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Water Resources

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Acronyms/Abbreviations

µg/L ..... micrograms per liter
BMP ..... best management practices
CFR ..... Code of Federal Regulations
CWA ..... Clean Water Act
ECL ..... Environmental Conservation Law
FEMA ..... Federal Emergency Management Agency
FHWA ..... Federal Highway Administration
NWI ..... National Wetland Inventory
NYCRR ..... New York Codes, Rules and Regulations
NYSDEC ..... New York State Department of Environmental Conservation
NYSDOT ..... New York State Department of Transportation
SPDES ..... State Pollutant Discharge Elimination System
TMDL ..... Total Maximum Daily Load
UB ..... University at Buffalo
USACE ..... United States Army Corps of Engineers
USC. ..... United States Code
USCG ..... United States Coast Guard
USDOT ..... United States Department of Transportation
USFWS ..... United States Fish and Wildlife Service

11 Water Resources

This chapter reviews the regional and local hydrogeological conditions, examines published plans related to water resources, and assesses potential impacts to water resources that could result from the Proposed Action. Depth to groundwater, groundwater flow direction, and groundwater quality are described. Surface water resources and/or wetlands located on or directly adjacent to the Proposed Action and other directly affected areas are also identified and described. In addition, this chapter includes existing and projected stormwater runoff volumes from the Proposed Action and other directly affected areas and discusses strategies undertaken by the Niagara Frontier Transportation Authority (NFTA) to avoid or minimize any potential effects of the Proposed Action.

11.1 REGULATORY CONTEXT

11.1.1 Federal Regulatory Context

- **Clean Water Act** – The objective of the Clean Water Act (CWA), also known as the Federal Water Pollution Control Act, is to restore and maintain the chemical, physical, and biological integrity of "waters of the United States." Waters of the United States include streams, rivers, wetlands, mudflats, and sandflats that meet the specified requirements defined in 33 Code of Federal Regulations (CFR) 328.3, Definition of Waters of the United States. The CWA regulates point sources of water pollution (such as discharges of municipal sewage and industrial wastewater and discharges of dredged or fill material into navigable waters and other waters of the United States) and non-point source pollution (such as runoff from streets, agricultural fields, construction sites, and mining) (33 United States Code [USC] Section 1251 et seq.).
  - *Water Quality Standards and Classifications* – In accordance with the federal CWA, surface waters in New York are classified for their best uses (e.g., fishing, source of drinking water) and standards (allowable levels of pollutants) are set to protect those uses. Letter classes and standards range from A to D in descending order of quality. Standards set forth the maximum allowable levels of chemical pollutants, which are used as the regulatory targets for permitting, compliance enforcement, and assessing the quality of the state's waters. These standards can be either narrative (e.g., "none in amounts that will impair ...") or numeric (e.g., "0.001 µg/L") and are found in regulation 6 New York Codes, Rules and Regulations (NYCRR) Part 703. The letter classifications and their best uses are described in regulation 6 NYCRR Part 701.
  - *Impaired Waters – CWA Section 303(d)* – This section requires states to identify waterbodies that are not fully supporting their best uses. These waterbodies are then listed on the section's "impaired waters" list. Waterbodies may have been identified as impaired due to fish consumption advisories, public bathing beach closures, or sampling results (high nutrient levels, turbidity (i.e. cloudy with suspended matter), and toxic sediments). States must develop total maximum daily load plans (TMDL) for waterbodies on the Section 303(d)

list to reduce the amount of pollutants entering impaired waterbodies. A TMDL calculates the maximum amount of a single pollutant that a waterbody can receive and still meet water quality standards.

  - *Water Quality Certification of Compliance – CWA Section 401* – Under this section, any applicant for a federal permit or license for an activity that may result in a discharge to navigable waters must provide to the federal agency issuing a permit a certificate (either from the state where the discharge would occur or from an interstate water pollution control agency) that the discharge would comply with CWA Sections 301, 302, 303, 306, 307, and 316(b). This certificate is issued by the New York State Department of Environmental Conservation (NYSDEC).
  - *Discharge of fill – CWA Section 404* – This section requires authorization from the secretary of the Army—acting through the U.S. Army Corps of Engineers (USACE)—to discharge dredged or fill material into waters of the United States. Activities authorized under Section 404 must also comply with CWA Section 401. For this action, any authorization required would be issued from the USACE Buffalo District Office.

- **Rivers and Harbors Act of 1899** – The purpose of this act is to protect navigation and navigable channels. Any structures placed in or over navigable waters—such as pilings, piers, or bridge abutments—up to the mean high water line, are regulated pursuant to this act.
  - *Section 9 of the Rivers and Harbors Act of 1899* prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without congressional approval. Administration of Section 9 has been delegated to the U.S. Coast Guard (USCG). The USCG administers its Bridge Permit Program under the legislative authority of Rivers and Harbors Act Section 9 as well as the General Bridge Act of 1946 (33 USC Section 525).
  - *Section 10 of the Rivers and Harbors Act of 1899* requires authorization from the secretary of the Army— acting through the USACE—to construct any structure in or over any navigable water of the United States, the excavation from or deposition of material in these waters, or any obstruction or alteration in navigable waters of the United States.
- **Executive Order 11988: Floodplain Management** – This executive order requires federal agencies to avoid to the extent possible the long- and short-term adverse impacts associated with occupying and modifying floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. U.S. Department of Transportation (USDOT) Order 5650.2 (Floodplain Management and Protection) contains policies and procedures for implementing Executive Order (EO) 11988. For actions with a significant encroachment in the floodplain, USDOT Order 5650.2 requires a project sponsor make a finding that a proposed action is the only practicable alternative and that an evaluation was conducted to identify whether other alternatives are available to avoid or reduce adverse impacts on the floodplain. Chapter 23 CFR Section 650, Subpart A Location and Hydraulic Design of Encroachments in Flood Plains, describes policies and procedures for the location and hydraulic design of highway encroachments on floodplains.
- **Executive Order 11990: Protection of Wetlands** – In accordance with USDOT Order 5660.1a, "Preservation of the Nation's Wetlands," federal agencies must avoid undertaking or providing assistance for new construction in wetlands unless there is no practical alternative to such construction, and a proposed action includes all practicable measures to minimize harm to

the wetland. For this action, the Federal Transit Administration issues a "finding" regarding the compliance of the action with this executive order.

11.1.2 New York State Regulatory Context

- **Floodplain Management Criteria for State Projects, New York Environmental Conservation Law (ECL), Article 36, Implementing Regulations 6 NYCRR Part 502** – All state agencies are to ensure that the use of state lands, and the siting, construction, administration, and disposition of state-owned and state-financed projects involving any change to improved or unimproved real estate are conducted in ways that would minimize flood hazards and losses. Projects are to consider alternative sites on which the project could be located outside the 100-year floodplain—the flood hazard area. Projects to be located within the floodplain are to be designed and constructed consistent with the need to minimize flood damage within the 100-year floodplain and include adequate drainage to reduce exposure to flood hazards. All public utilities and facilities associated with the project are to be located and constructed to minimize or eliminate flood damage. No project may be undertaken unless the cumulative effect of the proposed project and existing developments would not cause material flood damage to the existing developments.
- **Protection of Waters, ECL Article 15, Title 5, Implementing Regulation 6 NYCRR Part 608** – The NYSDEC is responsible for administering the Protection of Waters program and regulation 6 NYCRR Part 608, which governs construction activities on protected surface waters (rivers, streams, lakes, and ponds), that are classified as A, B, or C(t).
- **Freshwater Wetlands, ECL Article 24** – The NYSDEC is responsible for implementing the Freshwater Wetlands program, which is intended to prevent despoliation and destruction of freshwater wetlands in accordance with the environmental protection regulations of the state. Adjacent areas within 100 feet of mapped NYSDEC freshwater wetlands are also regulated, and most disturbances within the protected wetland and their regulated adjacent areas requires an Article 24 permit from the NYSDEC.

  NYSDEC freshwater wetlands are classified according to their respective functions, values, and benefits. Classifying factors include vegetative cover, ecological associations, special features, hydrological and pollution control features, and distribution and location. Wetlands are classified as Class I, II, III, or IV. Class I wetlands provide the most benefits, while Class IV wetlands provide fewer benefits. The system for classifying wetlands is described in Article 24, 6 NYCRR Part 664.5.
- **New York State Pollutant Discharge Elimination System (SPDES) (ECL Article 3, Title 3; Article 15; Article 17, Titles 3, 5, 7, and 8; Article 21; Article 70, Title 1; Article 71, Title 19; Implementing Regulations 6 NYCRR Articles 2 and 3.** – ECL Article 17, Title 8, Water Pollution Control, authorized the creation of an SPDES to regulate discharges to New York waters. Activities requiring a SPDES permit include point source discharges of wastewater into surface or groundwater of the state, including the intake and discharge of water for cooling purposes, constructing or operating a disposal system (e.g., sewage treatment plant), discharge of stormwater, and construction activities that disturb one or more acres.

  Stormwater runoff from paved surfaces and land development generally is considered a "non-point source" discharge. As required by ECL Article 17 and by the SPDES General Permit for

Stormwater Discharges from Construction Activities (Permit No. GP-0-15-002), non-point source pollution from new development must be captured and treated prior to discharge. Stormwater treatment practices consist of such measures as detention/retention basins, infiltration practices, or green practices designed to minimize the generation of stormwater runoff. Within existing urbanized areas designated as MS4 (municipal separate storm sewer systems), additional measures are required by state and federal laws, including the adoption of local stormwater regulations, maintenance of existing stormwater facilities, education and monitoring.

11.2 METHODOLOGY

The study area for water resources consists of a 150-foot-wide area around the Proposed Action alignment. The portion of the study area south of I-290 can be characterized as urban residential and commercial land uses with closed drainage, and the portion of the study area north of I-290 can be characterized by suburban land uses with intermittent open drainage and open waterbodies. Ellicott Creek, Bizer Creek, Lake LaSalle, and several unnamed streams and open swales are within the study area.

Existing conditions for water resources within the study area were characterized using the following data sources:

- NYSDEC's Environmental Resource Mapper for data on streams, waterbodies, and freshwater wetlands
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) wetlands maps
- U.S. Department of Agriculture Natural Resources Conservation Service soils maps
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for areas that may be located within flood hazard areas
- The Final 2016 New York State Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy (November 2016)
- Site reconnaissance of the study area on June 24, 2019
- Wetland field investigation within the study area on June 24, 2019
- U.S. Geological Survey's National Streamflow Information Program for watershed size data for streams
- U.S. Environmental Protection Agency's STOrage and RETrieval and Water Quality eXchange for water quality data for streams

11.3 EXISTING CONDITIONS

11.3.1 Freshwater Wetlands

An assessment of the study area was conducted for the purpose of identifying wetland resources (Figure 11-1). The NYSDEC Environmental Resource Mapper and the USFWS NWI documented several wetlands, which are in a portion of the study area north of I-290. A field assessment was completed on June 24, 2019, to determine potential Proposed Action impacts to these wetlands. A final jurisdictional determination from USACE for federal wetlands and from NYSDEC for state wetlands would be obtained during final design.

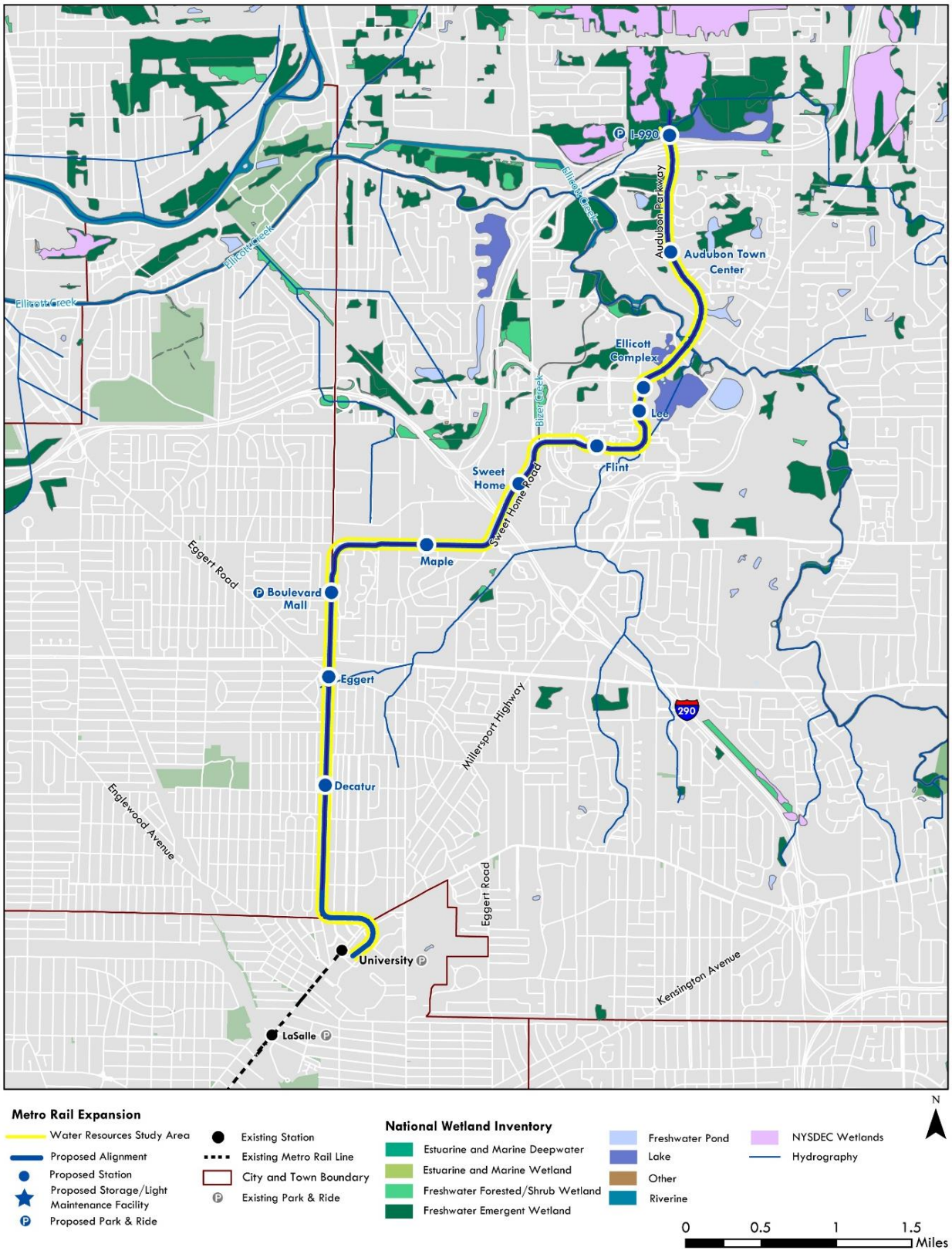
11.3.1.1 Federal Jurisdiction Wetlands

The study area was reviewed for wetlands in accordance with the criteria defined in the 1987 *Corps of Engineers Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. Figure 11-1 identifies the federal wetlands on the NWI maps, which are characterized as follows:

- **Study Area South of I-290** – No federal or state mapped freshwater wetlands are within the water resources study area south of I-290, and no wetlands were observed during the June 24, 2019, site visit and wetland survey.
- **Study Area North of I-290** – Ellicott Creek is a riverine community (R2UBH) within the study area. Stream corridors in general are mapped by the NWI as riverine, which may contain wetlands along the riparian zone. There are no wetland areas within the riparian corridor along Ellicott Creek where the study area crosses the creek. There is a narrow patchy strip of trees along the banks of Ellicott Creek that slope steeply and drop down to the shoreline of the creek. Thicker riparian woodland with a possible floodplain wetland exists approximately 150 feet east of the John James Audubon Parkway bridge on the south side of Ellicott Creek; however, this area is outside the limits of the study area. The following additional areas with wetland characteristics that were identified during the site visit should be delineated during a future design phase.
  - The northernmost portion of the study area contains wetlands mapped by NWI. Three mapped wetlands identified as palustrine communities are on the west side of John James Audubon Parkway at the southwest quadrant of the intersection with Dodge Road, and at Bryant Woods North and Bryant Woods South. The wetlands are identified as deciduous broad-leaf forested wetlands that are seasonally flooded and/or saturated. These wetlands were confirmed during the June 24, 2019, site visit and wetland assessment.
  - A fourth contiguous wetland area is at the north terminus of the project corridor, north of the John James Audubon Parkway and I-990 terminus. This mapped area consists of several contiguous wetland polygons and a deep water habitat that was previously constructed as a stormwater management pond. These wetlands continue north to intersect with the mapped NYSDEC wetlands TE-22 (approximately 54 acres) and TE-34 (approximately 42 acres). The areas directly adjacent to the proposed alignment are identified as emergent and scrub-shrub, with hydrology characterized as seasonally saturated. As this area is part of a planned mixed-use development, this area has been delineated by the developer and the developer is negotiating with the USACE to identify appropriate parameters for disturbance

areas and mitigation. These wetlands were confirmed during the June 24, 2019, site visit and wetland assessment.

Figure 11-1. Wetlands within the Study Area



During the site visit, several unnamed swales and drainage basins were observed within the water resources study area that may have wetland characteristics and should be delineated during later phases of the design:

- **Study Area South of I-290**
  - **Drainage basins on the west side of the Boulevard Mall** – Drainage basins east of the northbound lanes of Niagara Falls Boulevard contain standing water, invasive common reed (*Phragmites australis)*, and other wetland plants. These drainage basins were constructed to drain stormwater from the parking lots of the Boulevard Mall and are believed to drain into the local storm sewer.
  - **Drainage basin at the Intersection of Maple Road and Alberta Drive** – A drainage basin at the southeast quadrant of the intersection is used to drain stormwater from the parking lots of adjacent businesses. This basin contains standing water, native cattails (*Typha latifolia*), and other wetland plants. This basin is believed to drain into the local storm sewer.
  - **Drainage basin at Sweet Home Middle School** – A drainage basin is on the eastern side of the property along Maple Road, and appears to drain the school parking lot and athletic fields. The basin contained standing water, invasive common reed *(Phragmites australis)* and other wetland plants. This basin drains into the local storm sewer.
  - **Drainage basin at Maple and Sweet Home Roads**– A drainage basin is at the northwest quadrant of the intersection of these two roads. This basin is used to drain stormwater from the parking lots of adjacent businesses. This basin contains standing water, native cattails (*Typha latifolia*), and other wetland plants. This basin drains into the local storm sewer.
- **Study Area North of I-290**
  - **Pond and swale north of intersection of North Forest Drive and John James Audubon Parkway** – A man-made unnamed pond drains through a swale on eastern side of John James Audubon Parkway. The swale flows north then crosses the parkway through a culvert to ultimately discharge into Ellicott Creek. This waterbody has wetland characteristics such as standing water, minnows, native cattails (*Typha latifolia*), invasive common reed (*Phragmites australis)*, and other wetland plants.
  - **Swale south of intersection of Gordan R. Yaeger Drive and John James Audubon Parkway –** A drainage swale that conducts water from Walton Woods ponds to Ellicott Creek enters the study area south of the Amherst Public Library from the east and flows north along John James Audubon Parkway under Gordan R. Yaeger Drive into a drainage basin, and then ultimately to Ellicott Creek. This water then enters a culvert and crosses under the parkway, turns south, and flows out of the study area south to Ellicott Creek. This waterbody has wetland characteristics such as standing and flowing water, amphibian larvae, native cattails (*Typha latifolia*), invasive common reed (*Phragmites australis)*, and other wetland plants.

- **Man-made drainage swales along I-990 and John James Audubon Parkway** – These swales convey stormwater toward Ellicott Creek, have some standing water, and contain wetland plants including the invasive common reed (*Phragmites australis).*
- **Drainage swale north of the terminus of John James Audubon Parkway** – A drainage swale conducts water from a man-made lake east of the study area toward the west across the Proposed Action alignment to Ellicott Creek. This drainage swale has wetland characteristics such as flowing/standing water and the invasive common reed (*Phragmites australis)* and other wetland plants along the entire length of the ditch.

11.3.1.2 State Freshwater Wetlands

Based on a review of mapped natural resources and environmental features identified by NYSDEC's Environmental Resource Mapper, three NYSDEC-regulated freshwater wetlands are mapped beyond the study area (TE-17). Two Class 2 wetlands are approximately 500 feet beyond the north end of the study area, north of I-990 at Dodge Road. The NYSDEC identified the nearest following wetlands: TE-22 (approximately 54 acres), and TE-34 (approximately 42 acres). During the June 24, 2019, site visit and wetland assessment, it was confirmed that the NYSDEC-regulated freshwater wetland boundaries are not within the water resources study area.

11.3.2 Surface Waters

The study area is within the Ellicott Creek watershed, which drains in a westerly direction to the Niagara River. Surface waters within the study area drain through local streams and drainage ways and ultimately discharge to Ellicott Creek which, in turn, discharges to Tonawanda Creek and then the Niagara River. Ellicott Creek drains an area of 120 square miles, Tonawanda Creek drains an area of 644 square miles, and the Niagara River drains much of the Great Lakes (an area of 264,000 square miles). In general, the watersheds of Ellicott Creek are characterized by disturbances associated with roadway, commercial, industrial, and residential development.

The surface waters in the study area are presumed to be "Waters of the United States" under federal jurisdiction. Most surface waters within the study area are man-made swales that have been realigned or disturbed. These surface waters are near highway and other infrastructure and, in many cases, have been channelized or diverted underneath roads and ramps via culvert inlets/outlets:

- *Ellicott Creek* is an NYSDEC Class B (Standard B) stream. Swimming and other contact recreation are the best usages for Class B waters, which must also be suitable for fish propagation and survival. Ellicott Creek flows westward through the Proposed Action alignment at the John James Audubon Parkway bridge between Frontier Road and North Forest Road. Ellicott Creek was realigned (straightened) in this area when the John James Audubon Parkway bridge was built in 1983. The Ellicott Creek drainage basin upstream of the point where the Proposed Action alignment crosses is approximately 91 square miles in size. Ellicott Creek and its following tributaries are considered Section 303(d)-listed impaired waters for aquatic life (i.e., fish, shellfish, and wildlife protection and propagation), fish consumption, public bathing, recreation, shellfishing, and water supply. This segment of Ellicott Creek is not listed as a U.S. navigable waterway; however, Ellicott Creek is a state-regulated navigable water within the study area.

- *Bizer Creek* is an NYSDEC Class C (Standards C) water. Fishing is the best usage for Class C waters, which must also be suitable for fish, shellfish, and wildlife propagation and survival. The water quality must be suitable for primary and secondary contact recreation, although other factors could limit the use for these purposes. Bizer Creek has a drainage area of approximately six square miles upstream of the Proposed Action alignment. The creek flows northward through a culvert across the Proposed Action alignment at Rensch Road between Sweet Home Road and John James Audubon Parkway and outlets to Ellicott Creek west of the Proposed Action alignment. The walls and bottom of the creek are concrete lined and relatively straight in the area where the Proposed Action alignment would cross. Bizer Creek was realigned in the late 1960s to allow for the construction of the University at Buffalo (UB) North Campus. Bizer Creek formerly meandered through the land now used as UB North Campus and outlets into Ellicott Creek approximately 3/4 mile southeast of its current outlet to Ellicott Creek.
- *Lake LaSalle* is a man-made lake that was constructed as part of the UB North Campus in the late 1960s. Much of Lake LaSalle was constructed on the former alignment of Bizer Creek. Lake LaSalle is not specifically mapped or classified by the NYSDEC; however, based on the classification of the former stretch of Bizer Creek in this location (which was later realigned to the west), Lake LaSalle can be considered an NYSDEC Class C (Standard C) water. Lake LaSalle has several outlet structures to Ellicott Creek that are believed to be plugged or closed off; however, UB has indicated that it may have plans to reopen the structures to allow for fish propagation through aquatic connectivity to Ellicott Creek. The outlet that John James Audubon Parkway travels over is hard walled with large riprap, is approximately 50 feet wide, and connects the eastern and western ends of Lake LaSalle.
- A man-made unnamed pond north of the intersection of North Forest Road and John James Audubon Parkway drains through a swale on the eastern side of John James Audubon Parkway. The swale flows north then crosses the parkway through a culvert to ultimately discharge into Ellicott Creek.
- The unnamed swale (from Audubon Lake and Walton Pond) flows westward through a culvert along the Proposed Action alignment under John James Audubon Parkway at Gordon R. Yaeger Drive. Audubon Lake and Walton Pond are man-made ponds that outlet to Ellicott Creek through this waterway. This waterway is not mapped by the NYSDEC or NWI. The drainage area for this swale is approximately 0.29 square miles.
- Man-made drainage swales at the I-990 are along the roadway and ramps that convey stormwater westward toward Ellicott Creek.
- John James Audubon Parkway has man-made drainage swales along the roadway that convey stormwater northward toward other swales leading to Ellicott Creek.
- Unnamed swales are present north of the terminus of John James Audubon Parkway that NYSDEC has mapped as a Class C (Standard C) waters. This engineered swale system conveys stormwater westward from a wetland and a man-made wetland pond to Ellicott Creek. This swale system is just north of the terminus of John James Audubon Parkway, and its drainage area upstream of the Proposed Action alignment corridor is approximately 5.5 square miles.

11.3.3 Floodplains

Portions of the study area are within the 100-year floodplain—the area with a 1 percent chance of flooding each year—as defined under the current 23 CFR Section 650 and is the Flood Hazard Area as defined under 6 NYCRR Section 502.

ECL Article 16, Section 0107.13, states the following:

> "No person shall construct any improvement, excavate, deposit material or operate a motorcycle, motor-driven cycle, snowmobile or motor vehicle except lawn maintenance equipment upon lands acquired or burdened by a flood control easement without a permit. Permits will be issued by the commissioner where the proposed activity will not interfere with or endanger the flood control works, or impede the maintenance or operation of such works.

In 1989, the Ellicott Creek Flood Control Protection Project was constructed to provide protection from floods that have an average recurrence interval of 100 years with a discharge of 17,400 cubic feet per second. The project included the following components:

- Enlarged approximately 2.1 miles of creek channel
- Extended a reinforced concrete floodwall on the right bank approximately 870 feet from Maple Road upstream to a 500-foot levee that connects the floodwall to high ground
- Created three diversion channels (9,150 feet long, 1,950 feet long, 5,850 feet long), and enlarged the approximately 2,100-foot-long existing diversion channel
- Installed 20 new flapgates and five gatewells to prevent creek backup during high flood stages
- Modified nine storm drains where channel enlargement was performed
- Enhanced erosion protection with riprap and grout-filled mats upstream and downstream of large culverts, bridges, at the confluence of major tributaries and created diversion channels with Ellicott Creek and other areas along the creek, and modified diversion channels that were particularly susceptible to erosion

11.3.4 Stormwater

South of I-290, the study area drainage system primarily consists of a closed sewer network owned by the Town of Tonawanda, City of Buffalo, Town of Amherst, and Erie County. This system contains drainage inlets, manholes, and storm pipes that convey runoff mainly to Ellicott Creek. Stormwater from the project generally drains through a network of small-diameter pipes that drain to larger-diameter county interceptor sewers and then to open ditches that lead mainly to Ellicott Creek or drain south or west from University Heights to Niagara River or Scajacquada Creek. Most of the study area south of I-290 is serviced by a combined sewer system, in which sanitary waste, industrial waste, and stormwater runoff are discharged to the same sewer system and conveyed to the wastewater treatment plant for treatment. During periods of heavy rain or snowmelt, the wastewater volume in the combined sewer system can exceed the capacity of the combined sewer system or treatment plant. During these periods, the combined sewer system is designed to overflow

(i.e., combined sewer overflows) and discharge excess combined flow into nearby surface waters, including open ditches and Ellicott Creek.

North of I-290, the study area contributes runoff to Ellicott Creek either directly or through either closed drainage systems, open swales, dry ditches, or culverts. Some of the stormwater within the study area also contributes runoff to nearby wetlands or pond systems, such as Lake LaSalle, which eventually discharges to Ellicott Creek.

According to U.S. Geological Survey StreamStats data, the Ellicott Creek watershed area upstream of the last outfall associated with stormwater from this Proposed Action alignment is approximately 116 square miles.

11.3.5 Groundwater

Groundwater is not used as a potable water supply within the study area. Therefore, no further analysis was necessary.

11.3.5.1 Sole Source Aquifers

The Proposed Action was reviewed for compliance with the state and federal regulations regarding aquifer and drinking water protection. Since the Proposed Action alignment would not be within a designated Sole Source Aquifer area, no further review for Section 1424(e) of the Safe Drinking Water Act of 1974 was required.

11.3.5.2 State Aquifers

NYSDEC aquifer maps were reviewed, and because the Proposed Action alignment would not be located in an identified Primary Water Supply or Principal Aquifer Area, no further investigation for NYSDEC designated aquifers was required.

11.4 FUTURE WITHOUT THE PROPOSED ACTION

The No Action condition would consist of a future scenario with no changes to the Proposed Action corridor, beyond the projects that are already committed and planned by others. See Chapter 2, "Land Use, Zoning, and Community Character" for a list of No Action conditions projects. Without the Proposed Action, the existing drainage system on the Proposed Action alignment and other directly affected areas would continue to function as it does today, with routine maintenance to keep it functional. The No Action condition would maintain the roadway network and Metro Rail system in its existing configuration.

North of I-990, the Muir Woods development project would result in permanent impacts to approximately 10.98 acres of state regulated wetlands, 13.46 acres of state regulated 100-foot wide wetland adjacent area, and 19.12 acres of federal wetlands. As outlined in the Statement of Findings for the Muir Woods development, the project will create 26.917 acres of in-kind and out-of-kind wetland on-site, in seven areas, to replace the functions and benefits of the impacted wetlands.

11.5 PROPOSED ACTION

11.5.1 Freshwater Wetlands

Federal and state jurisdictional wetlands are believed to be present within the study area. It is anticipated that some of these wetlands would be permanently incorporated into the proposed footprint of the Proposed Action. These effects would generally occur around Bizer Creek, Ellicott Creek, various roadside swales, and north of the I-990. In addition, the Proposed Action's track and substations could affect existing drainage basins. The location and severity of the affected drainage basins would be determined during final design and submitted as part of the SPDES permit.

The following list includes possible wetland areas that could be affected based on the Proposed Action alignment. These areas were identified during a site visit on June 24, 2019, and wetland assessment for the Proposed Action. Many of the observed areas had characteristics of possible wetlands and need to be evaluated further through wetland characterization and delineation:

- **Study Area South of I-290**
  - West side of Boulevard Mall – Drainage basins (0.69 acre) with possible wetland indicators were identified east of the northbound lanes of Niagara Falls Boulevard.
  - Intersection of Maple Road and Alberta Drive – A drainage basin (0.08 acre) with possible wetland indicators was identified at the southeast quadrant of the intersection of Maple Road and Alberta Drive.
  - Sweet Home Middle School – A drainage basin (0.10 acre) with possible wetland indicators was identified on the eastern side of the Sweet Home Middle School property along Maple Road.
- **Study Area North of I-290**
  - North of the North Forest Drive and John James Audubon Parkway intersection – A drainage basin (0.21 acre) and outlet of a man-made unnamed lake was identified with possible wetland indicators.
  - South of the Gordan R. Yaeger Drive and John James Audubon Parkway intersection –A drainage swale (0.31 acre) with possible wetland indicators was identified that conducts water from Walton Woods ponds to Ellicott Creek.
  - Western side of the John James Audubon Parkway southbound lanes – Federally jurisdictional wetlands (3.45 acres) were identified.
  - Along the roadway and ramps that convey stormwater westward toward Ellicott Creek – Manmade drainage swales (<0.10 acre) along the I-990 were identified with possible wetland indicators.
  - North of John James Audubon Parkway terminus – A drainage swale (<0.10 acre) with possible wetland indicators conducts water from a man-made lake located east of the study area toward the west across the Proposed Action alignment to Ellicott Creek.
  - Area of the final terminus of the Metro Extension north of I-990 and the end of John James Audubon Parkway –Federally jurisdictional wetlands (3.79 acres) were identified.

During preliminary and final designs, wetland impacts would be identified and efforts would be made to minimize impacts through an iterative process of design refinements. As design advances, refinements would continue to be implemented, as practicable, to avoid and reduce permanent impacts on wetlands where reasonable. During construction, best management practices (BMPs) would be employed to reduce permanent impacts to wetlands located in near the construction areas.

Depending on the final disturbance areas, the permanent construction effects to wetlands and surface waters under federal jurisdiction for the Proposed Action may require an individual Section 404 permit and Section 401 Certification to place dredged or fill materials into waters of the United States, including wetlands. With respect to NYSDEC wetlands and regulated freshwater wetland adjacent areas, the Proposed Action may also require an Article 24 "Freshwater Wetlands" permit from NYSDEC to conduct temporary or permanent activities on wetlands or adjacent areas that have not been specifically exempted from regulation' (6 CRR-NY 663.3(e)).

As described under Section 11.6, the NFTA would coordinate with NYSDEC and USACE in developing a preliminary mitigation plan, if required.

11.5.1.1 Executive Order 11990

During final design, the Proposed Action would be reviewed for compliance with EO 11990, Protection of Wetlands (23 CFR 771.125(a)(1)). Under EO 11990, federal actions (in which impacts to wetlands are unavoidable) require a "finding" that there are no practicable alternatives to the proposed construction in wetlands and that a proposed action includes all practical means to reduce harm to wetlands. If a proposed action involves unavoidable permanent impacts to freshwater wetlands caused by rail and station installations, an EO 11990 finding may be required.

The Proposed Action would be carefully studied with respect to its effects on wetlands. As indicated above, design refinements would be considered to avoid and minimize impacts to wetlands. If wetland impacts cannot be avoided, the measures to minimize harm to the wetlands may also include compensatory mitigation for the temporary and permanent disturbances during construction in accordance with the joint mitigation rule (*Federal Register* dated April 10, 2008, 73 FR 19594 through 19705). Coordination with the USACE and NYSDEC would take place during future phases of design. Based upon the above considerations, it is anticipated that the Proposed Action would include all practicable measures to minimize harm to wetlands that may result from such use; therefore, the intent of EO 11990 would be met.

11.5.2 Surface Waters

STORMWATER

The Proposed Action would result in a net increase in impervious cover. Water quality treatment and increased stormwater runoff flows and volumes would be mitigated via post-construction stormwater management practices. Stormwater BMPs would be designed during final design. In addition, the drainage system in the Proposed Action corridor would require updates to accommodate the new rail facilities, stations, and roadway modifications. It is anticipated that drainage systems within combined sewer systems would remain as combined and separated stormwater systems would remain separated.

The portion of the corridor south of the I-290 consists mainly of combined sewer systems. These combined sewer systems would receive drainage from the Proposed Action through the existing closed stormwater systems in place with appropriate modifications to the catch basins and laterals. Since much of Proposed Action's drainage modifications required for the combined sewer system areas would be within impervious areas, it is not anticipated that the quantity of stormwater would increase significantly. During final design, the Proposed Action would also be reviewed with respect to the use of green infrastructure measures to reduce combined sewer overflows and the potential separation of combined sewer systems.

Within the separated stormwater systems, modifications to the drainage systems would also include BMPs such as dry swales, hydrodynamic stormwater treatment units, and infiltration/detention basins, which would improve stormwater quality prior to it entering the stormwater trunk lines or outfalls. The total storage volume of each infiltration/detention basin BMP would reflect the volume required for 24-hour extended detention of the post-developed 1-year, 24-hour storm event. The BMPs would be sized as needed to meet the water quality target volumes. The NYSDEC storage volume requirements for the 10-year storm and 100-year storm would also be used as the design volume for the infiltration/detention basin BMPs.

The final locations for the BMPs would be determined during final design and would be positioned within the landscape in accordance with NYSDEC's Stormwater Management Design Manual in such a way that would provide the required water quality treatment, runoff reduction, and peak flow attenuation. In addition to the water quality BMPs, the NFTA would review and further refine potential green infrastructure practices during the final design stage. BMPs under consideration include vegetated swales, detention/infiltration practices such as bioretention basins, tree planting, tree pits, stormwater planters, rain gardens, and conservation of existing trees.

Numerous outfalls are present along Ellicott Creek, Lake LaSalle, and Bizer Creek. The current outfalls are expected to remain active under the Proposed Action, and it is anticipated that new outfalls would be required along some of these waterways to accommodate the proposed dry swales.

The current alignment of the Metro Rail would interfere with stormwater management practices currently in place at the UB North Campus and at the Boulevard Mall. These stormwater management practices would be modified to suit both the Proposed Action needs and the needs of the adjacent facilities that they currently serve.

As part of a separate NYSDOT/Amherst initiative, the John James Audubon Parkway northbound lanes are expected to be closed and the southbound lanes are expected to be converted to a two-way roadway handling the traffic along John James Audubon Parkway. While this NYSDOT/Amherst initiative is unrelated to this Proposed Action, the initiative offers a footprint for the Proposed Action's alignment that would generally follow the pavement along the current northbound John James Audubon Parkway lanes. However, in areas where the Proposed Action alignment and pedestrian trails would deviate from the current pavement, the pavement (if still present) would be removed and restored to greenspace, to the extent practicable.

With the implementation of BMPs designed to treat stormwater quantity and quality in accordance with the Stormwater Management Design Manual and the Stormwater Pollution Prevention Plans prepared in accordance with SPDES General Permit for Stormwater Discharges from Construction

Activity (GP-0-15-002), stormwater runoff from the Proposed Action would (1) be improved as compared to the No Action condition; (2) not result in adverse effects to local waterways; and (3) not cause the failure of these surface waters to meet the water quality criteria for their designated water quality classification.

SURFACE WATERS

Temporary and permanent effects are expected to occur on surface waters in the study area. Surface waters anticipated to be affected include the following:

- *Ellicott Creek* – The Proposed Action alignment would cross Ellicott Creek, utilizing the existing piers remaining from a former section of the John James Audubon Parkway northbound lanes. It is anticipated that these piers are appropriately stable and would not need to be replaced. Therefore, work is not expected to take place within the water at this location and only minimal temporary construction-related impacts are expected.
- *Bizer Creek* – A new bridge would be required at the Proposed Action alignment rail crossing of Bizer Creek (just south of Rensch Road). Because the walls and bottom of the creek are concrete lined and relatively straight in the area where the Proposed Action alignment would cross, it is anticipated that impacts to the creek for bridge construction would be minimal.
- *Lake LaSalle* – It is anticipated that the Proposed Action alignment would use the John James Audubon Parkway bridge carrying the northbound traffic lanes to carry the rail over this waterway. The waterway that the John James Audubon Parkway travels over is hard walled with large riprap, is approximately 50 feet wide, and connects the eastern and western ends of Lake LaSalle. It is anticipated that the piers that area are appropriately stable and would not need to be replaced. Therefore, work is not expected to take place within the water at this location and only minimal temporary construction-related impacts are expected.
- *A man-made unnamed pond* – north of the intersection of North Forest Road and John James Audubon Parkway is a man-made unnamed pond that drains through a swale on eastern side of John James Audubon Parkway. The swale flows north then crosses the parkway through a culvert to ultimately discharge into Ellicott Creek. The Proposed Action alignment would be within the roadway in this area; therefore, it is not expected to affect this culvert or waterbody. These and the other roadside ditches would be protected from disturbance during construction by temporary stormwater control measures.
- *Unnamed swale (from Audubon Lake and Walton Pond)* - The Proposed Action alignment along John James Audubon Parkway near Gordon R. Yaeger Drive would deviate from the paved surface and would intersect with this swale's alignment in front of the Amherst Public Library where a rail station is proposed. The Proposed Action alignment would require the relocation of approximately 450 feet of the swale, including the extension of the culvert that crosses John James Audubon Parkway. The swale would be relocated to the east at a location between the proposed rail station and the Amherst Public Library. In addition, a stormwater management dry swale would be constructed along the west side of the proposed station for stormwater treatment. Just north of Gordon R. Yaeger Drive, the culvert under John James Audubon Parkway would be extended approximately 40 feet to the east to allow for the new rail alignment.

- *Manmade drainage swales along I-990 and John James Audubon Parkway* - The Proposed Action alignment in this area would run along the pavement of the northbound lanes of John James Audubon Parkway; therefore, it is not anticipated that these roadside ditches would be permanently impacted. These and all other roadside ditches would be protected from disturbance during construction by temporary stormwater control measures.
- *Unnamed swales from wetlands north of I-990* - This is an engineered swale system that conveys stormwater westward from a wetland and a man-made wetland pond to Ellicott Creek. Modifications to this waterway would be coordinated with the USACE. The conveyance of this swale system would be maintained to allow water to flow in a similar manner to the existing.

A hydraulic analysis would be performed for affected waterways during preliminary and final designs to ensure that the design would have no adverse effects on stream beds and banks and to establish additional protections for these areas if needed. The disturbed areas would be stabilized following construction and planted with appropriate native plantings.

These disturbances would create an opportunity to strategically plant native species. In that areas that would be disturbed by the Proposed Action alignment, the landscape restoration plan would include planting of native species that would provide riparian habitat and bank stabilization.

Soil restoration would be provided for locations where impervious surfaces would be removed, and would include physical restoration methods such as tilling to loosen the compacted soil.

NAVIGATION

There are no navigable waterway under federal law within the Proposed Action corridor; however, Ellicott Creek is a state-regulated navigable water within the study area. If it is determined during final design that the Proposed Action work would require placement of fill within Ellicott Creek, navigability of Ellicott Creek would not be affected. An NYSDEC Protection of Waters Permit for Excavation or Placement of Fill in Navigable Waters would be required, pursuant to ECL Article 15, Title 5 should fill be placed within Ellicott Creek. The permit would be obtained once the location and extent of the impacts are ascertained.

Since the Proposed Action would not involve constructing or modifying any bridge, dam, dike, or causeway over any navigable water of the United States, Section 9 and Section 10 of the Rivers and Harbors Act (33 USC 491) do not apply.

11.5.3 Floodplains

The purpose of the floodplain evaluation is to document the existing floodplains within the study area and to evaluate potential encroachments. The study area includes the John James Audubon Parkway bridge over Ellicott Creek, Lake LaSalle, and some of the Ellicott Creek feeder swales and roadside ditches, which are within a mapped 100-year National Flood Insurance Program floodplain. However, the Proposed Action would be designed to conform to FHWA policies for the location and hydraulic design of highway encroachments on floodplains (23 CFR § 650) and the floodplain management criteria for New York projects in flood hazard areas (6 NYCRR 502). The Proposed Action would be designed to avoid significant impacts to the floodway.

In accordance with the provisions of EO 11988, Flood Plain Management, as implemented in 23 CFR 650A, Location and Hydraulic Design of Encroachments on Flood Plains, the Proposed Action has been evaluated for any significant encroachments or any support of incompatible flood plain development. Based on this evaluation no adverse impacts to the base flood elevation within the study area are anticipated.

The Proposed Action would be located on an ECL Article 16 flood control easement along Ellicott Creek. It is anticipated that a permit would be issued by the NYSDEC under Article 16 for work that must take place on New York flood control lands. The Proposed Action is not expected to interfere with the flood control works or impede their operation or maintenance.

11.6 MITIGATION

11.6.1 Wetlands and Surface Waters

It is anticipated that waters of the United States, including vegetated wetlands and loss of open water stream, would be affected by the Proposed Action. To offset environmental losses resulting from unavoidable impacts to waters of the United States (including wetlands), 33 CFR Part 332 (Compensatory Mitigation for Losses of Aquatic Resources) describes the compensatory mitigation requirements. Mitigation at a minimum one-for-one is typically required for all wetland losses that exceed 0.10 acre. For losses of streams or other open waters, compensatory mitigation should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (also see 33 CFR 332.3(e)(3)).

If wetland or other mitigation for impacts to waters of the United States is required, the mitigation strategy would be identified during preliminary and final designs. The mitigation strategy would likely be in the form of an in-lieu fee arrangement with USACE or other improvements (including streambed restoration, habitat connectivity, floodplain enhancements, and riparian corridor enhancements). Additional restoration and enhancement activities could include stabilization of streambanks and habitat enhancements through strategic use of native plantings, erosion control matting, and riprap to reduce erosion and subsequent sedimentation and to improve water quality.

As the part of design refinement and the wetland permitting process, the final details of the mitigation would be determined and a detailed mitigation plan would be developed in close collaboration with the agencies. This detailed mitigation plan would be implemented as part of the construction of the Proposed Action. In addition, BMPs (e.g., silt fence, exclusion fencing) would be employed to reduce impacts to wetlands and streams located in close proximity to the construction zones. With these measures in place, study area wetlands would retain their functions and values in keeping with the objectives of 33 CFR Part 332. Furthermore, under EO 11990, the Proposed Action would minimize the destruction, loss, or degradation of wetlands and would preserve and enhance the natural and beneficial values of wetlands as per the goals of EO 11990. Therefore, the intent of EO 11990 would be met.

11.6.2 Stormwater

Based on the total amount of impervious area, the Proposed Action would require both water quality and water quantity treatment. Water quality treatment for the new rail, stations, bridges and roadway pavements would be accommodated in infiltration or detention basins, dry swales with check dams, or infiltration trenches as space, soil conditions and geology permit, and hydrodynamic units where space is limited. The locations and design of the BMPs would be finalized during final design and would meet the requirements of the NYSDEC Stormwater Management Design Manual.