FEMA uses Flood Insurance Rate Maps (FIRM) to identify the floodplains for the National Flood Insurance Program (NFIP). Federal actions within the 1 percent annual probability (“100-year”) floodplain or in the case of the Hospital, which is a critical facility as defined in 44 CFR Part 9, the “500-year” floodplain, require the Federal agency to conduct an 8-Step process (see Appendix A, Document 5.4-1). This process, like NEPA, requires the evaluation of alternatives prior to funding the action. FEMA’s regulations on conducting the 8-Step process are contained in 44 CFR Part 9.

On January 30, 2015, EO 11988 was amended. Among other changes, the way in which federal agencies establish the flood elevation was changed. Federal agencies must now use one of the following three methods to determine the flood elevation used in siting, design, and construction:

- Use data and methods informed by best-available, actionable climate science;
- Build two feet above the “100-year” flood elevation, and three feet above for critical facilities; or
- Build to the “500-year” flood elevation.

While the recent EO 11988 amendments are not yet in effect, pending adoption of formal guidance on implementing the amendments, it is the intent of the Proposed Project to comply with the amendments to the extent possible.

#### **5.4.1 Existing Conditions**

FEMA released preliminary FIRMs on January 30, 2015 that precede the future publication of new, duly adopted, final FIRMs. The preliminary FIRMs represent the Best Available Flood Hazard Data at this time. FEMA encourages communities to use the preliminary FIRMs when making decisions about floodplain management until final maps are available. As indicated in the FEMA Preliminary Flood Hazard Areas map for the Project Site (see Appendix B, Figure 5.4-1, FIRM panel 3604970201G), approximately 40 percent of the Project Site is located within the “100-year” floodplain (Zone AE) with a Base Flood Elevation (BFE) for the Project Site of +11 feet NAVD88 and approximately 50 percent of the Project Site is located within the “500-year” floodplain with a BFE of +14 feet NAVD88. The majority of the Project Site is heavily developed and occupied by existing hospital buildings, asphalt-paved parking lots, and small patches of upland vegetation.

New York City is affected by local, fluvial, and coastal flooding that affect the City’s Atlantic coast, bays such as Upper New York Bay, tidally influenced rivers such as the Hudson and East Rivers, streams, and inlets such as Mill Basin Inlet in Jamaica Bay (FEMA 2013). Within New York City, tidal flooding is the primary cause of area-wide flooding. Coastal floodplains such as those in the project area are influenced by astronomic tide and meteorological forces (e.g., northeasters and hurricanes [FEMA 2013]), not by fluvial flooding. Because the East River is a tidal strait, its surface water elevations are controlled by the tidal levels.

#### **5.4.2 Potential Impacts and Proposed Mitigation**

##### **Alternative 1: No Action**

Under Alternative 1, no development or significant alterations to the Project Site would occur. Thus, Bellevue Hospital would continue to be located within the “100-year” floodplain and “500-year” floodplain and would continue to be vulnerable to potential flooding from storm events.

## **Alternative 2: Proposed Alternative**

The Proposed Alternative would result in the modification of an existing facility, portions of which are located within the “100-year” and would not be mitigated up to the “500-year” flood level. Therefore, as indicated in Appendix A, Document 5.4-1 (8-Step Process, 44 CFR Part 9), there is no practicable alternative that would not occur within the “100-year” floodplain. However, construction and operation of the Proposed Alternative would conform to the amended EO 11988 through the establishment of a new perimeter boundary protection system surrounding the hospital campus. This system would include floodwalls (with permanent and removable walls and integrated flood gates) around the campus’ perimeter and replacement of the I&K building’s roof, which is currently below-grade on the northern part of the campus. Other mitigation measures that would be implemented include strengthening of the loading dock walls, stormwater and sanitary pump stations, mitigation of existing elevators, new exterior elevators, relocation of air handling units and switchgears, installation of a redundant water and medical gas system, mitigating emergency power and installation of a backup heating system, as discussed in Section 4.0 “Alternatives.” The floodplain on and in the vicinity of the Project Site is affected by coastal flooding from the East River, which itself is strongly influenced by water elevation differences between the Long Island Sound and Upper New York Harbor. As indicated in the Hydrology and Hydraulics study conducted in 2015 (Appendix A, Document 5.4-2), the flood volume displaced by the Bellevue Hospital Campus is comparatively much less than the storm tide volume of the East River. Thus, the proposed modifications to the existing hospital facilities will not increase the storm tide risk to adjacent properties.

### **5.5 Coastal Resources**

The Coastal Zone Management Act (CZMA) is administered by states with shorelines in coastal zones and requires those states to have a Coastal Zone Management Plan (CZMP) to manage development. Projects falling within designated coastal zones must be evaluated to ensure they are consistent with the CZMP. Projects receiving federal assistance must follow the procedures outlined in 15 CFR 930.90 – 930.101 for federal coastal zone consistency determinations. In order to guide development and resource management within the State’s coastal area, substantive policies have been identified and promulgated by the New York State Department of State (NYSDOS) and NYSDEC.

The Coastal Erosion Hazard Law (Environmental Conservation Law 34) empowers NYSDEC to identify and map coastal erosion hazard areas and to adopt regulations (6 NYCRR Part 505). The Coastal Erosion Hazard Area (CEHA) Permit Program manages regulated activities or land disturbance to properties within the coastal erosion hazard areas.

### **5.5.1 Existing Conditions**

The Project Site is located within the New York State Coastal Zone, as shown in Appendix B, Figure 5.5-1. As such, the Proposed Project must be analyzed for its conformance with the State's adopted Coastal Management Plan (CMP)

The Project Site is within the coastal zone as defined by New York City in its Local Waterfront Revitalization Plan (LWRP). Should the Proposed Alternative require any local review that necessitates review under the City's LWRP, it will be evaluated at that time. The Project Site is not within a Coastal Erosion Hazard Area or a designated Scenic Area.

### **5.5.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

The No Action Alternative would have no direct impacts on coastal resources due to no change at the project site.

#### **Alternative 2: Proposed Alternative**

FEMA has reviewed New York State's Coastal Policies, 1 through 44, with respect to their applicability to the Proposed Alternative and with respect to the Proposed Alternative's conformance to those adopted policies). Based on this review, FEMA certifies that the Proposed Alternative is consistent with the policies of the CMP and will not hinder the achievement of those policies. Appendix A, Document 5.5-1 contains a summary of the Proposed Alternative's consistency with each of the State's 44 Coastal Management Policies. Consultation with NYSDOS was sent out on April 13th 2015 and concurrence was received on 5/29/2015 (Appendix D, Correspondence 5.5-1).

## **5.6 Vegetation**

Local Law 3 of 2010 amended Section 18-107 of the Administrative Code of the City of New York and codifies the New York City Department of Parks and Recreation's (NYCDPR) ability to regulate the replacement of trees on or within jurisdiction of NYCDPR, which includes all trees growing in the public right-of-way and on land mapped as City parkland. The law requires permits from NYCDPR for the removal of trees within NYCDPR jurisdiction and requires replacement of trees that are removed. The law protects against the unauthorized removal, destruction, irreparable damage, and injury to trees under the jurisdiction of NYCDPR.

### **5.6.1 Existing Conditions**

The Project Site is occupied by existing hospital buildings, asphalt-paved parking lots, and relatively small patches of maintained lawns and landscaped areas primarily in the southwest corner of the Project Site (see Appendix B, Figures 5.6-1 and 5.6-2). These vegetated patches

occupy approximately 7 percent of the area within the Project Site. Following Edinger et al. (2002), the ecological community characterization guidance manual used to describe ecological communities in New York in a standardized manner, the Project Site would include mowed lawn with trees, paved road/path, and urban structure exterior. The only vegetated community within the Project Site is the mowed lawn with trees community, which is dominated by red maple (*Acer rubrum*) in the canopy, winged euonymus (*Euonymus alatus*) in the shrub layer, and grasses in the herbaceous layer. Table 5.6-1 in Appendix C lists the vegetation observed during the February 24, 2015 reconnaissance investigation.

## **5.6.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

The majority of the Project Site is heavily developed, with limited vegetation and a mowed lawn with trees. Vegetation within the Project Site under Alternative 1 would be largely the same as at present and would remain subject to impact by potential future inundation.

### **Alternative 2: Proposed Alternative**

Construction of the Proposed Alternative would result in the loss of the area of mowed lawn with trees due to construction of the proposed floodwall. Construction of the Proposed Alternative would require the removal of trees within the Project Site. However, all work would be performed in compliance with Local Law 3 of 2010 and the NYCDPR's Tree Protection Protocol to minimize potential adverse effects. The mowed lawn with trees on the Project Site has limited ecological value because it is a smaller isolated space disconnected from other vegetated areas in the predominantly urbanized New York City environment. Operation and construction of the Proposed Alternative would not result in adverse effects on vegetation within the New York metropolitan region. If feasible, trees and other landscaping would be planted on the Project Site to offset the vegetation lost as a result of construction of the Proposed Alternative.

## **5.7 Wildlife and Fish**

The Endangered Species Act (ESA) of 1973 provides a program for the conservation of federally listed threatened and endangered plants and animals and the habitats in which they are found. The lead Federal agencies for implementing the ESA are the USFWS and the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife.



The Migratory Bird Treaty Act (MBTA) of 1918 provides a program for the conservation of migratory birds that fly through lands of the United States. The lead Federal agency for implementing the MBTA is the USFWS. The law requires Federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any migratory birds or result in the destruction or adverse modification of designated critical habitat of such species. The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald and golden eagles, including their parts, nests, or eggs.

Federal agencies are required to assess the potential impacts that proposed actions and alternatives may have on Essential Fish Habitat (EFH) in accordance with the Magnuson-Stevens Fishery Conservation and Management Act. However, there are no waterbodies within the Project Site. Therefore, an Essential Fish Habitat assessment under the Magnuson-Stevens Act is not required.

### **5.7.1 Existing Conditions**

#### **5.7.1.1 Wildlife and Fish**

The Project Site and surrounding area mostly (approximately 93 percent) consists of lots covered by buildings and asphalt in a heavily urbanized and commercial/residential setting with limited habitat for disturbance tolerant wildlife species. The remaining portion of the Project Site (approximately 7 percent) consists of maintained lawns with shade trees. The Breeding Bird Atlas is a periodic census of the distribution of breeding birds across New York State. The most recent census was conducted from 2000-2005 indicates 43 bird species as confirmed or probable/possible breeders in the survey blocks in which the Project Site is located (Blocks 5850A and 5851C) (see Appendix C, Table 5.7-1). Of these bird species, the Project Site provides suitable breeding habitat for only a few urban-adapted birds, such as the rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*). These are extremely disturbance-tolerant, generalist species that can thrive in heavily developed, urban environments. Rock pigeons and house sparrows were observed within the vicinity of the Project Site during the February 24, 2015 reconnaissance investigation.

Habitat for mammals is limited within the project site, and is likely to be used only by urban-adapted and synanthropic species (those that benefit from an association with humans). These include the raccoon (*Procyon lotor*), Norway rat (*Rattus norvegicus*), grey squirrel (*Sciurus carolinensis*) and domestic cat (*Felis catus*). No mammals were observed in the vicinity of the Project Site during the February 24, 2015 reconnaissance investigation.

The Project Site lacks any habitat, including surface water features that would be suitable for reptiles and amphibian species. As such, no reptiles or amphibians are considered to have the potential to occur within the Project Site, thus further assessment of reptiles and amphibians is

not necessary. There are also no waterbodies or aquatic organisms within the Project Site; thus, further assessment of aquatic habitat and organisms is not necessary.

### **5.7.1.2 Threatened & Endangered**

The northern long-eared bat (*Myotis septentrionalis*; threatened) is the only federally endangered, threatened, or proposed species listed by the USFWS Information, Planning, and Conservation (IPaC) system as occurring on or in the vicinity of the Project Site (Appendix A, Document 5.7-1). Peregrine falcon (*Falco peregrinus*; endangered) is the only state-listed species bird documented by the 2000-2005 Breeding Bird Atlas in Blocks 5850A and 5851C. A review of the NYSDEC New York Nature Explorer database for state-listed species indicates that no state-listed species have the potential to occur within a 0.5 mile radius of the Project Site.

#### *Northern Long-eared Bat*

The northern long-eared bat is considered a forest-dependent species that is sensitive to fragmentation and requires interior forest for both foraging and breeding (Foster and Kurta 1999, Broders et al. 2006, Henderson et al. 2008). Although they may occur in urbanized areas (Whitaker et al. 2004, Johnson et al. 2008) and will occasionally utilize buildings and other artificial structures rather than trees for roosting (Timpone et al. 2010, USFWS 2013), urban northern long-eared bats tend to occur near large, forested parks or other green spaces with abundant tree cover (Johnson et al. 2008). The New York Natural Heritage Program (NYNHP) and NYSDEC have no records of the northern long-eared bat from any of the five boroughs of New York City (NYNHP 2014, NYSDEC 2014), and no nuisance bats ever collected from New York City and submitted to the New York State Department of Health for rabies testing have included a northern long-eared bat (NYSDEC 2014). Because no caves, mines, or small or large woodlands occur near the Project Site, northern long-eared bats are not considered to have the potential to occur in the area during either the breeding or non-breeding period.

#### *Peregrine Falcon (NYS endangered)*

The peregrine falcon is ranked as “S3B” by NYNHP, indicating that there are typically 21 to 100 breeding occurrences or limited breeding acreage in the state. Currently, New York City is expected to have the largest urban population of peregrine falcons within the state (New York City Department of Environmental Protection [NYCDEP] 2011). Peregrine falcons often nest on ledges or holes on the faces of rocky cliffs but will nest on human-made structures such as bridges and tall buildings, especially near or in urban areas. In the New York City area, wintering birds frequent buildings and open areas containing plentiful prey in more natural settings. Peregrine falcon diets primarily consist of birds, ranging from songbirds to small geese, and also bats and other small mammals (White 2002). Although the peregrine falcon is known to occur within New York City, they do not nest within the Project Site, and the potential occurrence of any peregrine falcons in the area would be limited to migrants briefly passing

through or individuals from nest sites elsewhere in the city pursuing prey. In addition, no peregrine falcons were observed during the February 24, 2015 reconnaissance investigation.

### **5.7.1.3 Migratory Bird Treaty Act**

As discussed in section 5.7.1.1, the most recent census of the Breeding Bird Atlas was conducted from 2000-2005 and documented 43 species as confirmed or probable/possible breeders in the survey blocks in which the Project Site is located (Blocks 5850A and 5851C). The species considered likely to breed within the vicinity of the Project Site are the rock pigeon, house sparrow, and European starling. These species are not protected under MBTA, and the Project Site does not contain designated critical habitat for any species protected under MBTA. Therefore, no further assessment under MBTA is required.

### **5.7.1.4 Bald and Golden Eagle Protection Act**

The Project Site and surrounding area mainly consists of lots covered by buildings and asphalt in a heavily urbanized and commercial/residential setting and lacks suitable habitat for bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), and neither species is reported as breeding in the vicinity of the Project Site (see Appendix C, Table 5.7-1). Therefore, no further assessment under the Bald and Golden Eagle Protection Act is required.

## **5.7.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

The majority of the Project Site is heavily developed, with limited habitat for disturbance-tolerant wildlife species. No development or other significant alterations to habitat would occur on this land in the near future. Therefore, Alternative 1 would not affect wildlife or federally or state-listed species within the Project Site.

### **Alternative 2: Proposed Alternative**

#### **Wildlife and Fish**

Construction of the Proposed Alternative would not adversely affect wildlife at either the individual or population level. Terrestrial wildlife habitat at the Project Site comprises buildings and paved parking lots with a limited area of mowed lawns with trees. Construction activities would result in the loss of a portion of lawn with trees. The loss of this habitat, common within the New York metropolitan area, would not adversely affect the few urban-adapted species that use this habitat (e.g., house sparrow, European starling, Norway rat). As extreme generalists that are highly disturbance-tolerant, any individuals of these species that may be temporarily displaced from the Project Site during construction would be expected to move to alternative habitat. As discussed above, no aquatic habitat is located at or nearby site and will not have an

effect on it. Overall, construction and operation of the Proposed Alternative would not adversely affect wildlife resources at the individual or population level.

### **Threatened & Endangered**

#### *Peregrine Falcon*

Peregrine falcon do not nest within the Project Site, and the potential occurrence of any peregrine falcons in the area would be limited to migrants briefly passing through or individuals from nest sites elsewhere in the city pursuing prey. As such, the Proposed Alternative would not affect nesting peregrine falcons. Potential hunting opportunities in the surrounding area for migrant peregrine falcons or individuals from nests elsewhere in the city would remain the same in the future with the Proposed Alternative. Urban peregrine falcons primarily eat rock pigeons, the abundance of which would not change as a result of the Proposed Alternative. Urban peregrine falcons are inherently highly tolerant of human disturbance (Cade et al. 1996, White et al. 2002), and any individuals briefly passing through the area would not be negatively affected by noise generated by the construction or operation of the Proposed Alternative. Therefore, the construction and operation of the Proposed Alternative would not result in adverse effects to the peregrine falcon.

As discussed above under “Existing Conditions”, no federal- or other state-listed endangered, threatened, and special concern species are considered to have the potential to occur within the Project Site. Therefore, construction and operation of the Proposed Alternative would not result in any adverse effects to threatened, endangered, and special concern species.

## **5.8 Cultural Resources**

As a federal agency, FEMA must consider the potential effects of its funded actions upon cultural resources prior to engaging in any undertaking. This obligation is defined in Section 106 of the National Historic Preservation Act (NHPA), as amended and implemented by 36 CFR Part 800. The NHPA of 1966 defines a historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Eligibility criteria for listing a property on the National Register of Historic Places (NRHP) are found at 36 C.F.R. Part 60.

The New York State Historic Preservation Office (NYSHPO) maintains a database of New York’s historic properties. Requirements for review include the identification of significant cultural resources that may be impacted by the undertaking. Cultural resources are defined as prehistoric and historic sites, structures, districts, buildings, objects, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons.

Only those cultural resources determined to be potentially significant under NHPA are subject to protection from adverse impacts resulting from an undertaking. To be considered significant, a

cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the NRHP. The term “eligible for inclusion in the NRHP” includes all properties that meet the NRHP listing criteria, which are specified in the Department of Interior regulations Title 36, Part 60.4 and NRHP Bulletin 15. Sites that have not been evaluated at the time of the undertaking may be considered potentially eligible for inclusion in the NRHP and as such, are afforded the same regulatory consideration as nominated properties.

Pursuant to 36 CFR 800.4(a)(1), the Area of Potential Effects (APE) is defined as the geographic area(s) within which the undertaking may directly or indirectly affect cultural resources. Within the APE, impacts to cultural resources are evaluated prior to the undertaking for both Standing Structures (above ground resources) and Archaeology (below ground resources).

### **5.8.1 Historic (Standing) Structures**

#### **5.8.1.1 Existing Conditions –Historic Standing Structures**

Bellevue Hospital is reported to be the oldest municipal hospital in North America. Getting its start in the early part of the seventeenth century in workshops donated by the Dutch West Indies Company, it was quickly moved to a building at Warren Street and Broadway. The first building constructed specifically for the almshouse was in 1736 on what is now the site of City Hall. In the late 18th century, the City leased and subsequently purchased property north of East 26th Street, where an existing estate, known as Belle Vue Farm, was converted for use as an Isolation Hospital. By 1816, additional land was purchased and a new almshouse with hospital pavilions erected. The hospital continued to grow at the site with new buildings constructed throughout the 19th century. As a result of a fire in 1897, much of the hospital and the medical school established in the mid-19th century had to be rebuilt. The architectural firm McKim, Mead & White prepared a master plan and architectural designs for a new medical complex in 1902-03. Of these buildings, a number remain, including the Administration Building, C & D (Tuberculosis) Building, and R & S Building. Also part of the Bellevue campus but designed by architectural firm Charles B. Meyer and Thompson, the 1936 Bellevue Hospital Psychiatric Building is located adjacent to the R & S Building.

A search for known historic standing structures was conducted within the APE using the NYSHPO Cultural Resources Information System (CRIS) to determine if any buildings in the APE are listed on or determined eligible for listing on the State and National Registers of Historic Places individually or within historic districts. In addition, information from prior environmental reviews was also reviewed as were listings of New York City Landmarks and Historic Districts.

Three (3) eligible structures and one (1) listed structure for the National Register of Historic Places have been identified in the APE which has a 400 foot radius from the center of the

Administration Building (New York City Mayor's Office of Economic Development and Finance, 2001).

### **Administration Building**

The Administration Building, also known as Building E, is located south of 28th Street at First Avenue (see Appendix B, Resource No. 1 on Figure 5.8-1 and Appendix A, Document 5.8-1 for NYSHPO Resource Evaluation, October 26, 2000). Built in 1940, it was determined eligible for the National Register of Historic Places in 2000 under criterion A and C. The steel-framed structure is nine stories in height with an exterior finish of red brick and an articulation of tan stone in the style of Italian Renaissance. It is a nine-story, red brick building with a stone base. It is three bays wide, with a central bay slightly projecting. There are stone courses above the third and seventh floors and a cornice above the eighth floor. Above the cornice, the two side bays recede and are topped by open-air pavilions. The central bay is topped with a pediment and has arched two-story windows with balustrades. At the top and corners of the pediment are fan-like decorative elements. The center windows of the central bay are framed by a large stone molding. The lobby of the building's interior includes a series of WPA murals by David Margolis, entitled "Materials for Relaxation."

The Administration Building's lower floors were obscured by a parking structure now demolished, and the building's rear wings have been altered and are almost completely refaced in tan brick and aluminum. A new entrance and walkway to the Administration Building from First Avenue at the former location of 27th Street has a classical stone arch, depicting the seal of the City of New York, which connects to a canopy of steel-framed glass panels.

Subsequent to the publication of the 2001 East River Science Park EIS, a new Ambulatory Care Building was built to the west of the Administration Building and fronting on First Avenue, taking the place of the former parking garage.

### **C & D Building**

The C & D Building (S/NR-eligible), also known as the Tuberculosis Building or Tuberculosis Pavilion, is located south of the Administration Building (see Appendix B, Resource No. 2 on Figure 5.8-1 and Appendix A, Document 5.8-2 for NYSHPO Resource Evaluation, October 26, 2000). Opened in 1938, it was determined eligible for the National Register of Historic Places in 2000 under criterion A and C. The steel framed structure is an 8-story, red-brick building with a tan brick base and an additional story at the central bay. It was built in 1938. The building has a symmetrical façade in the style of Italian Renaissance with a central bay flanked by four recessed bays. As at the Administration Building, the side bays are recessed above the cornice, while the central bay has a decorative top. Here, the central bay is topped by a rounded pediment and has large arched windows. There are stone courses above the second, third, fourth, and sixth floors, a cornice above the seventh story, and a rooftop balustrade. Long copper balconies—a reminder of

the importance of fresh air in the treatment of tuberculosis—project from the building at the second, third, and fourth floors. A large stone arch extends from the third to the seventh floor of the central bay. Most of the building windows are grouped in sets of three and have cast-iron panels pressed with simple geometrical designs between the windows on each floor. The rear wing of the building has been refaced with tan brick and aluminum.

### **R & S Building**

The R&S Building, also known as the Pathological Department and Male Dormitory, is a 6-story U-shaped red brick and granite building located at 492 First Avenue directly south from the Psychiatric Building at the southeastern corner of First Avenue and former East 29th Street (see Resource No. 3 on Appendix B Figure 5.8-1). Built in 1910, it was listed in the National Register of Historic Places in 1986 under criterion A and C. The steel beam and column structure has an underground cellar, a ground floor that is partially below street level, and six stories above the ground floor. It was designed by McKim, Mead, & White as part of the firm's master plan for the Bellevue Hospital campus, and is one of the few buildings remaining from this period. The building was designed in a restrained adaptation of an Italian Renaissance style. It has a symmetrical composition; its facades are divided into four horizontal courses, with single courses of limestone blocks marking the divisions, topped by a terra-cotta cornice and a rooftop balustrade. The horizontal courses are pierced by large groups of sash windows, some of which appear to be double-tiered. The double-tiered window groups are topped with flat arches of brick with limestone keystones. Cast-iron panels between the windows of each floor are pressed with simple geometrical designs. Three tall arches in the front elevation create a central loggia that encompasses the height of the first two stories. The rear elevation is relatively unadorned. On the south facade is a small, classically-inspired doorway surrounded by a simple Doric molding and topped by an unembellished pediment supported by brackets.

### **Bellevue Psychiatric Building**

The former Bellevue Psychiatric Building is located at 500 First Avenue and is in the northwest corner of the Bellevue campus at First Avenue and East 30th Street. Designed by Charles B. Meyers and Thompson, Holmes & Converse and built in 1936, it was determined eligible for the National Register of Historic Places in 2006 under criterion A and C. The structure is a 10-story red brick, limestone, and granite structure with a modified H-plan (see Resource No. 4 on Appendix B, Figure 5.8-1 and Appendix A, Document 5.8-1 for NYSHPO Resource Evaluation, June 21, 2006). The building is very similar in design to the McKim, Mead, & White-designed buildings of the Bellevue Hospital complex, particularly in its facade materials and its Italian Renaissance style.

The Psychiatric Building is surrounded on three sides by a tall fence of brick, wrought iron, and rusticated limestone columns, with large decorative urns atop each column. The building has a stone cornice with dentil detailing, a balustrade, brick arches, stone courses, and cast-iron panels

with an eagle design. There are brick quoins at each corner and brickwork patterning in a number of locations. The former main entrance has a rusticated limestone base, a portico over the door with a balustrade above, supported by Doric columns, and a decorative limestone arch enclosing a pedimented window, and a cartouche depicting the seal of New York City. The south side of the building has a rusticated limestone base and an arched doorway. The east facade of the building has a raised terrace.

### **5.8.1.2 Potential Impacts and Proposed Mitigation to Standing Historic Structures**

#### **Alternative 1: No Action**

Since no alterations would be made to the Bellevue campus, the No Action alternative would have no effect on known historic standing structures.

#### **Alternative 2: Proposed Alternative**

The proposed alternative consists of a perimeter boundary protection system and other flood mitigation measures that would not result in physical alteration of the Administration Building and the C & D Building on the Bellevue campus. . FEMA found that the Proposed Action would have no effect on historic structures and sent a consultation letter to the NYSHPO on 4/24/2015 and received concurrence on 5/19/2015 (Appendix D Correspondence 5.8-1).

The proposed perimeter boundary protection system would consist of a series of connected permanent and removable walls with integrated flood gates that form protection around the 7-acre Bellevue Hospital campus. In the area of the Administration Building and the C & D Building, a solid freestanding floodwall and a bench wall would be utilized. The solid freestanding floodwall would be supported on grade and on the roof of the basement of the building below it on the south side of East 28th Street, north of the Administration Building. This wall would be a permanent solid masonry wall of approximately 7 feet in height that would have a brick veneer on both sides. The wall would be approximately 1 foot thick, and would be capped with stone. The wall would have an approximately 6-foot-wide entrance east of the Ambulatory Care Building on East 28th Street, located across from the Administration Building.

The bench wall would be located west of the C & D building, with a 12-foot-wide opening provided at the connection of the landscaped area at the southwest corner of the campus with the covered entryway to the C & D Building (see Appendix B, Figure 4-1a). This perimeter protection system would be designed with a permanent 2 foot high wall clad in brick veneer on both sides. Posts, measuring 10 feet on center would extend an additional 5 feet above the 2-foot-high wall. These posts would be clad in brick, and would be approximately 2 feet wide. The posts would have “guides”, or notches, for the installation of flood wall planks as needed during a storm event. The posts would have stone caps.



Both the solid freestanding floodwall and the bench wall would have brick veneers and stone coping that would complement the materials of the historic buildings. The solid freestanding floodwall on the south side of East 28th Street would not adversely affect the setting of the Administration Building. The setting of this historic building has been substantially altered through time, most recently by the construction of the Ambulatory Care Building along First Avenue, which obstructs the building's First Avenue façade from view. The north (side) elevation of the Administration Building is largely obscured from view due to its location on East 28th Street east of First Avenue, and by more recently constructed buildings on the Bellevue Hospital campus. The proposed solid floodwall would not obstruct substantial views of the 10-story Administration Building or otherwise adversely affect its setting.

The proposed bench wall that would be constructed west of the C & D Building between this building and First Avenue would be visually permeable, except during a storm occurrence where planks would be installed between the masonry posts. Otherwise, the 2-foot-tall wall with projecting posts 10 feet on center would still allow views to the primary façade and entrance of the 9-story C & D Building from First Avenue and the landscaped area at the southwest corner of the Bellevue Hospital campus. This wall would not substantially alter the setting or visual prominence of the C & D Building.

The preferred alternative would not adversely affect the setting or the R & S Building. The solid freestanding floodwall proposed along the south side of East 28th Street would be clad in brick and coped with stone, and would be in keeping with the architectural character of the R & S Building located on the north side of East 28th Street.

A number of the proposed flood mitigation measures, including the floodwalls discussed above as well as the replacement and reinforcement of the roof of the below grade I&K building, located below-grade on the northern part of the campus, would occur in proximity to historic buildings. This includes the construction of the proposed bench wall, to be located approximately 25 feet from the west façade of the south wing of the C & D Building, the construction of the proposed solid floodwall across narrow East 28th Street from the R & S Building and within 100 feet of the Administration Building, and replacement and reinforcement of the roof of the I&K building adjacent to the R & S Building and within 100 feet of the Administration Building. For this work and any other work that would occur within 90 feet of a historic building, construction protection measures would be developed and implemented to avoid inadvertent construction related impacts on these historic buildings. These construction protection measures would be included in a Construction Protection Plan (CPP) to be developed in consultation with SHPO and implemented in coordination with a licensed professional engineer to avoid inadvertent construction-related damage to these resources from ground-borne construction-period vibrations, falling debris, collapse, etc. This CPP would be prepared in compliance with the procedures included in the New York City Department of Building's (DOB) *Technical Policy and Procedure Notice (TPPN) #10/88*(New York City Department of Buildings, 1988) and the

National Park Service's *Preservation Tech Notes, Temporary Protection Number 3: Protecting a Historic Structure During Adjacent Construction*. The CPP would include provisions for pre- and post-construction documentation; monitoring including for cracks, settlement and vibration; stop work orders; and protection measures for falling objects and damage from heavy machinery as deemed appropriate by the engineer and in conformance with DOB and NPS guidance. The CPP would be prepared and implemented prior to demolition, excavation, and construction activities on the project site and project-related demolition, excavation, and construction activities would be monitored as specified in the CPP.

It is not expected that the proposed alternative would result in adverse physical impacts to the Psychiatric Building, located between East 29th and 30th Streets, with the R & S Building and other buildings on the block between East 28th and 29th Streets intervening.

Therefore, with the development and implementation of the CPP, the proposed alternative would not be expected to adversely affect historic standing structures.

## **5.8.2 Archaeological Resources**

### **5.8.2.1 Existing Conditions**

In order to evaluate the archaeological sensitivity of the area for which improvements are proposed, FEMA conducted a field inspection of the project site, performed an evaluation of geological data, and conducted documentary research within the Area of Potential Effects (APE) and surrounding landscape. FEMA archaeologists used the NYSHPO Cultural Resource Information Center (CRIS) to locate areas that have been previously surveyed for cultural resources, properties listed in the New York and NRHP, and areas of archaeological sensitivity.

The APE for archaeological resources includes any land surface that may be altered during the course of project construction. Such impacts associated with the HMP includes subterranean disturbances most associated with the perimeter flood protection, construction of the flood gates, construction of the new exterior elevators, as well as associated utilities for such improvements. Thus, the APE for archaeological resources is limited to the area of proposed ground disturbance.

### **Prehistoric Archaeological Resources**

Research conducted using records, maps, and literature from the NYSHPO CRIS reveals the project site is not located in an area of archaeological sensitivity. There is a certain degree of correlation between particular environmental elements and the location of human activities across a landscape. As a result, a comprehensive analysis of the environmental elements found in a given area can be used to predict the location and preservation of prehistoric and historic archaeological remains. Prediction of prehistoric site potential is based upon the geographic setting, prehistoric settlement models within the northeast, and general knowledge based upon previous archaeological research. Research of archaeological site files located on CRIS revealed

there are no known prehistoric archaeological sites eligible for, or listed in, the NRHP within and/or adjacent to the APE. In addition, no previously recorded prehistoric sites have been identified within one-mile of the APE.

The absence of recorded sites in the area may be attributable to the presence of dense urban and industrial development of the area. The absence of sites at or below the facility's elevation is likely due to inhospitable or submerged conditions in such areas prior to the early-20th century and the area's history of filling and development.

Areas of proposed ground disturbance include perimeter flood protection, construction of the flood gates, construction of the new exterior elevators, as well as associated utilities for such improvements. Overall, the vertical and horizontal limits of disturbance will be limited to areas that have been previously disturbed by the construction of the existing structures. Thus, all improvements will be located within the limits of previously disturbed urban soils. The only evidence of Native American activity that might be located within the APE would be random, sparsely distributed artifacts. Therefore, based on the environmental and topographic conditions, as well as the limited number of prehistoric archaeological sites recorded within the vicinity of the subject property, the potential for encountering in-situ prehistoric archaeological resources is considered low.

### **Historic Archaeological Resources**

Research of archaeological site files located on CRIS revealed there are two historic-period archaeological sites located within one-mile of the APE; however, they are site-specific and not associated with the historical development of the complex. Review of historic maps including topographical and historic aerials beginning in the early-19th century extending to present, reveal that hospital complex was constructed beginning in 1811 with substantial additions in the early 1900s and then again in 1960s with the construction of the present-day hospital campus. Historic archaeological resources pre-dating construction of the facility are considered low due to lack of documented development.

Areas of proposed ground disturbance include perimeter flood protection, construction of the flood gates, construction of the new exterior elevators, as well as associated utilities for such improvements. Overall, the vertical and horizontal limits of disturbance will be limited to areas that have been previously disturbed by the construction of the existing structures. Thus, all improvements will be located within the limits of previously disturbed urban soils and the potential to encounter in-situ historic-period archaeological resources is considered low.

### **5.8.2.2 Potential Impacts and Proposed Mitigation, Archaeological Resources**

#### **Alternative 1: No Action**

Since no work or ground disturbance will occur, the No Action alternative would have no effect on archaeological properties.

#### **Alternative 2: Proposed Alternative**

Review under this alternative includes a perimeter boundary protection system would be constructed consisting of a series of connected permanent and removable walls with integrated flood gates that form a tight protection around the 7-acre campus. The floodwalls would be designed to the 0.2 percent annual probability flood (“500-year flood”) elevation for the campus plus three feet of freeboard to account for sea level rise and one foot for wave action. In addition, several flood-pumping stations are proposed which would result in new ground disturbing activities.

The potential of locating identifiable archaeological remains of such activities to be present is low. As a result, the APE has a low sensitivity for archaeological resources to exist. In any of the alternatives, subterranean disturbance to the site has been extensive throughout the historical development of the hospital complex from construction activities. These disturbances have severely impacted any potential archaeological resources to be present. The absence of recorded sites is likely due to the area’s history of filling and development. As a result of these combined results, the likelihood of encountering intact prehistoric and/or historic archaeological resources is considered low. No additional archaeological survey is recommended.

## **5.9 Aesthetic Resources**

This analysis considers the potential loss of, or impact to, any aesthetic resources or viewshed. A viewshed is an area of land, water, or other environmental element that is visible to the human eye from a fixed vantage point. Viewsheds are areas of particular scenic or historic value that have been deemed worthy of preservation against development or other change. Viewsheds are spaces that are readily visible from public areas and thoroughfares, such as from public roadways, public parks or high-rise buildings. If the viewshed is integral to the setting of a landmark building or part of the NHPA Evaluation Criterion for a buildings’ eligibility, the viewshed must be considered for any new development or renovation proposal.

### **5.9.1 Existing Conditions**

The area around the Bellevue Hospital campus is developed urban that predominantly contains streets, medical facilities, and residential buildings. The area is located near the East River. NYSDEC designates certain rivers in New York State with aesthetic value as Wild, Scenic, or

Recreational Rivers; while the East River is not a designated Wild, Scenic, or Recreational River, it is one of the defining natural features of New York City. In the area of the Bellevue Hospital campus, public access to the waterfront is limited: many of the cross-streets leading to the East River are closed to through traffic east of First Avenue. Views of the river from points along First Avenue and down cross-streets are obscured by large buildings, including buildings on the Bellevue Hospital campus, and by the elevated FDR Drive. Therefore, viewsheds in the area of the Bellevue Hospital campus are generally limited.

As discussed above in Section 5.8, “Cultural Resources,” two buildings on the campus (the Administration Building and the C&D Building) are eligible for listing on the State and National Register of Historic Places. While these two buildings are aesthetic resources, they are generally not visible from public areas near the campus because of intervening buildings, particularly the Ambulatory Care Building, which blocks views of the buildings in the interior of the campus from First Avenue. Views of the C&D Building are further obscured for much of the year by the numerous tall trees located in a planted area on the southwest corner of the campus.

## **5.9.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

Under the No Action Alternative, no alterations would be made to the Bellevue Hospital campus or its facilities and there would be no changes to the viewshed or scenic value of the area; therefore, there would be no effect on aesthetic resources.

### **Alternative 2: Proposed Alternative**

Under the Proposed Alternative, the Bellevue Hospital campus would be altered by a series of improvements to prevent floodwaters from entering the hospital and to allow the hospital to fully operate under backup systems in the event that utility services are shut off. As noted above, views of the East River in the area of the Bellevue Hospital campus are generally obscured by large buildings and the elevated FDR Drive. The Proposed Alternative would not change any views of the East River from public vantage points. Therefore, the Proposed Alternative would not affect the viewsheds of scenic resources in the area and would not result in any adverse effects to aesthetic resources.

## **5.10 Socioeconomic Resources and Environmental Justice**

### **5.10.1 Existing Conditions**

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires agencies to identify and address disproportionately high and adverse human health or environmental effects its activities may have on minority or low income populations. The population was determined by selecting all census block groups with at least

half of their physical area within ¼-mile of the Project Site (see Appendix B, Figure 5.10-1); however, Bellevue Hospital serves a broader population that includes minority and low-income populations.

Per EPA Region 2's Guidelines for Conducting Environmental Justice Analyses, for New York, a community would be considered an Environmental Justice (EJ) community if the minority population was 51.51percent or higher or if 23.59percent or more of the population was below the poverty line. According to the 2010 Decennial Census, the Community of Concern (COC) population included 23,838 persons, 42.5percent of which were minority. Of the entire COC population, 14.4percent identified as Hispanic, 8.4percent identified as Non-Hispanic Black, 16.7percent identified as Non-Hispanic Asian, and 3.0percent identified as Non-Hispanic and another race besides White.

The 2009-2013 American Community Survey reported a poverty rate of 15.1percent and a per capita income of \$59,277. Based on the above calculations, neither the minority rate nor the poverty rate of the COC is above the EPA threshold for an EJ community.

### **5.10.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

Under the No Action Alternative, no additional alterations would be made to the Bellevue Hospital campus or facilities. The Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with potential disruption of critical healthcare services. In the event a future storm or flooding event causes partial or full cessation of operations at Bellevue Hospital, the surrounding community, including minority or low-income populations served by Bellevue Hospital, could experience service interruptions and threats to human health due to the loss of healthcare functions, particularly emergency care.

#### **Alternative 2: Proposed Alternative**

Potential effects on the COC could be a temporary increase of noise levels and traffic during construction. The construction activities associated with the Proposed Alternative would be subject to all New York City construction and noise regulations. For this reason and because the COC does not qualify as an EJ Community, there would be no disproportionate or adverse effect on minority or low income populations. The actions under Proposed Alternative would also benefit the community by reducing the risk of future flood damage to Bellevue Hospital and preventing future service interruptions in healthcare and emergency care.

## **5.11 Land Use and Planning**

### **5.11.1 Existing Conditions**

The Bellevue Hospital campus is located in the Kips Bay neighborhood on the east side of Manhattan in an area that predominantly contains medical facilities. FDR Drive, one of Manhattan's primary arterial roadways, runs along the East River on the eastern side of the campus and separates the area from the waterfront. The area along First Avenue, which is sometimes referred to as "Hospital Row," contains the New York Harbor VA Hospital, the Hunter College Brookdale Health Science Center, and the New York University Langone Medical Center in addition to Bellevue Hospital. Other buildings associated with these medical facilities, such as research buildings, are located on the western side of First Avenue: in total, approximately 70 percent of the land within the area contains community facility uses. The remaining lots within the area contain high-density residential uses, including the Waterside Plaza development located to the east of the FDR Drive along the East River. The area also contains several public parks: Bellevue South Park, Asser Levy Playground, and a portion of the East River Esplanade.

The Bellevue Hospital campus is located within a high-density residential zoning district (R8). Residential zoning districts permit a variety of housing types and community facilities, including hospitals, but do not permit commercial or manufacturing uses. Portions of the area around the campus are located within commercial zoning districts (C2-7, C6-2, C2-5 overlay), which permit a variety of commercial uses in addition to residential and community facility uses.

### **5.11.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

Under the No Action Alternative, no alterations would be made to the Bellevue Hospital campus or its facilities. Bellevue Hospital would remain in its current condition with hospital facilities operating under temporary repair measures. There are no associated potential effects to land use and planning.

#### **Alternative 2: Proposed Alternative**

Under the Proposed Alternative, the alterations would not affect land uses on the Bellevue Hospital campus and would conform to the existing zoning regulations. The Proposed Alternative would not affect land uses on any other sites and would not affect the applicable zoning regulations or other planning policies; therefore, there would be no adverse effects to land use and planning. In addition, the Proposed Alternative would have no adverse effects on public service or utilities. Bellevue Hospital will remain fully functional during all phases of construction related to the project.

## **5.12 Infrastructure**

### **5.12.1 Existing Conditions**

The Project Site is located within a developed urban area and is served by major utilities for all infrastructure. Underground utilities at Bellevue Hospital and the surrounding area include electric, natural gas, and city water and sewer lines. Electrical power is provided by Consolidated Edison (Con Ed) and the New York Power Authority (NYPA); Bellevue Hospital maintains its own backup on-site emergency power generation capabilities, with three separate systems for the hospital building, the ambulatory care building, and the administration/C&D/F&G Buildings. Emergency generators are located on the 13th floor of the hospital building, in a mechanical penthouse on the roof of the ambulatory care building, and in a generator plant located on the ground floor of the campus adjacent to the ambulatory care building. Consolidated Edison also provides steam to Bellevue Hospital through high-pressure piping mains that connect to the Hospital Building and the Ambulatory Care Building, where it is then distributed throughout the hospital campus; Bellevue Hospital also maintains a standby steam system for use when utility steam service is shut down, with steam boilers located on the 13th floor of the Hospital Building. Natural gas is provided to Bellevue Hospital by Con Ed.

Water is supplied by the City of New York, which maintains three water supply systems with a watershed area of over 2,000 square miles and a storage capacity of 550 billion gallons. The Bellevue Hospital campus is located in an area that is served by a combined sewer system: wastewater (both sanitary sewage and stormwater) is conveyed to the Newtown Creek Wastewater Treatment Plant (WWTP), the largest of New York City's 14 WWTPs, where it is fully treated by physical and biological process before it is discharged into the East River. Bellevue Hospital's ordinary solid waste and the hospital's regulated medical waste is collected by a licensed private hauler.

### **5.12.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

Under the No Action Alternative, no additional alterations would be made to the Bellevue Hospital campus or facilities. Bellevue Hospital would remain in its current condition with hospital facilities operating under temporary repair measures. Bellevue Hospital's infrastructure would remain vulnerable to damage from flooding in the event of a future storm. In particular, mechanical equipment located in the basement and cellar of the Hospital Building, including the fuel pumps serving the backup generators and the water pumps supplying domestic water to the rooftop tanks, would remain vulnerable to floodwater: damage to the fuel pumps and water pumps due to flooding during Hurricane Sandy resulted in a loss of water pressure and a total loss of emergency power. In addition, the hospital would remain vulnerable to flooding due to backup from the sewer system, which occurred during Hurricane Sandy.



### **Alternative 2: Proposed Alternative**

The Proposed Alternative, including the construction of a perimeter boundary protection system around the Bellevue Hospital campus, replacement and reinforcement of the I&K building roof, the construction of a new exterior elevator bank, and improvements to various mechanical systems, would not affect Bellevue Hospital's primary electrical, gas, and water and sewer services, which would continue to be provided by the City of New York and major utilities such as Con Ed. These systems are expected to have sufficient capacity to accommodate the increase in demand for utility services with the Proposed Alternative.

The perimeter boundary protection system and other mitigation measures would provide a defense against flooding for critical hospital infrastructure. In particular, improvements would be made to the normal and emergency power systems throughout the campus, including elevating the backup generator located on the loading dock, dry flood proofing the fuel oil pump room, installing a backup fuel oil pumping system for the emergency generators on the 13th floor of the Hospital Building, elevating the exhaust vents and tank fill port for the below-grade fuel oil tank, and relocating and elevating the service switchgears from the basement of the Ambulatory Care Building. Other improvements to the hospital's infrastructure with the Proposed Alternative include installation of a secondary domestic water pumping system to provide the hospital with continuous domestic water service and two new flood-pumping stations to convey sanitary and storm flows to the sewer during a flood event. With these improvements, the Proposed Alternative would have no adverse effects on infrastructure.

### **5.13 Noise**

The Noise Control Act of 1972 required the EPA to create a set of noise criteria. In response, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* in 1974 which explains the impact of noise on humans. The EPA report found that keeping the maximum 24-hour day night noise level ( $L_{dn}$ ) value below 70 A-weighted decibels (dBA) would protect the majority of people from hearing loss. The EPA recommends an outdoor  $L_{dn}$  of 55 dBA. According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA (depending on the individual) and can cause immediate irreparable damage at 140 dBA. The Occupational Safety and Health Administration (OSHA) has adopted a standard of 140 dBA for maximum impulse noise exposure.

Sound pressure level (SPL) is used to measure the magnitude of sound and is expressed in decibels (dB or dBA), with the threshold of human hearing defined as 0 dBA. The SPL increases logarithmically, so that when the intensity of a sound is increased by a factor of 10, its SPL rises by 10 dB, while a 100-fold increase in the intensity of a sound increases the SPL by 20 dB. Equivalent noise level ( $L_{eq}$ ) is the average of sound energy over time, so that one sound occurring for 2 minutes would have the same  $L_{eq}$  of a sound twice as loud occurring for 1

minute. The  $L_{dn}$  is based on the  $L_{eq}$ , and is used to measure the average sound impacts for the purpose of guidance for compatible land use. It weights the impact of sound as it is perceived at night against the impact of the same sound heard during the day. This is done by adding 10 dBA to all noise levels measured between 10:00 pm and 7:00 am. For instance, the sound of a car on a rural highway may have an SPL of 50 dBA when *measured* from the front porch of a house. If the measurement were taken at night, a value of 60 dBA would be recorded and incorporated into the 24-hour  $L_{dn}$ .

$L_{eq}$  and  $L_{dn}$  are useful measures when used to determine levels of constant or regular sounds (such as road traffic or noise from a ventilation system). However, neither represents the sound level as it is perceived during discrete events, such as fire sirens and other impulse noises. They are averages that express the equivalent SPL over a given period of time. Because the decibel scale is logarithmic, louder sounds (higher SPL) are weighted more heavily; however, loud infrequent noises (such as fire sirens) with short durations would not significantly increase  $L_{eq}$  or  $L_{dn}$  over the course of a day.

### **5.13.1 Existing Conditions**

Existing noise levels at the Project Site are relatively high due to noise from traffic on FDR Drive, which is a major highway, as well as contributions from helicopter overflights to and from the nearby East 34th Street Heliport. An Environmental Assessment for the NYU Langone Medical Center, located immediately north of the project site, included noise level measurements that are representative of the existing noise levels at the Bellevue Hospital project site. These measurements indicated existing noise levels in the range of the mid-70s dBA at mid-block between First Avenue and the FDR Drive to the mid-80s dBA immediately adjacent to the FDR Drive.

### **5.13.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

The No Action Alternative would not result in any increase in noise levels at any nearby noise receptors resulting from operation or construction of the proposed project. Nor would any noise-sensitive spaces be constructed that would be subject to existing noise at the project site.

#### **Alternative 2: Proposed Alternative**

Construction of the proposed floodwalls and gates as well as construction associated with the mechanical system upgrades and other improvements on the campus would have the potential to generate noise at nearby noise receptors resulting from operation of on-site construction equipment. Construction activity on the project site is subject to the NYC Noise Control Code's requirements for construction noise control, including noise emission limits for specific pieces of equipment, the requirement for barriers and enclosures for exterior construction where necessary,

and logistics arrangements to reduce noise at surrounding receptors. The noise receptors with the greatest potential to experience elevated levels of noise would be the receptors immediately south and west of the project site. Most of the construction associated with the other improvements would primarily involve hand tools and occur inside and would, consequently, not result in elevated noise levels at surrounding noise receptors. Construction of the proposed floodwalls and gates, and exterior elevator bank and foundations would include louder construction equipment and would occur outside of existing buildings. However the surrounding area already experiences high levels of noise resulting from vehicular traffic on FDR Drive, and the level of noise expected to be generated by construction of the proposed flood walls and gates and exterior elevator bank would be expected to result in noise level increases that would be imperceptible or only barely perceptible at nearby noise receptor locations. Furthermore, the flood wall and gate construction and elevator bank foundation construction would each occur over a relatively short period of time adjacent to any specific noise receptor. Consequently, construction of the Proposed Alternative would not result in any significant adverse noise impacts.

The electrical and mechanical systems (i.e., heating, ventilation, and air conditioning systems) relocated as part of the Proposed Alternative would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code). In meeting these stringent noise emission level limits, the building mechanical systems will avoid producing levels that would result in any significant increase in ambient noise levels. Other noise sources associated with the Proposed Alternative would remain unchanged from the existing condition, including vehicles traveling to and from the project site.

The Proposed Alternative would not result in any noise-sensitive spaces being constructed that would be subject to existing noise at the project site. Consequently, operation of the Proposed Alternative would not result in any significant adverse noise impacts.

## **5.14 Transportation**

### **5.14.1 Existing Conditions**

The Bellevue Hospital campus is bounded by First Avenue to the west, East 28th Street to the north, FDR Drive to the east, and East 26th Street to the south. The roadway network surrounding the project site is characterized by high traffic volumes, comparable to other commercial or mixed-use areas in Manhattan. Several bus routes serve the project site and surrounding blocks (see Appendix B, Figure 5.13-1). The nearest subway station, the 28th Street Station servicing the No. 6 train, is located along Park Avenue South, approximately ½ mile away from the project site.

## **5.14.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

Under the No Action Alternative, no alterations would be made to the Bellevue Hospital campus or its facilities. Bellevue Hospital would remain in its current condition with hospital facilities operating under temporary repair measures. Therefore, there would be no adverse effects on to transportation under this alternative.

### **Alternative 2: Proposed Alternative**

The Proposed Alternative would not increase the capacity of the hospital and as a result would not generate new trip-making after the construction period. The anticipated duration of the construction activities for the Proposed Alternative is approximately 42 months. In order to maintain continuous functionality of the hospital during construction, construction activities would be implemented in phases. During construction, a temporary increase in vehicle trips is anticipated as a result of the ingress and egress of construction equipment, the delivery of construction materials, and the construction workers accessing the project site. Similarly, as a result of construction worker activity, transit and pedestrian trips may also increase during construction. Transportation operations are expected to return to near existing conditions after the construction period and would not result in any potential adverse effects on transportation.

Throughout the construction period, traffic lanes and sidewalks may be closed or protected for varying periods of time. Some street lanes and sidewalks may be continuously closed, and some lanes and sidewalks may be closed only intermittently to allow for certain construction activities. Approval and implementation of all sidewalk and lane closures during construction would be coordinated with the New York City Department of Transportation's Office of Construction Mitigation and Coordination (OCMC). Access to the hospital and hospital services would be maintained throughout the construction period.

## **5.15 Public Health and Safety**

### **5.15.1 Existing Conditions**

The project site is within the boundaries of the New York City Police Department's 13th precinct and the New York City Fire Department's 16th company. As discussed in Section 3.0, Bellevue Hospital sees about 30,000 inpatient visits, 125,000 emergency room visits, and 500,000 outpatient clinic visits annually. Bellevue Hospital is also a Level 1 Trauma Center, the only one in Manhattan south of 59th Street.

## **5.15.2 Potential Impacts and Proposed Mitigation**

### **Alternative 1: No Action**

Under the No Action Alternative, no alterations would be made to the Bellevue Hospital campus or facilities. The Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with potential disruption of critical healthcare services. The surrounding community could experience service interruptions and threats to human health due to the loss of healthcare functions, particularly emergency care, in the event a future storm or flooding event causes partial or full cessation of operations at Bellevue Hospital.

### **Alternative 2: Proposed Alternative**

The Proposed Alternative protects public health and safety by minimizing the risk of loss of function as result of a future storm or flooding event. It would enhance the facility's ability to provide continuous operation and reduce potential strain on the city's other emergency operations and facilities. During construction of the Proposed Alternative, no closures to the hospital's facilities would be required and access to hospital facilities and services would be maintained.

## **5.16 Hazardous Materials**

### **5.16.1 Existing Conditions**

A limited preliminary environmental review consisting of an evaluation of regulatory database listings and historic fire insurance maps was completed for the project site and nearby properties to identify the presence or potential presence of recognized environmental conditions (RECs). This evaluation identified on-site hazardous materials/petroleum usage including: several aboveground and underground fuel storage tanks registered with the NYSDEC Petroleum Bulk Storage (PBS) program (Facility ID 2-328197); active-status NYSDEC petroleum spills (including Spill Nos. 8708180, 1210113 and 1400868) and several closed-status spills with documented petroleum-contaminated soil/groundwater; and the project site's listing as a Large Quantity Generator (LQG) of hazardous wastes (Resource Conservation and Recovery Act [RCRA] ID NYD986914455 and NYD0000707810) for various waste streams. Historical Sanborn maps indicate past on-site uses included industrial/automotive facilities including laboratories and a garage with underground gasoline tanks. Historical filling of the project site may have affected subsurface conditions due to the unknown nature of the historical fill materials. The preliminary review also identified potential polychlorinated biphenyls (PCBs), lead-based paint (LBP) and/or asbestos-containing materials (ACM) within building materials and equipment.

### **5.16.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

Under the No Action Alternative, no alterations would be made to the campus or its facilities. Soil/groundwater remediation associated with the active-status spills would continue to be addressed in coordination with NYSDEC; and bulk chemical, petroleum, and hazardous waste generation/storage/disposal would continue to be conducted in accordance with local, state and federal requirements. It is not anticipated that this alternative would result in any adverse effects related to hazardous materials.

#### **Alternative 2: Proposed Alternative**

The greatest potential for exposure to any contaminated materials would occur during construction of the Proposed Alternative, specifically the associated subsurface disturbance. The potential for adverse impacts would be minimized by adhering to the following:

- Subsurface disturbance associated with the Proposed Alternative would be conducted in accordance with a construction-related health and safety plan (CHASP). The CHASP would assign responsibilities, establish personnel protection standards and mandatory safety practices and procedures, and provide for contingencies that may arise during construction at the project site should unforeseen petroleum tanks or soil contamination be encountered.
- During any subsurface disturbance, surplus excavated soil and debris would be handled and disposed of in accordance with applicable regulatory requirements. If any petroleum underground storage tanks are encountered, they would be closed and removed, along with any contaminated soil, in accordance with applicable requirements.
- If dewatering is necessary for the proposed construction, water would be discharged to combined sewers in accordance with NYCDEP requirements or to storm sewers discharging to the East River in accordance with NYSDEC requirements.
- As with the No Action Alternative, soil/groundwater remediation associated with the active-status spills would be addressed in conjunction with NYSDEC oversight, and bulk chemical, petroleum, and hazardous waste generation/storage/disposal would continue to be conducted in accordance with local, state, and federal requirements.
- Any ACM, LBP, and/or PCB-containing building components affected by the proposed project would be properly managed (including abatement activities where necessary) in accordance with all applicable federal, state and local regulations.

With these measures, the Proposed Alternative would not result in any adverse effects related to hazardous materials.

## **5.17 Climate Change**

EO 13514, Federal Leadership in Environmental, Energy and Economic Performance, sets sustainability goals for federal agencies and focuses on making improvements in their environmental, energy and economic performance. EO 13653, Preparing the United States for the Impacts of Climate Change, sets standards to prepare the United States for the impacts of climate change by undertaking actions to enhance climate preparedness and resilience. FEMA is required under these executive orders to implement climate change adaptability and green infrastructure in FEMA-funded projects, when feasible.

According to EPA, climate change “...refers to any significant change in the measures of climate lasting for an extended period of time” (EPA 2014). This includes major variations in precipitation, sea surface temperatures and levels, atmospheric temperature, wind patterns and other variables resulting over several decades or longer. Such changes are dubbed “abrupt climate change,” occurring over decades and not gradually over centuries or millennia, a distinction from natural variability. The EPA identifies and regulates human actions that may affect climate change. Embodied energy is a measure of sustainability that accounts for the energy used by structures or to create materials. Another measure of sustainability is life-cycle or cradle-to-grave analysis, which accounts for the extraction, manufacture, distribution, use and disposal of materials. While resources exist to quantify embodied energy and life-cycle analysis, no such calculations were required to be prepared by the Subgrantee for the options presented in this EA.

### **5.17.1 Existing Conditions**

Climate change impacts relevant to the Proposed Project are summarized below. Broader discussion of climate change impacts can be found in the following documents and are incorporated here by reference, as recommended by CEQ:

- Intergovernmental Panel on Climate Change Fifth Assessment Report (IPCC 2013)
- Third National Climate Assessment (United States Global Change Research Program 2014)

New York City Panel on Climate Change 2015 Report, (NPCC3 2015) While climate change impacts many aspects of the climate, resulting in myriad secondary effects, the only effect directly relevant to the Proposed Project’s planning efforts for which reasonably foreseeable consequences can currently be projected is sea level rise and its interaction with coastal storms. The NPCC3 report is the latest and best available source of climate change information for the New York City area. According to NPCC3, sea levels in New York City are projected to increase by up to 30” by the 2050s (90th percentile estimate, with a middle range, 25-75th percentile, of 11-21”), 58” by the 2080s (middle range 18-39”), and 75” by 2100 (middle range 22-50”). A “100-year” flood, which is a flood with a 1.0 percent probability of occurring annually under

current conditions, would have up to a 12.7 percent probability of occurrence annually by the 2080s.

Under existing conditions, the facility uses energy, and induces energy use by transportation associated with the use of the facility, the production of any products used at the facility, and the disposal of any materials from the facility, and this energy use results in both direct and indirect GHG emissions.

### **5.17.2 Potential Impacts and Proposed Mitigation**

#### **Alternative 1: No Action**

With the No Action Alternative, energy use and the associated GHG emissions would not change, since the No Action would not affect any of the energy used in the existing condition, described in detail above.

The No Action Alternative would not provide for flood damage risk reduction and other hazard mitigation measures; therefore, the Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with repetitive financial losses and disruption of critical healthcare services. The surrounding community would experience service interruptions and threats to human health due to the loss of healthcare functions, particularly emergency care, in the event a future storm or flooding event causes and partial or full cessation of operations at Bellevue Hospital.

#### **Alternative 2: Proposed Alternative**

In the Proposed Alternative, energy use and the associated GHG emissions would not change since the Proposed Alternative would not affect any of the energy used in the existing condition, described in detail above.

Design guide for critical facilities, FEMA 543, (FEMA 2015) , was followed during the designing phase of the project. Though it does not explicitly addresses climate change it does recommend designing to the “500-year” flood for critical facilities, including health care facilities. However, as described in Section 4.2, the Proposed Alternative is designed to incorporate a comprehensive mitigation system that provides resiliency, designed to provide flood damage risk reduction and other hazard mitigation measures up to an elevation of 18 feet NAVD88, which is three feet above the current “500-year” flood level. This design elevation would be a mitigation measure for a “500-year” flood level through 2050, possibly later (depending on how much sea level actually rises). Given the range of future projections, design to this level may be sufficient through the end of the century, should sea levels rise at higher rates currently projected by 2050, additional changes to the perimeter boundary protection system could be considered at that time.



The Proposed Alternative is not anticipated to significantly exacerbate impacts of climate change on the project area. The potential for induced flooding was evaluated, and as described in more detail in the floodplain section 5.4, because the floodplain on and in the vicinity of the Project Site is affected by coastal flooding, the proposed modifications to the existing hospital facilities would not adversely affect floodplains on or in the vicinity of the Project Site and would not contribute to additional flooding of areas adjacent to the Project Site.

### **5.18 Cumulative Impacts**

In accordance with NEPA, this EA considers the overall cumulative impact of the Proposed Alternative and other actions that are related in terms of time or proximity. According to the CEQ regulations, cumulative impacts represent the “impact on the environment which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what federal agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7).

Cumulative impacts are those impacts “... which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions...” (40 CFR 1508.7) The statutory basis for considering cumulative impacts of federal actions is the NEPA of 1969, 42 U.S.C. 4321 et seq. In the context of evaluating the scope of a proposed action, direct, indirect, and cumulative impacts must be considered.

In addition to NEPA, other statutes require federal agencies to consider cumulative impacts. These include the Clean Water Act section 404 (b) (1) guidelines; the regulations implementing the conformity provisions of the Clean Air Act; the regulations implementing Section 106 of the NHPA; and the regulations implementing section 7 of the ESA.

Recovery efforts are in progress throughout the area impacted by Hurricane Sandy including demolition, reconstruction, and new construction from the private sector as well as state and federal sectors. Numerous projects including roads, buildings, recreational facilities, and public utilities to restore pre-disaster conditions are under way throughout New York City and near the Bellevue Hospital site. The Proposed Project is not anticipated to impact these projects. In reviewing the impacts of the proposed action, cumulative effects are mostly constrained by existing New York City and state regulatory frameworks including permitting and required reviews. Additional impacts not addressed through these existing local and state means are predominantly temporary, incremental, and not a significant impact to the human or natural environment. The Proposed Project once fully implemented would repair, rehabilitate, and increase the resiliency of the hospital to minimize damage to the critical facility’s infrastructure due to future storm events and to ensure the hospital remains fully operational during future storm or flooding events.

## **6.0 PERMITS AND PROJECT CONDITIONS**

The Subgrantee is responsible for obtaining all applicable Federal, State, and local permits and other authorizations for project implementation prior to construction and adherence to all permit conditions. Any substantive change to the approved scope of work will require re-evaluations by FEMA for compliance with NEPA and other laws and EOs. The Subgrantee must also adhere to the following conditions during project implementations and consider the below conservation recommendations. Failure to comply with grant conditions may jeopardize Federal funds:

1. The Best Available Data (BAD) must be used to determine the 500-year floodplain elevation for final engineering design in accordance with 44 CFR Part 9. At the time of this publication, the Preliminary Flood Insurance Rate Map Community-Panel Number 3604970201G dated January 30, 2015 is the BAD.
2. Any proposed construction in the floodplain must be coordinated with the local floodplain administrator and must comply with Federal, state and local floodplain laws and regulations.
3. Excavated soil and waste materials shall be managed and disposed of in accordance with applicable Federal, state, and local regulations. Solid waste haulers will be required to have a NYSDEC waste hauler permit and all waste will need to be disposed of or processed at a permitted facility.
4. If any conditions are received from NYSDOS in response to the CZMA consultation sent on April 13<sup>th</sup> 2015, subgrantee must adhere to them.
5. Threatened or endangered species are likely to not be found in the area of the proposed project site. As a result, pursuant to section 7(a)(4) of the ESA and implementing regulations at 50 CFR §402.02 and 50CFR §402.10, FEMA has determined that the proposed action would not be likely to jeopardize endangered or threatened species, or destroy or adversely modify critical habitat. If any threatened or endangered species are to be found in project area, work will cease and consultation with USFW and other appropriate agencies will be conducted.
6. In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the Subgrantee and its contractors will immediately halt construction activities in the vicinity of the discovery, secure the site, and take reasonable measures to avoid or minimize harm to the finds. The Subgrantee will inform the Grantee, NYSHPO and FEMA immediately. The Subgrantee must secure all archaeological findings and shall restrict access to the area. Work in sensitive areas may not resume until consultations are completed or until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historical significance of the discovery. Work may not resume at or around the delineated archaeological deposit until the Subgrantee is notified by the Grantee to proceed.

7. A Construction Protection Plan may be required for this site to identify the coordination needed to limit potential impacts to the environment, protected resources and communities within and abutting the Project area.
8. The Subgrantee and its contractor are required to use best management practices for construction not limited to sedimentation and erosion control measures, dust control, noise abatement and restriction of work areas to limit vegetation removal and habitat impacts.
9. OSHA standards shall be followed during construction to avoid adverse impacts to worker health and safety.
10. The Subgrantee shall submit copies of all obtained permits to the Grantee/FEMA at or prior to final closeout of the public assistance grant.
11. Subgrantee shall not initiate construction activities until fifteen (15) days after the date that the Finding of No Significant Impact (FONSI) has been signed as “APPROVED.”

## **7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT**

This Draft EA will be made available for agency and public review and comment for a period of 30 days. The public information process will include a public notice with information about the proposed project in the New York Post. A hard copy of the Draft EA will be available for review at these locations:

New York Public Library  
446 Third Avenue  
New York, NY 10016

Bellevue Hospital  
Room MW3, H Building  
462 First Avenue  
New York, NY 10029  
Contact: Evelyn Hernandez, Associate Executive Director, 212-562-4516

New York City Health and Hospitals Corporation  
Room 519  
125 Worth Street  
New York, NY 10013  
Contact: Patricia Lockhart, Secretary to the Corporation & Records Access Officer,  
212-788-3368

An electronic copy of the EA may be requested by emailing FEMA at [FEMA-4085-Comment@fema.dhs.gov](mailto:FEMA-4085-Comment@fema.dhs.gov). The EA will also be made available for download at <http://www.nyc.gov/html/hhc/html/about/About-PublicNotice-BellevueEA.shtml>. This EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by mail to: FEMA NY Sandy Recovery Office, Attn: EHP-Bellevue Hospital Hazard Mitigation EA Comments, 118-35 Queens Blvd., Forest Hills, NY 11375, or: [FEMA-4085-Comment@fema.dhs.gov](mailto:FEMA-4085-Comment@fema.dhs.gov). If no substantive comments are received from the public and/or agency reviewers, the EA will be adopted as final and FEMA will issue a FONSI. If substantive comments are received, FEMA will evaluate and address comments as part of the FONSI record documentation or in a Final Environmental Assessment.

Notices of Availability of the EA will be sent to the following parties:

Bellevue Hospital Center Community Advisory Board  
Sandro Sherrod, Manhattan Community Board 6  
Terrence O’Neal, Land Use and Waterfront Committee, Manhattan Community Board 6  
Ahsia Bodi, Health and Education Committee, Manhattan Community Board 6  
Gale Brewer, Manhattan Borough President  
Daniel R. Garodnick, New York City Council, District 4  
Mark Treyger, New York City Council, District 47 & Chairperson, Committee on Recovery and Resiliency  
Brad Hoylman, NYS Senator  
Brian Kavanagh, NYS Assembly member  
Carolyn Maloney, US Congress  
Charles E. Schumer, US Senate  
Kirsten Gillibrand, US Senate  
U.S. Environmental Protection Agency  
New York State Department of Health  
New York State Department of Environmental Conservation  
New York State Department of State  
New York State Historic Preservation Office  
New York City Mayor’s Office of Environmental Coordination  
New York City Department of Buildings  
New York City Department of City Planning  
New York City Department of Health and Mental Hygiene  
New York City Landmarks Preservation Commission  
New York City Department of Parks and Recreation  
New York City Department of Environmental Protection  
New York City Department of Transportation  
City Record  
Environmental Notice Bulletin

## **8.0 CONCLUSION**

The Subgrantee identified that Alternative 2 Comprehensive Mitigation System is the best-suited alternative to repair, rehabilitate, and increase the resiliency of Bellevue Hospital and to minimize damage to the critical facility's infrastructure and ensure the hospital remains fully operational during and after future storm or flooding events. The perimeter boundary protection system and other mitigation measures would provide a defense against flooding, thus minimizing risk of future damage to the hospital's critical assets and minimizing future disruption of function and service to the community. The continuous functionality of the hospital is critical to minimize deleterious public health, economic, and environmental consequences that could arise as a result of a disruption in the hospital's service. This EA concludes that the construction and operation of the perimeter boundary system and other mitigation measures would have no significant adverse impact on the human environment. In addition, certain design, regulatory compliance, and/or best management practices would be adhered to.

## **9.0 LIST OF PREPARERS**

New York Sandy Recovery Office, FEMA Region II  
118-35 Queens Boulevard  
Forest Hills, NY 11375

Health and Hospitals Corporation  
125 Worth Street  
New York, NY 10013

AKRF, Inc.  
440 Park Avenue South  
New York, NY 10016

ARCADIS U.S., Inc.  
27-01 Queens Plaza North, Suite 800  
Long Island City, NY 11101

Base Tactical  
121 West Long Lake Road, Suite 330  
Bloomfield Hills, MI 48304

## 10.0 SUMMARY OF IMPACTS

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Comprehensive Mitigation System (Proposed Alternative)
5.1	<b>Geology, Topography, and Soils</b>	No effect	Construction and operation would not result in significant alterations to topography or geology (including bedrock) within the Project Site. Installation of the perimeter boundary protection system would require excavation of existing soils but it would be minimal and would not result in adverse effects to soil resource. Best management practices (BMPs) would be used to prevent erosion and soil loss and these resources within the Project Site would not be affected by the Proposed Alternative.
5.2	<b>Air Quality</b>	No effect	The potential operational and construction emissions are expected to be below the applicable <i>de minimis</i> levels, no general conformity analysis would be required, and this alternative would not result in adverse effects to air quality. No new sources of air exhaust will be introduced and therefore no new permits or modifications of existing air permits are required.
5.3	<b>Wetlands and Water Quality</b>	During future flood events it would be possible for localized water quality effects from contaminated floodwaters.	The Proposed Alternative would not adversely affect wetlands or water quality. The proposed perimeter boundary protection system and stormwater management practices would minimize the potential for future flood events to cause localized water quality effects from contaminated floodwaters. BMPs (e.g., silt fences, inlet protection) would be used to prevent adverse effects on water quality during construction. Construction would require preparation of a SWPPP and adhere to General SPDES Permit No. GP-0-15-002.
5.4	<b>Floodplain</b>	Bellevue Hospital would continue to be located within the 100-year floodplain, 500-year floodplain, and would continue to be vulnerable	There is no practicable alternative that would be located outside of the 100-year floodplain. Construction and operation of the Proposed Alternative would not increase the storm tide risk to adjacent properties.

<b>Section</b>	<b>Area of Evaluation</b>	<b>Alternative 1: No Action</b>	<b>Alternative 2: Comprehensive Mitigation System (Proposed Alternative)</b>
		to potential flooding from future storm events.	
<b>5.5</b>	<b>Coastal Resources</b>	No effect	The Proposed Alternative is consistent with New York State’s Coastal Policies of the Coastal Management Plan and will not hinder the achievement of those policies.
<b>5.6</b>	<b>Vegetation</b>	Existing vegetation would continue to be subject to future flood water inundation.	Construction activities would result in the direct loss of mowed lawns areas with trees. The proposed alternative includes the removal of several trees. Potential adverse effects would be minimized by performing all work in compliance with Local Law 3 of 2010 and the NYCDPR’s Tree Protection Protocol. Operation and construction of the Proposed Alternative would not result in adverse effects on vegetation within the New York metropolitan region.
<b>5.7</b>	<b>Wildlife and Fish</b>	No effect	Construction and operation of the Proposed Alternative would not adversely affect wildlife resources at the individual or population level nor would it result in any adverse effects to threatened, endangered, or special concern species.
<b>5.8</b>	<b>Cultural Resources</b>		
5.8.1	Historic (Standing) Structures	No effect	Construction protection measures would be developed and implemented to avoid inadvertent construction related impacts on historic buildings. These construction protection measures would be included in a Construction Protection Plan (CPP) to be developed in consultation with SHPO and implemented in coordination with a licensed professional engineer. With the development and implementation of the CPP, the Proposed Alternative would not be expected to adversely affect historic standing structures.
5.8.2	Archaeological Resources	No effect	The proposed floodwall construction would have minimal impact to potential archaeologically sensitive soils. The likelihood of encountering intact prehistoric



<b>Section</b>	<b>Area of Evaluation</b>	<b>Alternative 1: No Action</b>	<b>Alternative 2: Comprehensive Mitigation System (Proposed Alternative)</b>
			and/or historic archaeological resources is considered low.
<b>5.9</b>	<b>Aesthetic Resources</b>	No effect	The Proposed Alternative would not affect the viewsheds of scenic resources in the area and would not result in any adverse effects to aesthetic resources.
<b>5.10</b>	<b>Socioeconomic Resources and Environmental Justice</b>	In the event a future storm or flood event causes partial or full cessation of operations at the Bellevue Hospital campus and facilities, the surrounding community, including minority and low-income populations, could experience interruptions of critical healthcare service and threats to human health due to the loss of healthcare functions, particularly emergency care.	The Proposed Alternative would not have a disproportionate or adverse effect on minority or low income populations. The Proposed Alternative would benefit the community, including minority or low-income populations, by reducing the risk of future flood damage to Bellevue Hospital and preventing future service interruptions in healthcare and emergency care.
<b>5.11</b>	<b>Land Use and Planning</b>	No effect	The Proposed Alternative would not result in any adverse effects to land use and planning. In addition, the Proposed Alternative would have no adverse effects on public service or utilities.
<b>5.12</b>	<b>Noise</b>	No effect	Construction and operation of the Proposed Alternative would not result in any significant adverse noise impacts.
<b>5.13</b>	<b>Transportation</b>	No effect	During construction, a temporary increase in vehicle, transit, and pedestrian trips is anticipated. Transportation operations are expected to return to near existing conditions after the construction period and would not result in any potential adverse effects on transportation. The Proposed Alternative would not increase the capacity of the hospital and would not generate new trip-making after the construction period. Approval and implementation of all

Section	Area of Evaluation	Alternative 1: No Action	Alternative 2: Comprehensive Mitigation System (Proposed Alternative)
			sidewalk and lane closures during construction would be coordinated with the New York City Department of Transportation's Office of Construction Mitigation and Coordination (OCMC).
5.14	<b>Public Health and Safety</b>	The Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with potential disruption of critical healthcare services. The surrounding community could experience service interruptions and threats to human health due to the loss of healthcare functions, particularly emergency care, in the event a future storm or flooding event causes partial or full cessation of operations Bellevue Hospital.	The Proposed Alternative would protect public health and safety by minimizing the risk of loss of function as result of a future storm or flooding event. It would enhance the facility's ability to provide continuous operation and reduce potential strain on the city's other emergency operations and facilities. During construction of the Proposed Alternative, no closures to the hospital's facilities would be required and access to hospital facilities and services would be maintained.
5.15	<b>Hazardous Materials</b>	No effect	Any potential for adverse effects would be minimized by adhering to NYC Department of Environmental Protection (NYCDEP) best management practices (BMP). With these BMPs, the Proposed Alternative would not result in any significant adverse impacts related to hazardous materials.
5.16	<b>Climate Change</b>	No effect	The Proposed Alternative would have no effect to energy use and associated GHG emissions. The Proposed Alternative is not anticipated to significantly exacerbate impacts of climate change on the project area.

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