Section 4.10
Water Resources

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Acronyms and Abbreviations

BRT ..... Bus Rapid Transit
BMP ..... Best Management Practices
CFR ..... Code of Federal Regulations
CWA ..... Clean Water Act
DEIS ..... Draft Environmental Impact Statement
ECL ..... Environmental Conservation Law
EPA ..... Environmental Protection Agency
FTA ..... Federal Transit Administration
JJA ..... John James Audubon Parkway
LRT ..... Light Rail Transit
Metro ..... Niagara Frontier Transit Metro System, Inc.
Metro Rail ..... Metro Light Rail Transit System
MS4 ..... Municipal Separate Storm Sewer Systems
NYSDEC ..... New York State Department of Environmental Conservation
NWI ..... National Wetlands Inventory
SPCC ..... Spill Prevention Control and Countermeasure
SPDES ..... State Pollutant Discharge Elimination System
USACE ..... United States Army Corps of Engineers
UB ..... University at Buffalo
WQv ..... Water Quality Volume

4. Environmental Consequences

4.10 WATER RESOURCES

This section assesses potential effects to water resources that could result from the Project. In addition, this section includes stormwater runoff volumes from the Project and other directly affected areas and discusses strategies undertaken by Metro to avoid or minimize any potential effects of the Project. Appendix I1, "Water Resources Supplemental Information"' describes the regional and local hydrogeological conditions, including groundwater resources, surface water resources, and wetlands, and examines published plans related to water resources.

The LRT Build Alternative and BRT Build Alternative would have minimal adverse effects on water resources. Stormwater drainage may be affected by the Project; however, the alterations would not greatly affect the direction of drainage. Table 4.10-1 water resource findings related to the Project.

Table 4.10-1. Summary of Project Water Resource Effects

Resource	LRT Build Alternative		BRT Build Alternative	
	Permanent Effect	Mitigation	Permanent Effect	Mitigation
Freshwater Wetlands	▪ 0.036 acres of wetlands affected by at-grade alignment.	▪ During final design avoidance, minimization, or mitigation measures will be completed. ▪ Effects to waters will adhere to all federal and state regulations, including a one-for-one replacement of wetland losses that exceed 0.10 acre.	▪ 0.023 acres of wetlands affected by at-grade alignment.	▪ During final design avoidance, minimization, or mitigation measures will be completed. ▪ Effects to waters will adhere to all federal and state regulations, including a one-for-one replacement of wetland losses that exceed 0.10 acre.
Surface Waters	▪ Project would require a new bridge over Bizer Creek. ▪ Relocation of human made drainage swales along I-990 and the northern portion of John James Audubon Parkway.	▪ During final design avoidance, minimization, or mitigation measures will be completed. ▪ Effects to surface waters will adhere to all federal and state regulations.	▪ Project would require a new bridge over Bizer Creek. ▪ Relocation of human made drainage swales along I-990 and the northern portion of John James Audubon Parkway.	▪ During final design avoidance, minimization, or mitigation measures will be completed. ▪ Effects to surface waters will adhere to all federal and state regulations.
Navigation	No permanent Project effect	None required.	No permanent Project effect.	None required.
Floodplains	No permanent Project effect.	None required.	No permanent Project effect.	None required.

Resource	LRT Build Alternative		BRT Build Alternative	
	Permanent Effect	Mitigation	Permanent Effect	Mitigation
Stormwater	▪ Net increase in impervious cover because of Project construction.	▪ Water quality treatment and increased stormwater runoff flows and volumes will be mitigated via new permanent stormwater management practices and detention practices that meet the requirements of the NYSDEC Stormwater Management Design Manual. ▪ Replace modify or improve the private stormwater basins at the Boulevard Mall Sweet Home Middle school and at the UB North Campus that are impacted by the project.	▪ Net increase in impervious cover because of Project construction.	▪ Water quality treatment and increased stormwater runoff flows and volumes will be mitigated via new permanent stormwater management practices and detention practices that meet the requirements of the NYSDEC Stormwater Management Design Manual. ▪ Replace modify or improve the private stormwater basins at the Boulevard Mall Sweet Home Middle school and at the UB North Campus that are impacted by the project.
Groundwater	▪ Stormwater pollution effects to groundwater quality. ▪ Groundwater collected at the tunnels' effects to groundwater quality and potential drawdown of the water table.	▪ Water quality treatment for existing and increased stormwater runoff flows and volumes will be mitigated via permanent stormwater management practices. ▪ Groundwater collected at the tunnels may need to be treated prior to being discharged into the drainage system.	▪ Stormwater pollution effects to groundwater quality.	▪ Water quality treatment for existing and increased stormwater runoff flows and volumes will be mitigated via permanent stormwater management practices.

4.10.1 No Build Alternative

The No Build Alternative would consist of a future scenario without the Project. The existing drainage system on the Project alignment and other directly affected areas would continue to function as it does today, with routine maintenance to keep it functional. The No Build Alternative 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 effects 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[1] development, the Muir Woods project would 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 affected wetlands.

4.10.2 Build Alternatives

The LRT Build Alternative and the BRT Build Alternative would have similar effects to surface water resources and are assessed together. The effects associated with tunnel construction and groundwater associated with the LRT Build Alternative were considered separately.

4.10.2.1 Freshwater Wetlands

As indicated in Table 4.10-2, approximately 1.26 acres of wetlands were delineated within the study area. The Project would affect 0.13 acres of wetlands (LRT), and 0.16 acres of wetlands (BRT). The Project limit of disturbance was used for permanent impacts and a limit of disturbance plus a 10 ft buffer was used for temporary impacts. As design progresses, all practicable measures (i.e., avoidance, implementation of erosion and sediment control measures) would be implemented to minimize effects to freshwater wetlands and state-regulated adjacent areas within the study area.

Table 4.10-2. Permanent Effects to Wetlands from the Project

Wetland Site	Freshwater Wetlands within study area (acres)	Freshwater Wetlands Temporary Effects (acres)	Freshwater Wetlands Permanent Effects(acres)
Delineated wetlands Niagara Falls Boulevard Site	0.376	0.007 (LRT) 0.007 (BRT)	0.004 (LRT) 0.004 (BRT)
Delineated wetlands Maple Road Site	0.078	0.002 (LRT) 0.044 (BRT)	0.013 (LRT) 0.000 (BRT)
Delineated wetlands Ellicott Creek Site	0.004	0.001 (LRT) 0.001 (BRT)	0.001 (LRT) 0.001 (BRT)
Delineated wetlands John James Audubon Parkway Site	0.805	0.082 (LRT) 0.082 (BRT)	0.020 (LRT) 0.020 (BRT)

Depending on the identification of final disturbance areas, permanent construction effects to wetlands and surface waters under Federal jurisdiction for the Project 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. EPA will be notified of this process, due to potential permanent construction effects.

[1] Statement of Findings for the Muir Wood development: Amherst Town Board Resolution 2019-826, adopted by the Town of Amherst board on August 5, 2019.

As per the amended 6 NYCRR Part 664, Freshwater Wetlands Jurisdiction and Classification that took effect on January 1, 2025, Metro has submitted a parcel jurisdictional determination to NYSDEC. Coordination with NYSDEC will continue to determine whether an Article 24 permit is required. Any Article 24 permitting would follow a somewhat parallel path with the USACE Section 404 permitting process (through a Joint Application for Permit). There also may be a need for NYSDEC to complete a compatibility and weighing standards assessment as part of the Article 24 permitting process.

As indicated, the Muir Woods development has obtained a NYSDEC Article 24 permit under the name of Muir Woods development – "Site B" (Permit No. 9-1422-00398/00001). The permit is valid for only that project, activity, or operation expressly authorized; therefore, incorporation of the Project into the Muir Woods development will require a permit modification. Metro will coordinate with NYSDEC and USACE in developing a permit modification.

EXECUTIVE ORDER 11990

The Project was reviewed for compliance with Executive Order (EO) 11990, Protection of Wetlands (23 CFR 771.125(a)(1)). FTA is required to comply with EO 11990 by achieving a no net loss of wetlands. FTA must also seek to avoid, minimize, and mitigate wetlands that are subject to EO 11990. All wetlands that would be adversely affected by a federally funded project are subject to compensatory mitigation under EO 11990. The wetlands impacts in Table 4.10-2 are subject to EO 11990. During final design ~~preparation of the Final EIS~~, USACE and NYSDEC would confirm their respective regulatory responsibilities pertaining to wetlands through agency-specific jurisdictional determinations. Wetlands that are determined to be non-jurisdictional by USACE would still be subject to EO 11990.

4.10.2.2 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 LRT Build Alternative and the BRT Build Alternative would cross Ellicott Creek using the existing piers remaining from a former section of the John James Audubon Parkway northbound lanes. Bridge deck construction would take place on the existing in-stream piers, and new piers would not be constructed in Ellicott Creek. Construction of this new deck would use construction equipment located on either side of the creek and would not be located within Ellicott Creek. In water work is not expected to take place. However, if the design plans change and in-stream activities are required at the Ellicott Creek crossing, appropriate mitigation measures will be developed, in consultation with the regulatory agencies, and implemented to minimize impacts to water quality as well as the creek's substrate, banks, and aquatic wildlife. In addition, stormwater designs will meet the stormwater design manual requirement of no increase in flow to Ellicott Creek with water quality and water quantity controls.

Bizer Creek – A new bridge would be required for the LRT Build Alternative and the BRT Build Alternative alignment crossing of Bizer Creek (just south of Rensch Road). The LRT and BRT

Build Alternatives alignment runs parallel to Sweet Home Road before turning east and crossing Bizer Creek south of Rensch Road. The walls and bottom of Bizer Creek are concrete lined and relatively straight near the alignment of the LRT and BRT Build Alternative. The proposed structure would not have an effect on the water surface in the creek. The effects to the creek during and after bridge construction are anticipated to be minimal.

The new Bizer Creek bridge would result in a localized change in the aquatic flora and fauna species composition (under the bridge). In addition, the vegetated stream banks will be converted to developed land. Areas disturbed during construction that are not part of the permanent Project footprint would be revegetated, in accordance with a Landscape Restoration Plan, to the greatest extent practicable with plant species indigenous to Western New York.

The hydraulic analysis (Appendix I4) indicates the proposed bridge would be a three-sided structure on concrete abutments and conventional foundations. The low cord of the proposed structure will match or be higher than the low cord of the existing adjacent bridge. The current low-flow channel limits of Bizer Creek is approximately 20 feet in the proximity of the Project alignment. The foundations for the bridge structure would be built outside the low-flow channel limits of Bizer Creek and outside the limits of the current concrete stream section to reduce stream effects during construction and to accommodate high-level flows. The structure has a span of 36 feet perpendicular to the creek centerline and will be approximately 229 feet long. Use of siltation fences and other means to separate the foundation and/or abutment construction areas from the stream flow would be employed. See Appendix I4 for hydraulic analysis memo. The Joint Application for Permit submittal to NYSDEC and USACE would include construction of this bridge, potential reuse of existing permanent outfalls, and temporary construction-related effects. Impacts to the riparian habitat and aquatic wildlife will be mitigated through the permitting process.

Lake LaSalle – The alignment of the LRT Build Alternative and the BRT Build Alternative would use the John James Audubon Parkway bridge carrying the vacated northbound traffic lanes to cross 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. The piers would be accessed from the top and are appropriately stable and would not need to be replaced. Existing outfalls to Lake LaSalle would remain, stormwater run-off to these outfalls will be treated based on water quantity and water quality requirements of the Stormwater Design Manual and the Stormwater permit. The Project would not result in permanent effects to Lake Lasalle. Similar to Ellicott Creek, if the current design plans change and in-stream activities are required at the Lake LaSalle crossing, appropriate mitigation measures will be developed, in consultation with the regulatory agencies, and implemented to minimize impacts to water quality as well as the lake's substrate, banks, and aquatic wildlife.

Muir Lake (a human-made pond) – North of the intersection of North Forest Road and John James Audubon Parkway is a human-made pond that drains through a swale (Wetland JJA W-1)

on eastern side of John James Audubon Parkway. On the Town of Amherst Open Drainage Map, this pond is identified as Muir Lake and the swale is known as Ditch 8. The swale flows north, then crosses the parkway through a culvert to ultimately discharge into Ellicott Creek. Because the alignment of the LRT Build Alternative and the BRT Build Alternative and each Alternative's corresponding storage and light maintenance facility would be located within the disturbed Muir Woods development, it is not expected to affect this culvert or waterbody. Existing outfalls to Muir Lake would remain, stormwater run-off to these outfalls will be treated based on water quantity and water quality requirements of the Stormwater Design Manual and the Stormwater permit.

Ditch 6 (a swale from Audubon Lake and Walton Pond) – The alignment of the LRT Build Alternative and the BRT Build Alternative along John James Audubon Parkway near Gordon R. Yaeger Drive would deviate from the paved surface and would slightly impact the side slope of the swale (Wetland JJA W-4) in front of the Amherst Public Library where a transit station is proposed. The alignment of the LRT Build Alternative and the BRT Build Alternative has been adjusted to minimize the impacts to the ditch and detention basin. At the conclusion of preliminary drainage design, swales are proposed along John James Audubon Parkway, in the medians from Sylvan Parkway to the Muir Woods Complex. Permitting of the Project would include impacts due to the slight lengthening of the culverts crossing John Jame Audubon since this swale is a mapped National Wetlands Inventory (NWI) riverine habitat. In addition, a new stormwater management dry/wet swale would likely be constructed in this area for stormwater treatment. Existing outfalls to this waterbody would remain, stormwater run-off to these outfalls will be treated based on water quantity and water quality requirements of the Stormwater Design Manual and the Stormwater permit. Based on the stormwater manual there will be no increase in flow to the waterbody.

Human made drainage swales along I-990 and the northern portion of John James Audubon Parkway – The alignment of the LRT Build Alternative and the BRT Build Alternative in this area would run along the pavement of the northbound lanes of John James Audubon Parkway; therefore, it is anticipated, after preliminary design that most of these roadside ditches (Wetlands JJA W-5 and JJA W-6) would not be permanently affected. However, new sidewalk placement may require the relocation of some of these roadside ditches. These and all other roadside ditches would be protected from disturbance during construction by temporary stormwater control measures. Existing outfalls to drainage ditches would remain, stormwater run-off to these outfalls will be treated based on water quantity and water quality requirements of the Stormwater Design Manual and the Stormwater permit. Based on the stormwater manual there will be no increase in flow to the waterbody.

Swales from wetlands north of I-990 (part of Amherst Open Drainage Map's Ditch 4 system) – This is an engineered swale system that conveys stormwater westward from a wetland and a human-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 system. Existing outfalls to swales would

remain, stormwater run-off to these outfalls will be treated based on water quantity and water quality requirements of the Stormwater Design Manual and the Stormwater permit. Based on the stormwater manual there will be no increase in flow to the waterbody.

A surface water hydraulic analysis was performed for the new Bizer Creek bridge to ensure that the design would have no adverse effects on the stream bed and banks and to establish additional protections for this area, if needed. The disturbed areas would be stabilized following construction and planted with appropriate native plantings. In water work would require a Joint Application for Permit. A Stream Disturbance, Excavation and Fill in Navigable Waters, and 401 Water Quality Certification would be required. Anticipated permits are listed in Table 4.10-3 and will be verified during final design. If the project design changes and in-stream activities are required, a similar analysis and permitting effort will be conducted for Ellicott Creek and Lake LaSalle.

NAVIGATION

There are no Title 33, Part 329.4 navigable waterways under Federal law within the study area. However, Ellicott Creek is a State-regulated navigable water within the study area. If it is determined during final design that the construction of either Build Alternative would require placement of fill within Ellicott Creek, navigability of Ellicott Creek would not be affected. A 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 effects are ascertained.

Since the LRT Build Alternative and the BRT Build Alternative 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 U.S.C. 491) do not apply.

4.10.2.3 Floodplains

The Project 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). As currently designed, the LRT Build Alternative and the BRT Build Alternative would not require in water work in Ellicott Creek. Therefore, neither Build Alternative are expected to interfere with the flood control works or impede the operation or maintenance of the 1989 Ellicott Creek Flood Control Protection Project.

The proposed I-990 Station, park and ride facility, and light maintenance/storage facility would be located within the floodplain. However, this area has been altered for the Muir Woods project. Based on the Amended Statement of Findings[2] for the Muir Woods project, buildings, including the Project facilities, in the west portion of the Muir Woods site located within the Ellicott Creek floodplain will be at a minimum elevation of 576 feet, or one foot above the base flood elevation

[2] AMENDMENT #51 TO THE AUDUBON DEVELOPMENT PLAN TO RECLASSIFY A PORTION OF 326± ACRES OF LAND FROM NCD-ND & NCD-MOS to NCD-GC, NCD-RI & NCD-MOS 1081 & 1121 North French Road, https://www.amherst.ny.us/pdf/planning/dev_proj_pending/z/Z-2002-09E-report-qqj1vsg9er.pdf

as determined by the Town Building Commissioner. The Statement of Findings also states that specific drainage plans will be reviewed and approved by the Town Highway and Engineering Departments and the NYS Department of Environmental Conservation and US Army Corps of Engineers during site plan review, to ensure there is no adverse impact to the Ellicott Creek Flood Control system.

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 current design of both the LRT Build Alternative and the BRT Build Alternative were evaluated for any significant encroachments or any support of incompatible flood plain development. Based on this evaluation no adverse effects to the base flood elevation within the study area are anticipated.

4.10.2.4 Stormwater

The LRT Build Alternative and the BRT Build Alternative would result in a net increase in impervious cover. Water quality treatment and increased stormwater runoff flows and volumes would be mitigated via new permanent stormwater management practices. Stormwater treatment calculations and documentation are included in Appendix I3 of this Draft EIS. Stormwater BMPs would be designed during final design. In addition, the drainage system in the Project Corridor would require updates, as shown in the preliminary drainage drawings in Appendix I3, to accommodate the Project at-grade configurations, facilities, stations, and roadway geometric modifications.

As indicated above, the Kenmore Avenue portion of the Project and the Main Street crossing are serviced by a combined sewer system. These combined sewer systems would receive drainage from the Project through the existing closed stormwater systems in place with appropriate modifications to the catch basins and laterals. Since much of the drainage modifications of the LRT Build Alternative and the BRT Build Alternative required for the combined sewer system areas would be within impervious areas, it is not anticipated that the quantity of stormwater runoff would increase significantly in the combined sewer system areas. NYSDEC requires a design to not increase flow at outlets and water will need to be detained through green infrastructure and storage to meet this requirement, or a downstream analysis is required. During final design, the Project would also be reviewed with respect to the use of green infrastructure (natural methods) and gray infrastructure (structural modifications) to reduce combined sewer overflows, including consideration of separation of combined sewer systems. Any increase in impervious area will need to be reviewed for compliance with the City of Buffalo Green Code. It is anticipated that the required treatments for gray and green infrastructure will be designed to fit within the existing and proposed right of way. Infrastructure within the Town of Tonawanda and Town of Amherst require downstream analysis.

Within the separated stormwater systems, modifications to the drainage systems would also include consideration of green infrastructure and 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. See Appendix I3 for preliminary

stormwater calculations. The requirements, number, location, and size of BMPs will be determined during final design, designed in accordance with agency standards, and permitted accordingly. If the outlets are to a water on the U.S., the total storage volume of each infiltration/detention basins or underground storage 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 will also be used as the design volume for the infiltration/detention basin BMPs. If the outlets enter a combined sewer system, then the requirement of the owner of the combined sewer system will be adhered to. For instance, the City of Buffalo Green code indicates that the post development peak flows during a 25-year storm will be less that the pre-development peak flow during a 2-year storm. The BMP will be spread out throughout the corridor and sized to fit within the existing and proposed right of way. It is anticipated that all required stormwater treatment will be designed to fit within the existing and proposed right of way for the project. It is anticipated that all water quality and water quantity requirements will be within the existing and proposed right of way.

The final locations for the BMPs would be determined during final design and would be positioned within the landscape of the existing and proposed right-of-way 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. See Appendix I3 for preliminary stormwater calculations and anticipated treatments for each section of the project. In addition to the water quality BMPs, Metro 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 either Build Alternative, and with construction of new BMPs it is not anticipated that new outfalls would be required along these waterways to accommodate the Project.

The current alignment of the LRT Build Alternative and the BRT Build Alternative would interfere with private stormwater management practices (detention ponds) currently in place at the UB North Campus Sweet Home Middle School and at the Boulevard Mall. These stormwater management practices would be modified by relocation to suit the needs of the adjacent facilities that they currently serve. The extent of modification would be determined during final design with coordination with the property owners and current/future projects. Any modifications to the existing practices would meet or exceed SPDES requirements. The project owner, NFTA, would be responsible for the design and permitting of the stormwater management practices for all project-related stormwater treatment.

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-0-25-001), the Project would meet the requirements of the permit, including: 1) improvements compared to the No Build Alternative; 2) not resulting in long term adverse effects to local waterways; and 3) not causing the failure of these surface waters to meet the water quality criteria for their designated water quality classification (includes siltation, as well as other pollutants such as heavy metals, oils, or other chemicals). The proposed design of the BMPs may require additional permitting efforts if the BMPs would affect resources identified in this section. During final design, it will be determined if, and to what extent, the BMP construction would affect other environmental resources. Based on preliminary drainage design, there is no additional permitting required. In addition, during construction erosion and sediment controls meeting the requirements of the NYSDEC stormwater design manual will be included. These will include mitigation of any potential spills, sedimentation during construction.

4.10.2.5 Groundwater

As described in section 4.10.2.4, the SPDES stormwater permitting process will require temporary and permanent stormwater treatment. The required stormwater treatment measures would treat currently untreated areas. Therefore, operationally, the Project would not have an effect on groundwater quality.

A geotechnical investigation was conducted to explore the subsurface conditions and provide geotechnical recommendations for preliminary design. As part of the investigation, groundwater levels were measured and field hydraulic conductivity tests were in the monitoring wells. See Appendix G3, "Geotechnical Data Report". Since groundwater is expected to be shallow in the tunnel areas, it is anticipated that pumping or draining of groundwater would be required in the areas of tunnel operations, as such the LRT Build Alternative tunnels would be designed to operationally handle groundwater as needed. Although dewatering requirements for the tunnels' construction and operation has not been assessed at this time it will be included in the 30% design and will likely involve waterproofing, drainage, and pumping depending on elevations. Groundwater inflow as a result of tunnel construction will be mitigated with sumps for localized groundwater inflow and tunnel lining will be utilized to control water inflow. Impacts due to groundwater inflows, such as recharge rate or anticipated inflow volume, will be addressed during preliminary and final design. In addition, all groundwater management will be conducted in accordance with the SPDES permit and potential impacts will be mitigated through final design and permit requirements.

During construction, blasting and tunneling would be required for the LRT Build Alternative. Depending on groundwater depths, construction workers could come in contact with groundwater. Groundwater effects during construction would be lessened through SPDES temporary stormwater measures that would reduce sediments and pollutants in stormwater runoff. Trench dewatering activities will be performed in accordance with a temporary erosion and sediment control plan that will include measures to remove sediment from dewatering fluids prior to discharge (e.g. settling tanks/basins or filtration). Additionally, dewatering measures during excavation may require further treatment prior to discharging if it is identified to contain

dissolved hydrogen sulfide or other pollutants. If collected the tunnel drainage would be tested and appropriate disposal by permit to the existing sewer system is likely. Localized temporary dewatering for excavation would be pumped to a settling basing and disposed of through a treatment system or permitted disposal into the existing sewer systems. Blasting and tunneling are not proposed in areas of groundwater use or near wetlands that would potentially be fed by groundwater.

4.10.3 Potential Mitigation Strategies

4.10.3.1 Wetlands and Surface Waters

The Project would result in impacts to waters of the United States, including vegetated wetlands and loss of open water stream. The final wetland impacts will be confirmed based on the final design. During final design, impacts to waters of the United States will be assessed to determine avoidance, minimization, or mitigation measures. If there are jurisdictional wetlands and they cannot be avoided, NFTA would provide compensatory mitigation. The preference for compensatory mitigation would be to purchase credits from a mitigation bank or to participate in a USACE-approved in-lieu fee program. Approved mitigation banks would be reviewed at the time of final design to identify ones that cover the Project area and which have available credits. Additional restoration and enhancement activities could include stabilization of streambanks and habitat enhancements through strategic use of native plantings and a restorative seed mix, erosion control matting, and riprap to reduce erosion and subsequent sedimentation and to improve water quality.

NYSDEC

As part of Project design and the wetland permitting process a detailed mitigation plan will be developed in close collaboration with the agencies. This mitigation plan would be implemented as part of the construction of the LRT Build Alternative or the BRT Build Alternative. In addition, BMPs (*e.g.*, silt fence, exclusion fencing) would be employed to reduce effects to wetlands and streams located near the construction zones. With these measures in place, study area wetlands would retain their functions and values (refer to Section 4.10.2.1: Freshwater Wetlands) in keeping with the objectives of 33 CFR Part 332. Furthermore, under EO 11990, the design of the Project 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.

4.10.3.2 Stormwater

Based on the approximate total amount of impervious area proposed, 84.07 acres, the LRT Build Alternative and the BRT Build Alternative would require both water quality and water quantity treatment. Proposed stormwater treatments required are noted in the drawings in Appendix I3. Design of stormwater treatment measures will continue to progress as the design progresses. Water quality treatment for the new rail, stations, bridges, and roadway pavements would be accommodated with green infrastructure, infiltration or detention basins, dry and or wet swales with check dams, or infiltration trenches, hydrodynamic separators and underground storage as

space, soil conditions, and geology permit. The locations and design of the BMPs will progress as the design progresses and will meet the requirements of the NYSDEC Stormwater Management Design Manual (2024) and local requirements.

The LRT Build Alternative and the BRT Build Alternative were reviewed with respect to required stormwater mitigation. A total initial water quality volume (WQv) of 8.34-acre-feet would be required for treatment of effects to the drainage basins within the footprint of the Project. This initial WQv is based on the conceptual designs and could be reduced by resurfacing portions of the roadways where applicable (instead of full depth reconstruction) and through the implementation of green infrastructure techniques (*e.g.*, impervious removal with soil restoration). The remainder of the WQv would need to be treated with various BMP treatments. The stormwater basins at the Boulevard Mall and at the UB North Campus would need to be replaced by treatments with the capacity to treat the same amount of stormwater they treat today, and any increased capacity needed for the initial WQv in those areas.

During heavy precipitation events, stormwater overwhelms the existing drainage system and causes temporary flooding near the Niagara Falls Boulevard and Maple Road intersection. This will be addressed during design to include additional storage to mitigate the flooding in this area of the Project.

In addition, since oils and other potential pollutants would be required for the operation of the LRT Build Alternative and the BRT Build Alternative, the applicability of a Spill Prevention Control and Countermeasure (SPCC) Plan will be assessed based on the oil storage required for operations to be determined during final design of the Project. During construction, if the contractor elects to have oil storage above the SPCC thresholds, the contractor will have to prepare a SPCC Plan to address potential equipment and construction spills.

4.10.3.3 Permits, Approvals, and Plans

The following table summarizes the permits, approvals, and plans regarding water resources that would be required during the planning and construction of the Project.

Table 4.10-3. Required Permits, Approvals, and Plan

Agency	Permit, Plan, or Approval
FTA	Executive Order 11990 individual finding for wetland protection
FTA	ESA Section 7 consultation (informal or formal) with the USFWS
NYSDEC	ESA Section 7 consultation with the FTA
NYSDEC	CWA Section 401 Water Quality Certification
ACOE (Buffalo District)	CWA Section 404 permit for placement of fill in waters of the U.S.
NYSDEC	SPDES Permit No. GP-0-25-001 (general permit for stormwater discharge from construction activities) plus additional measures in MS4 areas
FTA	Executive Order 11988 federal floodplain management finding
NYSDEC	Article 24 Freshwater Wetlands Permit [PENDING jurisdictional determination from NYSDEC]
NYSDEC	Stormwater Pollution Prevention Plan (SWPPP)
Erie County Water Authority	Water infrastructure modification review
Town of Amherst	Local Waterfront Revitalization Program consistency review