Chapter 14: Natural Resources

14.1 INTRODUCTION

This chapter summarizes the natural resources impacts previously identified in the 2004 FEIS and then evaluates any changes in those impacts with the Modified Design. In the 2004 FEIS, natural resources included geological and terrestrial conditions, floodplains, wetlands, groundwater, surface water, and aquatic biota. Since the Phase 2 alignment would not require any in-water work and does not include any wetlands, direct effects to surface water resources (other than as related to stormwater management), wetlands, and aquatic biota are not discussed in this chapter of the Supplemental EA.

The 2004 FEIS concluded that construction of the new subway would not result in any significant adverse impacts on natural resources. Street trees removed for the construction would be replaced in coordination with the New York City Department of Parks and Recreation (NYC Parks) and best management practices would be used to control runoff and stormwater from construction sites. The 2004 FEIS also concluded that the completed subway would not result in significant adverse impacts on natural resources. The Modified Design would not change the conclusions of the 2004 FEIS. The Modified Design now reflects updated floodproofing requirements for critical infrastructure that were implemented by New York City Transit (NYCT) following Hurricane Sandy in 2012.

14.2 FEIS FINDINGS

14.2.1 CONSTRUCTION IMPACTS

While the 2004 FEIS noted that the Project would require a substantial amount of excavation of soil and bedrock, no adverse impacts to geological or soils conditions were identified. In addition, no adverse impacts to vegetation and wildlife during construction were identified. The 2004 FEIS noted that street trees may need to be removed along the Project alignment, and would be replanted in coordination with NYC Parks.

The 2004 FEIS Design's alignment was within the 100-year and 500-year floodplains in East Harlem. The 2004 FEIS did not identify specific construction-related effects due to the potential for flooding. For more information, see Section 14.2.2 below. No adverse impacts to groundwater or surface water resources during construction of Phase 2 were identified in the 2004 FEIS. The 2004 FEIS stated that best management practices would be used to control runoff and stormwater where required to protect water quality. The 2004 FEIS also stated that a Stormwater Pollutant Discharge Elimination System (SPDES) permit for construction activity from the New York State Department of Environmental Conservation (NYSDEC) would be secured, as necessary, and stormwater management plans implemented during construction to minimize the potential for on-site erosion, sedimentation, and stormwater pollution.

The stormwater management program as described in the 2004 FEIS contained appropriate requirements for erosion and sedimentation controls to be used during construction. These and

other construction-period requirements were to be incorporated into a Construction Environmental Protection Plan (CEPP) for the Project, which was to be incorporated into all construction contracts, obligating contractors to follow these provisions. These measures were designed to minimize erosion and stormwater pollution and avoid adverse impacts to water bodies near the construction sites. The 2004 FEIS stated that approval from the New York City Department of Environmental Protection (NYCDEP) would also be secured in order to discharge water from the required dewatering activities into the sewer system. With use of proper pre-treatment measures, impacts to the East River would be avoided.

14.2.2 PERMANENT IMPACTS

The 2004 FEIS stated that the operation of the Second Avenue Subway would have no significant impacts on geology, groundwater, floodplains, water quality, or aquatic and terrestrial vegetation and wildlife. No endangered, threatened, or special concern species would be adversely affected.

The 2004 FEIS noted that the vast majority of the area that could be directly or indirectly affected by the Second Avenue Subway consists of paved property where natural resources would not be affected. Consequently, the text concentrated on sites where impacts to natural resources could potentially occur—chiefly, unpaved areas (parklands) and the Pier 6 site along the water's edge at the East River (the latter of which is not associated with the Phase 2 alignment).

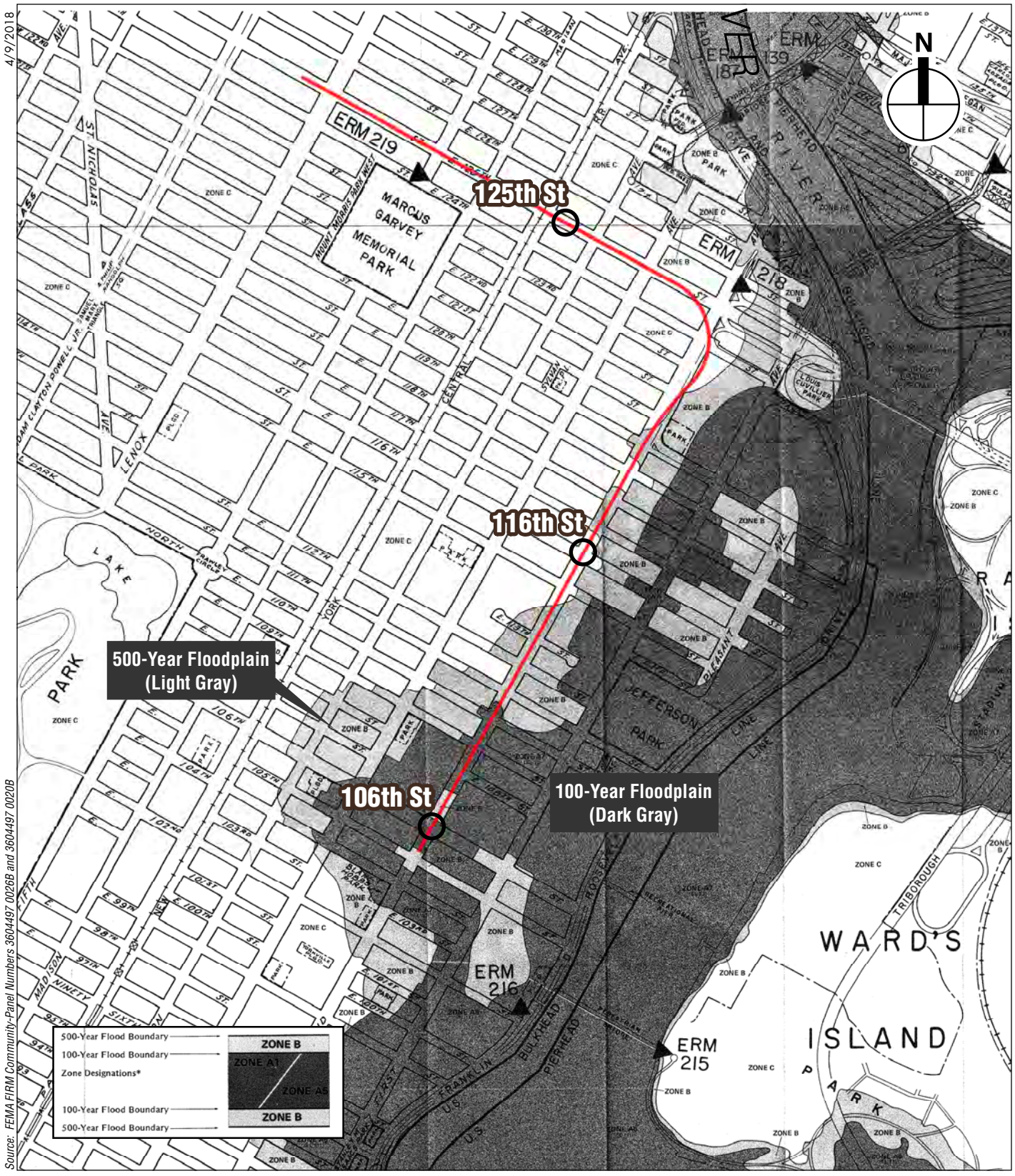
The 2004 FEIS Design's alignment was within the 100-year and 500-year floodplains in East Harlem (see **Figure 14-1**). A floodplain is any land area susceptible to being inundated by riverine or coastal flood waters. The 100-year floodplain is the area of that has a 1 percent chance of flooding in any given year. That area is mapped by the Federal Emergency Management Agency (FEMA) on its Flood Insurance Rate Maps (FIRMs). As shown in **Figure 14-1**, in 2004 the alignment fell within the 100-year floodplain from 103rd Street to 110th Street, except for small areas near East 106th Street that were in the 500-year floodplain. In addition, the alignment from 102nd to 103rd Street and some of the alignment between 110th and 120th Street also fell within the 500-year floodplain.

As described in the 2004 FEIS, the Second Avenue Subway could not be constructed outside the 100-year floodplain in East Harlem and still meet the Project's goals of providing service along the Second Avenue corridor and relieving congestion on the existing Lexington Avenue (4/5/6) subway line. The 2004 FEIS noted that no habitable structures would be located within the floodplain, and the Project would not result in any increase in flooding in those areas.

As described in the 2004 FEIS, the new subway tunnels and stations would be constructed to be resistant to water infiltration. However, some groundwater would nevertheless enter the tunnels, and would be drained to sumps (low points) used to collect water and then pump it to the sewer system. The Project would not add significant amounts of groundwater to the city's sewer system, and would not increase the flows from the city's combined sewer outfalls to nearby water bodies substantially.

14.3 UPDATE OF BACKGROUND CONDITIONS

Subsequent to the 2004 FEIS, peregrine falcon (*Falco peregrinus*), a state-listed endangered species, was documented within ½-mile from the Second Avenue Subway Phase 2 corridor. Based on correspondence from the New York Natural Heritage Program (NYNHP), dated



FEMA Effective (2004)
Flood Hazard Areas
Figure 14-1

August 17, 2017, breeding peregrine falcons are known to occur less than one mile away from the project area (see correspondence in **Appendix C**).

Since 2004, the floodplain maps for New York City, including for East Harlem, have been updated and there are now two sets of FEMA FIRMs for New York City. FEMA's Effective FIRMs, prepared in 2007, apply for flood insurance purposes, and FEMA's more current 2015 Preliminary FIRMs are in effect for Building Code, zoning, and planning purposes in accordance with Local Law 96, in effect January 6, 2014. The 2007 Effective FIRMs and the 2015 Preliminary FIRMs for East Harlem show similar floodplain boundaries to those from 2004 (see **Figures 14-2 and 14-3**).

FEMA's maps indicate the Base Flood Elevation (BFE), which is the height of flooding that can be expected in the 100-year flood within the floodplain. The BFE is measured not from ground or sea level, but from a fixed tidal benchmark established by NOAA called the North American Vertical Datum of 1988 (NAVD88). In addition, in the future, sea level-rise would result in higher elevations of any severe storm flooding, including hurricanes and other severe events. New York State has adopted sea level-rise projections for use in infrastructure planning and permitting (6 NYCRR Part 490). These projections include estimates of potential sea level rise in the near term (by the 2020s) and the long term (by 2100) and a range of potential outcomes. Using the most severe projections, the "High" scenario, sea levels would increase by up to 10 inches by the 2020s, 30 inches by the 2050s, 58 inches by 2080, and up to 75 inches by the end of the century. These sea level rise changes would increase the 100-year base flood elevation in the project area from 12.00 feet at present to 12.8 feet by 2020, 14.5 feet by 2050, 16.8 feet by 2080, and 18.3 feet by 2100. In addition to increasing flood depths, these projected increases in flood elevations would expand the land area within the future 100-year floodplain north up to 125th Street and west to Lexington Avenue.

In 2012, Hurricane Sandy caused extreme flooding and damage throughout New York City, including in East Harlem. As a result, NYCT has updated its flood protection design standards.[1] The design standards set the specific flood elevation that must be used for design purposes for all transit infrastructure located in a flood zone and identify standards and guidelines for critical infrastructure to protect it from flooding.

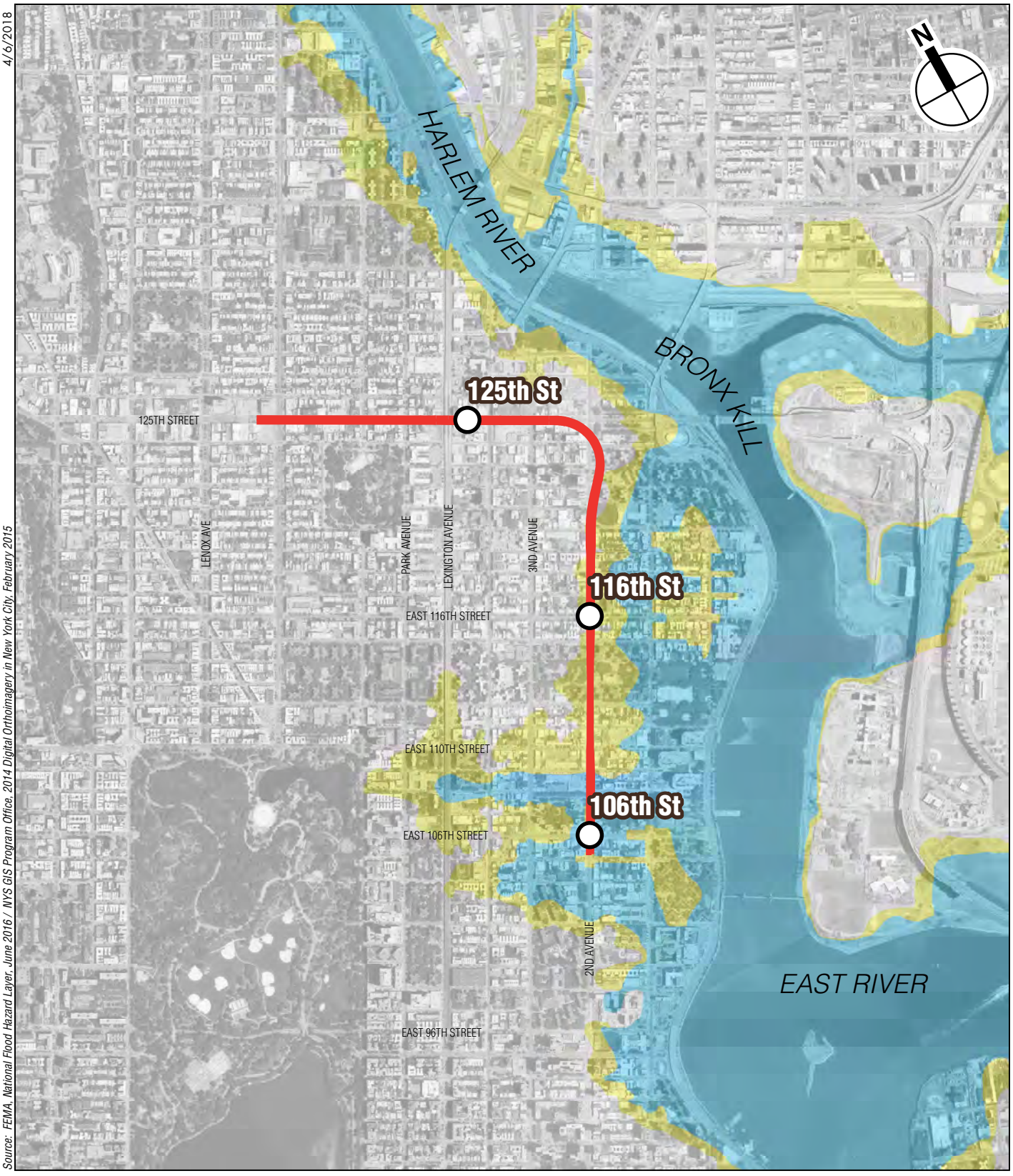
14.4 PHASE 2 MODIFIED DESIGN—CHANGES IN IMPACTS

14.4.1 CONSTRUCTION IMPACTS

Construction of the Modified Design would occur in the same general area identified in the 2004 FEIS. No new undeveloped areas (e.g., parklands or other vegetated areas) or water resources would be affected by the Modified Design. Consistent with the 2004 FEIS Design, street trees would need to be removed along the Project alignment, and would be replanted in coordination with NYC Parks.

Peregrine falcons, a species listed by New York State as endangered, have been sighted within ½ mile from the Phase 2 alignment since the 2004 FEIS. This species is accustomed to the intensely developed habitats of New York City, and peregrine falcons frequent construction projects

[1] NYCT Flood Resiliency Design Guidelines (DG312), Issue 7, was most recently updated in July 2017.



4/6/2018

Source: FEMA, National Flood Hazard Layer, June 2016 / NYS GIS Program Office, 2014 Digital Orthoimagery in New York City, February 2015

Proposed Station

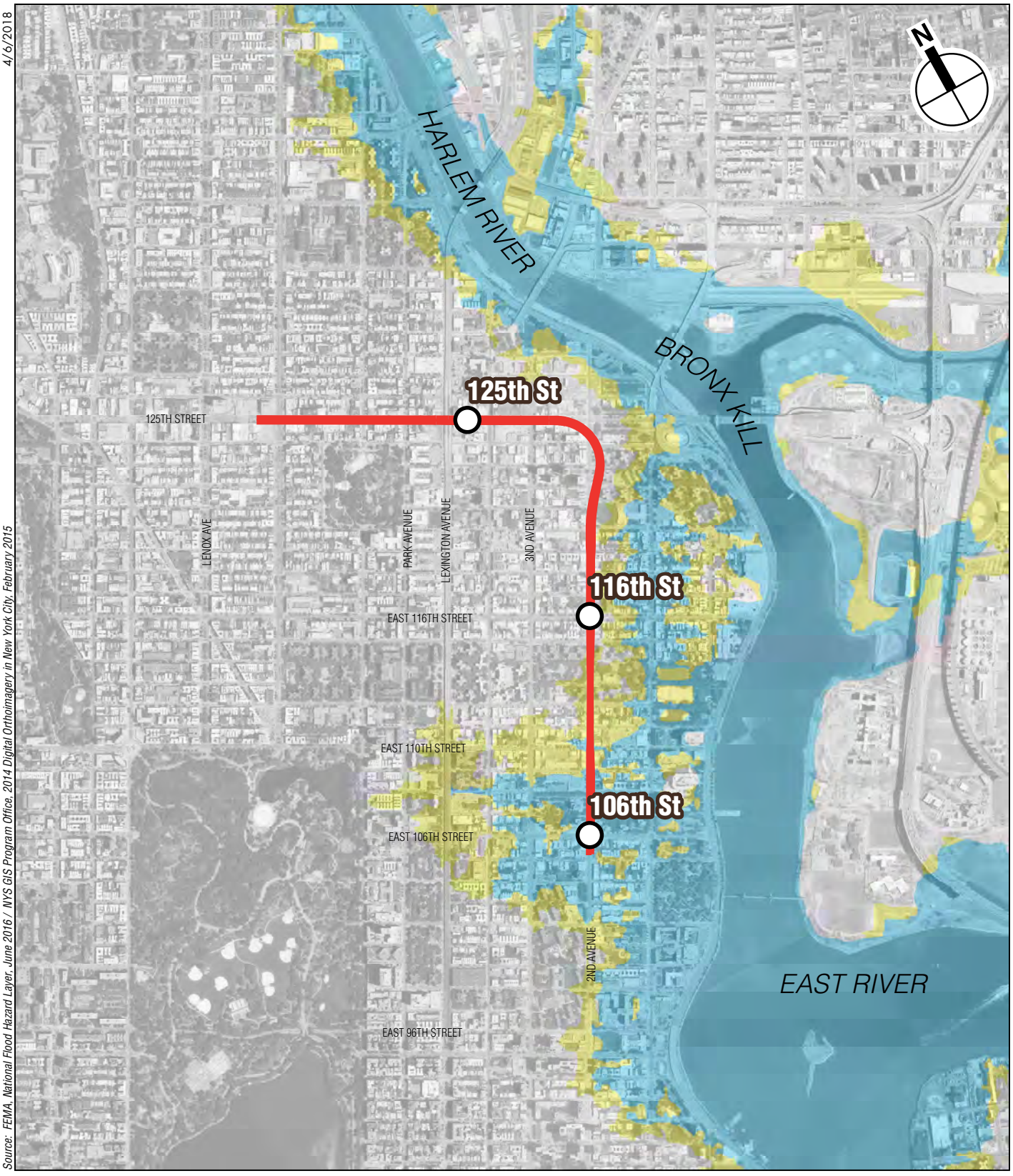
Proposed SAS Phase 2 Alignment

100-Year Floodplain

500-Year Floodplain

SECOND AVENUE SUBWAY PHASE 2

FEMA Effective (2007)
Flood Hazard Areas
Figure 14-2



4/6/2018

Source: FEMA, National Flood Hazard Layer, June 2016 / NYS GIS Program Office, 2014 Digital Orthoimagery in New York City, February 2015

Proposed SAS Phase 2 Alignment

Proposed Station

100-Year Floodplain

500-Year Floodplain

SECOND AVENUE SUBWAY PHASE 2

FEMA Preliminary (2015)
Flood Hazard Areas

Figure 14-3

throughout the city. For this reason, peregrine falcons would not be adversely affected by construction activities for Phase 2.

Construction of the Modified Design would occur within the 100- and 500-year floodplain. To prepare for potential storms and related flooding at the construction sites, MTA will require the construction contractor to prepare a storm risk management plan prior to construction. The plan will identify the potential risks during each construction period and location. The plan will list the means that will be in place at the various sites and during all construction phases to prepare for severe storms and potential flooding so as to reduce the risk of damage to the facilities. The plan will also identify the procedures for determining when storm preparations should begin and the entities responsible for implementing storm preparations in advance of a potential severe storm. At a minimum, the plan will prepare for potential storms that would include hurricane force winds and flooding up to 14.5 feet NAVD88 north of 120th Street and 15.5 feet NAVD88 south of 120th Street. These requirements will be included in the contract documents, and the contractors will be responsible for implementing the storm risk management plan. To protect the Phase 1 infrastructure and train service from the potential for surface flooding during construction of Phase 2, the existing bulkhead (wall) in the tunnel at 105th Street will be maintained in place during construction until other flood measures for Phase 2 are in place.

As with the 2004 FEIS Design, the Modified Design would be required to secure a SPDES permit from NYSDEC for construction activity and adhere to all necessary stormwater management protocols. The stormwater management program would contain appropriate requirements for erosion and sedimentation controls to be used during construction to minimize adverse impacts to water bodies. Approval from NYCDEP would also be secured in order to discharge water from the required dewatering activities into the sewer system.

14.4.2 PERMANENT IMPACTS

As with the 2004 FEIS Design, the Modified Design would have no significant adverse impacts on natural resources. The new subway and associated facilities would not create new impervious surfaces within this already developed area.

The Modified Design would be constructed within the 100- and 500-year floodplains, similar to the 2004 FEIS Design. The Modified Design would be consistent with current MTA flood protection and resiliency design standards, including a design flood elevation for Modified Design that would accommodate flooding up to an elevation of 17.9 feet (NAVD88).

With respect to geology and soils, the revised construction means and methods of the Modified Design (i.e., mining in place of cut-and-cover construction, particularly along 125th Street), would to reduce the amount of excavated materials substantially, with a reduction at 125th Street Station along from about 465,000 cubic yards in the 2004 FEIS Design to about 150,000 cubic yards in the Modified Design.

14.5 CONCLUSIONS

Consistent with the 2004 FEIS, the Modified Design would not result in any adverse impacts with respect to natural resources. Revised floodplain boundaries and flood protection standards have informed the Modified Design, but the construction and operation of Phase 2 would not affect these floodplains. The Phase 2 Modified Design would not result in any new or different significant adverse impacts to natural resources not previously identified in the 2004 FEIS. ✷