Chapter 3: Potential Impacts from Construction of Proposed Action

3.1 CONSTRUCTION DESCRIPTION

3.1.1 INTRODUCTION

As discussed in Chapter 2, "Analytical Framework," upon completion of construction, operation of the new KEC Project facilities would not result in a substantive change in the level or type of activities that currently occur at the Kensico Campus and KEC Eastview Site. As a result, the impact analysis presented within this ~~Draft~~ Final EIS is primarily focused on an assessment of potential impacts from construction with a more limited evaluation of potential effects due to operation. This chapter presents a discussion of potential impacts due to proposed construction, while Chapter 4, "Potential Impacts from Operation of Proposed Action," addresses potential effects resulting from the future operation of the KEC Project.

While Chapter 1, "Project Description," provided an overview of the KEC Project, a detailed discussion of proposed construction activities and phasing was not provided. This chapter therefore initially presents a more detailed discussion of the overall proposed construction, phasing, and major construction activities in this section. Subsequent sections of this chapter then address the analysis of those resource areas that had the potential to be affected by the construction of the Proposed Action and the results of those assessments.

3.1.2 CONSTRUCTION OVERVIEW

The Proposed Action would entail construction over a period of approximately ten years and encompass a number of different construction activities. The proposed construction activities would include, but not be limited to, a new deep rock tunnel and additional activities at, and immediately adjacent to, the Kensico Campus and within the KEC Eastview Site. A summary of proposed construction associated with the Proposed Action is presented below including a discussion of a conceptual construction schedule of the major activities anticipated. A summary of construction activities, equipment types, estimated number of workers, and estimated truck deliveries is also provided.

Construction of the Proposed Action at the Kensico Campus and KEC Eastview Site would involve four major construction contracts or packages and are presented in the order of anticipated start date (e.g., Kensico Site Preparation would be the first to start construction):

- Kensico Site Preparation (KENS-EAST-2)
- Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1)
- KEC Buildings (KENS-EAST-3)
- Shoreline Stabilization (KENS-EAST-SS)

While the construction contracts would be advanced separately using a design-bid-build delivery method, overlap of the construction activities is anticipated. The proposed construction phasing and sequencing for each contract is described in further detail in Section 3.1.3, "Construction Phasing and Schedule."

3.1.3 CONSTRUCTION PHASING AND SCHEDULE

As noted above, the Proposed Action would be constructed under four separate construction contracts which are comprised of the following major construction elements:

- Kensico Site Preparation (KENS-EAST 2)
    - Kensico Campus site preparation and staging
    - Relocation of Westlake Drive and construction of a new permanent parking lot
    - Electrical building
- Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST 1)
    - Removal of the remaining soil stockpile at the KEC Eastview Site
    - KEC Eastview Site preparation
    - Main KEC Tunnel
    - Eastview Connection Chamber (ECC) excavation
    - KEC Shaft 1C
    - KEC Shaft 2C
    - KEC Screen Chamber excavation
    - Portion of the UEC Connection Tunnel
    - Portion of the Dike Grade Return Tunnel
    - KEC Shaft 1C Connection Tunnel
- KEC Buildings (KENS-EAST-3)
    - Modifications to the UEC
    - UEC Shaft
    - Remaining portion of the UEC Connection Tunnel
    - Remaining portion of the Dike Grade Return Tunnel

  - Dike Grade Tunnel plug
  - KEC Screen Chamber
  - ECC
  - Chemical feed system modifications
  - Electrical house upgrade near Shaft 18
  - New police booth and site entrance modifications at the Kensico Campus
  - Final landscaping and perimeter security fence at the Kensico Campus
  - Start-up and Commissioning
- Shoreline Stabilization (KENS-EAST-SS)
  - Removal of accumulated sediments within Kensico Reservoir in proximity to the UEC and within the existing UEC intake channel
  - Shoreline stabilization
  - Malcolm Brook turbidity curtain replacement

Figure 1.3-1 through **Figure 1.3-3** provide an overview of the extent of the proposed work and new facilities to be constructed at the Kensico Campus and KEC Eastview Site.

Construction of the Proposed Action is anticipated to start ~~in~~ around January 2024 and would span a ten-year period. Start-up and commissioning of the Proposed Action would commence towards the end of construction and would last approximately 13 months.

In order to provide a reasonably conservative assessment of the construction of the Proposed Action, the schedule presented on **Figure 3.1-1** includes overlapping activities for the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract at the KEC Eastview Site. These overlapping activities would likely not occur simultaneously; however, they are represented as such to disclose a conservative, "reasonable worst-case scenario" analysis of potential construction impacts for the purposes of this environmental review. The conservative analysis thereby accounts for any potential effect, no matter its low chance of occurrence.

For the purposes of this ~~Draft~~ Final EIS and the specific analyses presented in this chapter, the more conservative construction schedule, including these overlaps, was used and is discussed in more detail below.

In addition, as part of the overall construction, and to the extent practicable, soil disturbance as part of these contracts, construction phases, or individual activities associated with these would be limited to a maximum of five acres at each site. If soil disturbances at a site would be greater than this, additional outreach to involved agencies and/or measures would be put in place to eliminate and/or minimize potential impacts to stormwater runoff or water quality.

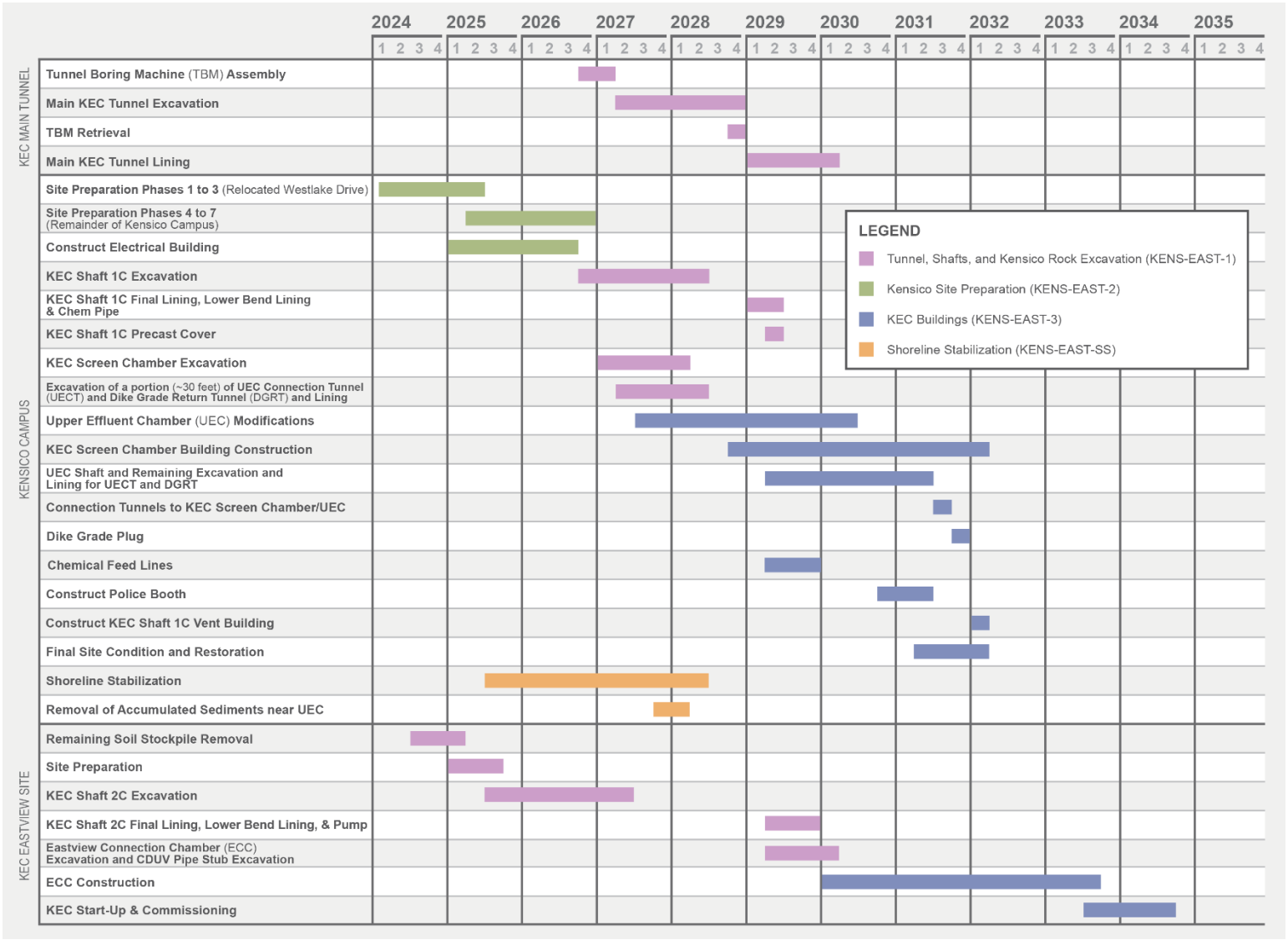

Figure 3.1-1. Detailed Conceptual Construction Schedule

3.1.4 CONSTRUCTION HOURS

Construction of the Proposed Action is anticipated to be fully completed in 2033 and would primarily take place during two working shifts from 7 AM to 3:30 PM and 3 to 11:30 PM at the Kensico Campus and KEC Eastview Site for up to seven days a week. A third shift (11 PM to 7:30 AM) would occur at the KEC Eastview Site for underground tunnel boring activities for the KEC Tunnel, associated tunnel lining, activities to connect to the CDUV, and ECC exterior and site work. Construction vehicles would travel to and from the Kensico Campus and KEC Eastview Site up to seven days a week from 6 AM (to be ready for unloading when on-site construction begins at 7 AM) through 11:30 PM, when the second shift would end.

3.1.5 KENSICO SITE PREPARATION (KENS-EAST-2)

Construction of the Proposed Action would be initiated under the Kensico Site Preparation (KENS-EAST-2) Contract. This contract would involve site preparation and related work that would only occur at the Kensico Campus.

Under this contract, work is anticipated to commence ~~during~~ around January ~~the first quarter of~~ 2024 (Q1 2024) and be completed by the fourth quarter of 2026 (Q4 2026). Site preparation work would occur Monday through Friday during one shift (7 AM to 3:30 PM). Construction of the new electrical building, however, would occur Monday through Friday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). Specifically, the work for this contract would include:

- Staging area preparation and installation of temporary construction trailers,
- Clearing and grubbing inclusive of required tree removal,
- Regrading and earthwork,
- Construction of the relocated Westlake Drive at the northern limits of the Kensico Campus,
- A 30-space parking lot that would be constructed at the northeast corner of the intersection of the relocated Westlake Drive and Columbus Avenue,
- Construction of a new DEP operations entrance at Lakeview Avenue,
- Construction of a new electrical building, and
- Construction of a stormwater management system including three new sediment ponds along Columbus Avenue, a new bioretention basin near the UEC and relocated Westlake Drive, vegetated swales, and an underground drainage conveyance system.

Grading would be completed in phases, with each phase related to the construction of the Proposed Action limited to a maximum of five acres of disturbance to the greatest extent possible. However, overlap of the Proposed Action with activities associated with the independent Waterfowl Management Building and Kensico Regional Headquarters may cumulatively result in disturbances

greater than five acres at times. If soil disturbances at Kensico Campus would be greater than five acres, measures would be put in place to eliminate and/or minimize potential impacts to stormwater runoff or water quality. Some of the regrading at the Kensico Campus would occur within the footprint of the former Catskill and Delaware aerators that were decommissioned in 2009 but remain below the existing and surrounding ground level elevations. Required regrading at these locations and the surrounding areas would involve the placement of stockpiles and reuse of excavated material from other activities at the Kensico Campus (e.g., KEC Shaft 1C, KEC Screen Chamber). For material placement, the topsoil and subsoil at the two former aerator basins would be removed and stored, and then excavated material would be placed in layers to achieve the proposed final contours. The subsoil and topsoil would then be placed on top of this material and landscaped with trees, shrubs, and perennials.

Construction equipment anticipated to be used as part of this contract would include light towers, generators, compressors, excavators, lifts, cranes, front-end loaders, dump trucks, rollers, and miscellaneous hand tools. Dump trucks used for the on-site transport of excavated materials to the stockpile area would remain on site. The Kensico Site Preparation (KENS-EAST-2) Contract may require blasting at Kensico Campus to excavate the surficial rock in the northern portion of the site.

Figure 3.1-2 provides an overall plan view of the limit of disturbance associated with the Kensico Site Preparation (KENS-EAST-2) Contract along with some of the new infrastructure to be put in place.

3.1.5.1 Construction Phasing

Anticipated construction phasing for soil disturbance under the Kensico Site Preparation (KENS-EAST-2) Contract is shown on **Figure 3.1-3**, including the following phases discussed generally below. The order of the phases below has been provided as a representative example. Actual ordering of the phases may follow a different sequence.

- Phase 1: This phase would include earth moving to accommodate the western portion of the relocated Westlake Drive roadway and a new stormwater management pond (RWLD Pond) on the south side of this roadway. Removed material would be stored in a stockpile and used as fill in the north end of the Catskill Aerator area.
- Phase 2: This phase would include earth moving to complete the center of the relocated Westlake Drive roadway and parking lot. Construction of Catskill Pond, a stormwater pond located north of existing Westlake Drive, would be initiated. Removed material would be stored in a stockpile and used as fill in the south end of the Catskill Aerator area.
- Phase 3: This phase would include earth moving to complete construction of the east side of the relocated Westlake Drive roadway and Catskill Pond.

Figure 3.1-2. Kensico Site Preparation (KENS-EAST-2) Limit of Disturbance

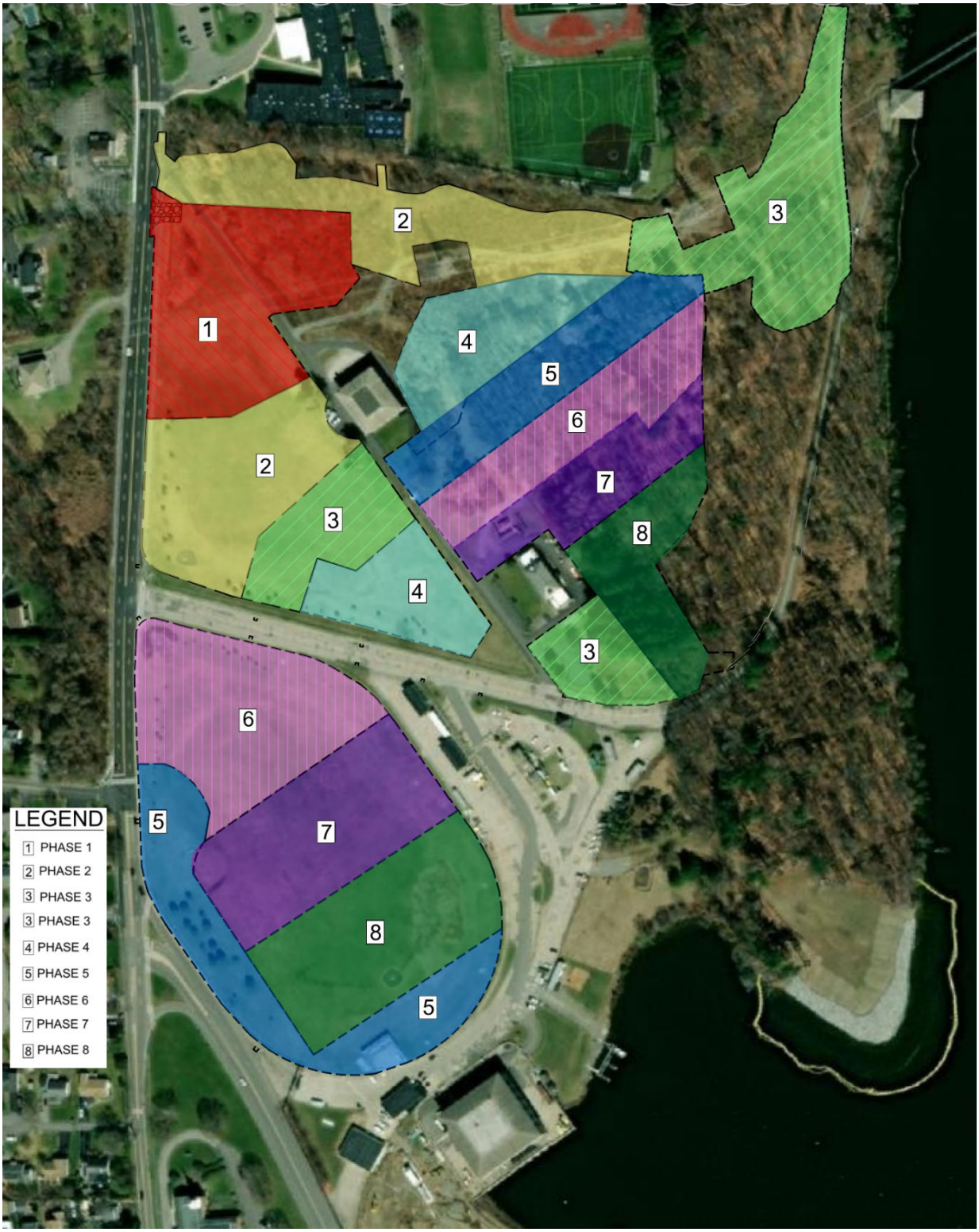

Figure 3.1-3. Kensico Site Preparation (KENS-EAST-2) Construction Phasing

- Phase 4: This phase would include the initiation of mass excavation of the KEC Screen Chamber area. Grading for the electrical building and necessary utilities for this building would also occur. The Catskill Aerator staging area would also be graded.
- Phase 5: This phase would include mass grading for the KEC Screen Chamber area, operations entrance, and area adjacent to DEL Shaft 18. This phase would also include installation of concrete barriers and a partial drainage system for the KEC Screen Chamber area.
- Phase 6: This phase would include the construction of the Delaware Pond, a stormwater pond located south of the existing Westlake Drive, and mass grading for the KEC Screen Chamber area. This phase would also include grading of the Delaware Aerator stockpile and staging area and proposed drainage system.
- Phase 7: This phase would include the final grading of the KEC Screen Chamber area. The removed material would be stockpiled and used to grade the Delaware Aerator staging area.
- Phase 8: This phase would include grading of the Delaware Aerator staging area to establish positive drainage and paving of the KEC Screen Chamber staging area roads.

3.1.6 TUNNEL, SHAFTS, AND KENSICO ROCK EXCAVATION (KENS-EAST-1)

The Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract would commence the construction of the Proposed Action at the KEC Eastview Site but would also include excavation at the Kensico Campus. Work for the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract is anticipated to begin during the third quarter of 2024 (Q3 2024) and be completed by the first quarter of 2030 (Q1 2030). As discussed in Section 3.1.3 above, the schedule presented on **Figure 3.1-1** is conceptual and represents a conservative approach for the assessment of the proposed construction. The construction schedule used for the analyses within this ~~Draft~~ Final EIS conservatively included overlapping activities for the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract at the KEC Eastview Site that are not anticipated to occur at the same time.

3.1.6.1 Kensico Campus

Work under this contract at the Kensico Campus would include KEC Shaft 1C excavation and lining, KEC Screen Chamber rock excavation, and excavation for the connection tunnels. Work at the Kensico Campus as part of this contract would occur Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). Anticipated construction equipment would include light towers, generators, compressors, excavators, lifts, cranes, front-end loaders, dump trucks, a drill rig, pumps, ventilation fans, a crew elevator hoist, and miscellaneous hand tools. The dump trucks would remain on site transferring excavated materials to the stockpile areas during the two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). As described below, the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract would require blasting at Kensico Campus to excavate the

rock portions of the following construction areas: KEC Shaft 1C, KEC Screen Chamber, UEC Connection Tunnel, Dike Grade Return Tunnel, and the KEC Shaft 1C Connection Tunnel.

KEC Shaft 1C would be located at the Kensico Campus immediately west of the new KEC Screen Chamber. The shaft would facilitate the KEC Tunnel's construction and ultimately convey water to the KEC Tunnel once the KEC Project is completed. The KEC Shaft 1C would have an overall depth of approximately 313 feet below finished grade and would be excavated through soft ground and rock. Controlled blasting would be used to excavate through rock. Shaft support would then be constructed, and the shaft would be lined with cast-in-place concrete.

The KEC Screen Chamber building excavation would occur within the central portion of the Kensico Campus. The KEC Screen Chamber excavation would include three separate underground connections as discussed in Section 1.2.1.1, "Kensico Campus." Connections to the KEC Screen Chamber would be provided from the UEC to the KEC Screen Chamber (UEC Connection Tunnel); from the KEC Screen Chamber to the existing Dike Grade Tunnel to allow connection to the LEC and the Catskill Aqueduct (Dike Grade Return Tunnel); and a new KEC Shaft 1C Connection Tunnel that would connect the KEC Screen Chamber to the KEC Tunnel. The Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract would also include excavation for a portion (approximately 30 feet) of the UEC Connection and the Dike Grade Return Tunnels; the remaining portion would be excavated under the KEC Buildings (KENS-EAST-3) Contract, as described in Section 3.1.7, "KEC Buildings (KENS-EAST-3)." Excavation would occur through soft ground and rock. Controlled blasting would be used to excavate through rock. After excavation, the tunnels would be lined with cast-in-place concrete.

As part of any blasting, the following safety measures would be used for blast control:

- Ample warning would be given to all persons within the vicinity prior to blasting. Warning signs would be erected a minimum of 24 hours prior to the blast time, and workers would be stationed to warn people before firing any blasts. The warning signs would state the time and date of each blast.
- Before the firing of any blast, the rock to be blasted would be covered with approved blasting mats, soil, or other equally serviceable material, to reduce dust, noise, and vibration. All loose and shattered rock that may endanger the structure or the work would be removed.
- Reduced blasting charge rates (i.e., reduced excavation) would be used close to sensitive infrastructure / fresh concrete.
- Blasting would be monitored using approved monitoring devices.
- Protection measures would be implemented to protect critical structures, if required.

Material excavated from the KEC Shaft 1C and KEC Screen Chamber construction areas, including the connection tunnels, would be transported to the stockpile areas via on-site dump trucks for on-site reuse and/or future off-site disposal.

Figure 3.1-4 below provides an overall plan view of the limit of disturbance for this phase of the project, along with the infrastructure to be installed. Construction phasing for KENS-EAST-1 soil disturbance would mainly involve movement of excavation material from the KEC Screen Chamber and KEC Shaft 1C excavations into the Delaware Aerator basin.

3.1.6.2 KEC Tunnel

Tunnel boring activities for the proposed KEC Tunnel between the Kensico Campus and KEC Eastview Site would be performed under the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract, including assembly of the TBM, tunnel excavation, and TBM retrieval. The proposed KEC Tunnel length would be approximately 2 miles and would have a finished inner diameter of approximately 27 feet. Both KEC Shafts 1C and 2C would be "belled out" at their base (see **Figure 3.1-4**). This would allow the individual pieces of the TBM to be lowered into KEC Shaft 2C and the set-up of the larger TBM unit. In addition, the bell out areas at both sites would also provide a larger "staging" area where soil and rock removed from the tunnel can be staged for removal, additional equipment or materials can be lowered or removed from the shafts and provide access to construction workers. In addition, the KEC Shaft 2C would also have a tail and starter tunnel. The tail tunnel would be used to provide more room for moving or setting up equipment, in particular the TBM and its soil/rock conveying systems. The starter tunnel would allow for the proper orientation and setup of the TBM prior to the initiation of the larger tunnel boring effort. The belled-out areas, tail tunnel, and starter tunnel would be constructed through drill and blast methods.

TBM excavation would commence during the second quarter of 2027 (Q2 2027) from the KEC Eastview Site and advance towards Kensico Campus. Excavation of the main KEC Tunnel is anticipated to take approximately 18 months and would be completed in the fourth quarter of 2028 (Q4 2028). Once the KEC Tunnel is fully excavated between the KEC Eastview Site and Kensico Campus, the TBM would then be retrieved from KEC Shaft 2C at the KEC Eastview Site and tunnel lining would be performed from KEC Shaft 2C at the KEC Eastview Site during the Q1 2029 to Q1 2030.

TBM assembly would be performed Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) over a period of two months. TBM excavation would occur Monday through Sunday during three shifts (7 AM to 3:30 PM, 3 to 11:30 PM, 11 PM to 7:30 AM) and would extend for a period of 18 months. TBM lining would occur Monday through Sunday during three shifts (7 AM to 3:30 PM, 3 to 11:30 PM, 11 PM to 7:30 AM) and would extend for a period of 13 months. TBM retrieval would be performed Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) over a period of one month.

Figure 3.1-4. Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Limit of Disturbance

The TBM assembly would be performed Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) over a period of two months. TBM excavation would occur Monday through Sunday during three shifts (7 AM to 3:30 PM, 3 to 11:30 PM, 11 PM to 7:30 AM) and would extend for a period of 18 months. TBM lining would occur Monday through Sunday during three shifts (7 AM to 3:30 PM, 3 to 11:30 PM, 11 PM to 7:30 AM) and would extend for a period of 13 months. TBM retrieval would be performed Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) over a period of one month. The TBM excavation activity would primarily occur underground. In addition to the TBM, anticipated construction equipment would include light towers, generators, compressors, excavators, lifts, cranes, front-end loaders, pumps, ventilation fans, a crew elevator hoist, and equipment to facilitate soil and rock transport (e.g., conveyors and/or cranes).

3.1.6.3 KEC Eastview Site

As part of the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract, the KEC Tunnel would be constructed from the KEC Eastview Site, as described in Section 3.1.6.2, "KEC Tunnel**"** In addition, ECC excavation and KEC Shaft 2C construction and lining would also occur at the KEC Eastview Site.

At the KEC Eastview Site, work included in this contract would begin during Q3 2024 with removal of the remaining portion of the existing on-site soil stockpile in the northwest portion of the site. This work would involve the removal of approximately 125,000 tons of stockpiled soil and would be completed by the first quarter of 2025 (Q1 2025) through the use of excavators, a bulldozer, a roller, a light tower, and truck maintenance vehicles. Site preparation at the KEC Eastview Site would commence in Q1 2025 for the proposed ECC excavation and KEC Shaft 2C construction. This phase would also include construction of a new access road (South Access Road) to the North Forebay and DEL Shaft 19, as well as a new stormwater pond and staging areas required for construction of the new facilities and tunnel. Site preparation would be concluded in the third quarter of 2025 (Q3 2025). Anticipated construction equipment for site preparation would include a generator, compressor, excavator, and lift. Both the soil stockpile removal and site preparation would be performed Monday to Friday during one shift (7 AM to 3:30 PM).

Site preparation would be immediately followed by construction and lining of KEC Shaft 2C, which would be performed Monday through Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). Excavation for KEC Shaft 2C would be performed from Q3 2025 to Q2 2027. Lining of the shaft would occur from the second quarter of 2029 (Q2 2029) to the fourth quarter of 2029 (Q4 2029), after completion of the KEC Tunnel excavation and retrieval of the TBM. Anticipated construction equipment would include light towers, generators, compressors, excavators, lifts, cranes, front-end loaders, a drill rig, pumps, ventilation fans, a crew elevator and miscellaneous hand tools.

KEC Shaft 2C would be located at the KEC Eastview Site and would lie directly below and connect to the proposed ECC. KEC Shaft 2C would facilitate the KEC Tunnel's construction and ultimately convey water from the KEC Tunnel to the CDUV Facility once the KEC Project is completed. KEC Shaft 2C would also serve as the working shaft where the majority of soil and rock would be removed from the main KEC Tunnel, as well as the removal of potential groundwater infiltration that would be pumped out of the shaft and tunnel during construction. KEC Shaft 2C would be excavated through soft ground and rock. As part of the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract, controlled blasting would be required to excavate through rock. Safety measures that would be used during blasting are discussed in Section 3.1.6.1, "Kensico Campus." Excavated material would be removed through KEC Shaft 2C and transported by a conveyor belt approximately 10 to 20 feet above the ground surface from the shaft to the stockpile area. The conveyor belt would be constructed to span Mine Brook. Excavated material would then be loaded onto trucks for off-site disposal. Once excavated, KEC Shaft 2C support would then be constructed, and KEC Shaft 2C would be lined with cast-in-place concrete.

Lastly, ECC and CDUV pipe stub excavation at the KEC Eastview Site would occur from Q2 2029 to Q1 2030 and would be performed Monday through Friday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). The proposed ECC would be a new facility that would connect KEC Shaft 2C and the CDUV Facility. The ECC would be generally centered above KEC Shaft 2C. The ECC would connect to the CDUV Facility by extending four existing 12-foot pipe stubs to the south wall of the connection chamber. Work anticipated would include installation of soldier piles and lagging with tie-backs, mass excavation, and installation of a tremie base slab. Anticipated equipment for this work would include light towers, compressors, pumps, cranes, a pile-driving hammer, a drill, excavators, front-end loaders, dump trucks, lifts, and miscellaneous hand tools. The dump trucks would remain on site transferring excavated materials to the stockpile area.

3.1.6.4 Construction Phasing

The Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract at the KEC Eastview Site includes four phases as described below:

- Phase 1: Site Preparation – Removal of the estimated 125,000 tons of soil from the remaining soil stockpile; construction of a temporary access road at the stockpile area, temporary site work including a parking area, construction site trailer, and security booth; temporary staging and stockpile areas for site preparation; excavation, grading, and installation of a security fence and roads; permanent site work including completion of a new south access road to final condition.
- Phase 2: ECC and KEC Shaft 2C Excavation – Install conveyor, electrical substation, water treatment facilities, and excavate KEC Shaft 2C and ECC.

- Phase 3: TBM Assembly and Tunneling – Assemble TBM, hog houses, TBM backup, and excavate KEC Tunnel.
- Phase 4: KEC Shaft 2C Lining and Final Site Conditions – Final lining for KEC Shaft 2C and KEC Tunnel, remove conveyor, hog houses, water treatment facilities, storage tanks and workshops; temporary stockpile to remain for nine months.

3.1.7 KEC BUILDINGS (KENS-EAST-3)

The KEC Buildings (KENS-EAST-3) Contract incorporates three separate contract packages:

- UEC Modifications (Package 3A)
- KEC Screen Chamber, UEC Connection Tunnel, and Chemical Feed (Package 3B)
- ECC; Start-up and Commissioning (Package 3C)

Packages 3A and 3B would involve work at the Kensico Campus, while Package 3C would encompass activities at the KEC Eastview Site. On-site work under the KEC Buildings (KENS-EAST-3) Contract is anticipated to commence during the third quarter of 2027 (Q3 2027). Construction would be completed by Q3 2033. Start-up and commissioning would commence towards the end of construction of the Proposed Action and last approximately 13 months.

3.1.7.1 Kensico Campus

Specific work at the Kensico Campus as part of the KEC Buildings (KENS-EAST-3) Contract includes construction of final post-construction stormwater management practices, modifications to the existing UEC, construction of the KEC Screen Chamber building, police booth and main entrance, construction of a new security fence, completion of the underground stormwater drainage conveyance system, installation of chlorine and fluoride utilities, and final site grading, paving and landscaping.

Figure 3.1-5 provides an overall plan view of the limit of disturbance for this phase of the project along with the major structures to be installed. The construction phasing for soil disturbance at the Kensico Campus under this contract would include building construction, final grading of the Catskill and Delaware aerators, and final site restoration and landscaping.

UEC Modifications (Package 3A)

On-site work under this package would commence with mobilization at the Kensico Campus during Q3 2027. UEC construction activities would consist of site work, structural strengthening, sluiceway modifications and mechanical work, upper level effluent portal opening, superstructure modifications, roof replacement, and electrical work. Mobilization, superstructure modifications, electrical work, and site work would occur Monday to Friday during one shift

Figure 3.1-5. KEC Buildings (KENS-EAST-3) Limit of Disturbance

(7 AM to 3:30 PM). Structural strengthening, sluiceway modifications, and mechanical work would occur Monday to Friday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). Work would be completed by the second quarter of 2030 (Q2 2030). The anticipated construction equipment would include light towers, compressors, generators, pumps, lifts, and miscellaneous hand tools. Additionally, site work would use excavators, a front-end loader, rollers, pavers, a drill rig, and a grout mixer and pump.

The UEC site work for Package 3A consists of excavation and construction of a new upper level effluent outlet tunnel, installation of a new retaining wall, duct bank installation, a wider driveway, and a larger turnaround area in front of the UEC for emergency and operations vehicles. The upper level effluent tunnel would be constructed above the existing lower effluent tunnel running in parallel from the UEC to the new permanent shaft (UEC Shaft) at the UEC site. The UEC Connection Tunnel would extend from the UEC Shaft to the KEC Screen Chamber (discussed below).

KEC Screen Chamber, UEC Connection Tunnel, and Chemical Feed (Package 3B)

Package 3B activities would occur at the Kensico Campus from Q4 2028 to Q1 2032. Activities would include construction of the KEC Screen Chamber, excavation of a permanent shaft near the UEC (UEC Shaft), additional excavation for the UEC Connection and Dike Grade Return Tunnels, and lining of these tunnels.

KEC Screen Chamber construction would occur during up to two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) and would be completed by Q1 2032. Anticipated construction equipment would include light towers, generators, compressors, lifts, and cranes.

Excavation of the UEC Shaft and additional excavation for the UEC Connection and Dike Grade Return Tunnels, as well as lining of these tunnels, would occur Monday to Sunday during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM) and would be finished at the completion of the Dike Grade plug during Q4 2031. Anticipated construction equipment would include light towers, generators, compressors, excavators, lifts, cranes, front-end loaders, dump trucks, a drill rig, pumps, ventilation fans, a crew elevator and miscellaneous hand tools. Dump trucks would remain on site transferring excavated materials to the stockpile areas.

As part of the KEC Buildings (KENS-EAST-3) Contract, Package 3B, the UEC Shaft would be constructed and would facilitate the excavation of the UEC Connection Tunnel and Dike Grade Return Tunnel. As previously discussed in Section 3.1.6.1, “Kensico Campus,” the Tunnel, Shafts, and Kensico Rock Excavation (KENS-EAST-1) Contract would include excavation of a portion of the UEC Connection and the Dike Grade Return Tunnels with the remaining portion excavated under the KEC Buildings (KENS-EAST-3) Contract. As part of the KEC Buildings (KENS-EAST-3) Contract, controlled blasting would be required to excavate through rock. Safety measures that would be used during blasting are discussed in Section 3.1.6.1, “Kensico Campus.”

Material excavated would be transported to the stockpile area via dump trucks for on-site reuse and/or for off-site disposal. Transport from the UEC area would occur using the existing Westlake Drive.

As the UEC Connection Tunnel would enter the new KEC Screen Chamber and an improved portion of the Dike Grade Return Tunnel would extend from the KEC Screen Chamber to the existing Dike Grade Tunnel and then the LEC, a portion of the existing Dike Grade Tunnel between these new or modified tunnels would need to be plugged with concrete and abandoned. A concrete plug (Dike Grade plug) would be installed within the two ends of the abandoned section of the Dike Grade Tunnel between the UEC Connection Tunnel and the Dike Grade Return Tunnel. This would direct future flows to the new KEC Screen Chamber and allow ongoing connection to the Catskill Aqueduct.

Additional work at Kensico Campus under Package 3B would include chemical feed lines, construction of the police booth, KEC Shaft 1C vent building, and final site conditions and restoration. This work would occur Monday to Friday during one shift (7 AM to 3:30 PM) and would be completed by Q1 2032. Anticipated outside construction equipment would include generators, compressors, excavators, lifts, cranes, front-end loaders, a roller, and miscellaneous hand tools.

3.1.7.2 KEC Eastview Site

ECC, Commissioning, and Start-up (Package 3C)

On-site construction work as part of Package 3C would occur at the KEC Eastview Site from Q1 2029 to Q3 2033. This work would also include the start-up and commissioning of the Proposed Action, which would occur towards the end of construction of the Proposed Action and last for approximately 13 months. Construction activities would include equipment procurement, mobilization, ECC substructure and mechanical fit-out, ECC superstructure work, and ECC exterior and site work, including the tie-in to the existing CDUV Facility. Mobilization and start-up and commissioning would occur Monday to Friday during one shift (7 AM to 3:30 PM). ECC substructure and mechanical fit-out and ECC superstructure work would occur during two shifts (7 AM to 3:30 PM and 3 to 11:30 PM). ECC exterior and site work would occur during three shifts (7 AM to 3:30 PM, 3 to 11:30 PM, and 11 PM to 7:30 AM). Anticipated outside construction equipment would include light towers, generators, cranes, pumps, lifts, dump trucks, front-end loaders, excavators, bulldozers, a paver, and rollers.

3.1.8 SHORELINE STABILIZATION (KENS-EAST-SS)

The Shoreline Stabilization (KENS-EAST-SS) Contract would include armoring of Kensico Reservoir's shoreline south of the UEC, see **Figure 3.1-6**. Work would also include tree clearing, removal of accumulated sediments in Kensico Reservoir in proximity to the UEC and its intake channel, temporary dewatering associated with shoreline work, and final landscaping. This work is anticipated to occur Monday to Friday during one shift (7 AM to 3:30 PM) from the Q3 2025 to Q2 2028.

Removal of accumulated sediments is anticipated to occur from Q4 2027 to the first quarter of 2028 (Q1 2028). This work would be performed in proximity to the UEC and its intake channel to remove accumulated sediment and materials from Kensico Reservoir prior to operation of the improved UEC. Approximately 1,000 cubic yards of sediment would be removed. Prior to commencement of this work, a temporary construction turbidity curtain would be installed. The removal of sediments would be performed using a diver-operated dredger, pumps, a generator, a boat, and a flexi-float platform. Dewatering of the sediment would occur near the southern end of the shoreline stabilization area. The anticipated dewatering approach would be performed by having the pumped slurry go through geotubes first to filter out most of the suspended solids. After this occurs, the effluent would go to frac tanks, where it could be treated. The collected material would be tested prior to being trucked off site in accordance with applicable federal, State, and local requirements. The filtrate/centrate would be trucked off site or treated with an approved flocculent before discharge to the sewer system or to Kensico Reservoir consistent with all applicable requirements.

Approximately 1,600 linear feet of stabilization would be constructed adjacent to the reservoir. Shoreline stabilization would extend from existing riprap adjacent to the south side of the UEC to the limits of a previously-completed shoreline stabilization project. To protect water quality and provide a secure work area disconnected from the larger reservoir, the shoreline stabilization work would be performed behind a temporary steel sheeting wall and multi-layer temporary construction turbidity curtain. The steel sheeting wall would be used to isolate construction activities from the larger reservoir and allow for construction to occur in the dry or wet behind the sheet piling. Shoreline stabilization below the water line would be performed utilizing machine placed riprap. Shoreline stabilization above the water line would be performed utilizing hand-placed riprap. To allow the installation of the riprap, a combination of regrading, concrete curb wall, and gabion walls would be required for slope stabilization due to the steep slopes in the vicinity of shoreline. Anticipated construction equipment would include generators, compressors, excavators, cranes, front-end loaders, skid steers, pumps, welders, dump trucks, barges and boats, grinders, chainsaws, vibratory hammers, and miscellaneous hand tools.

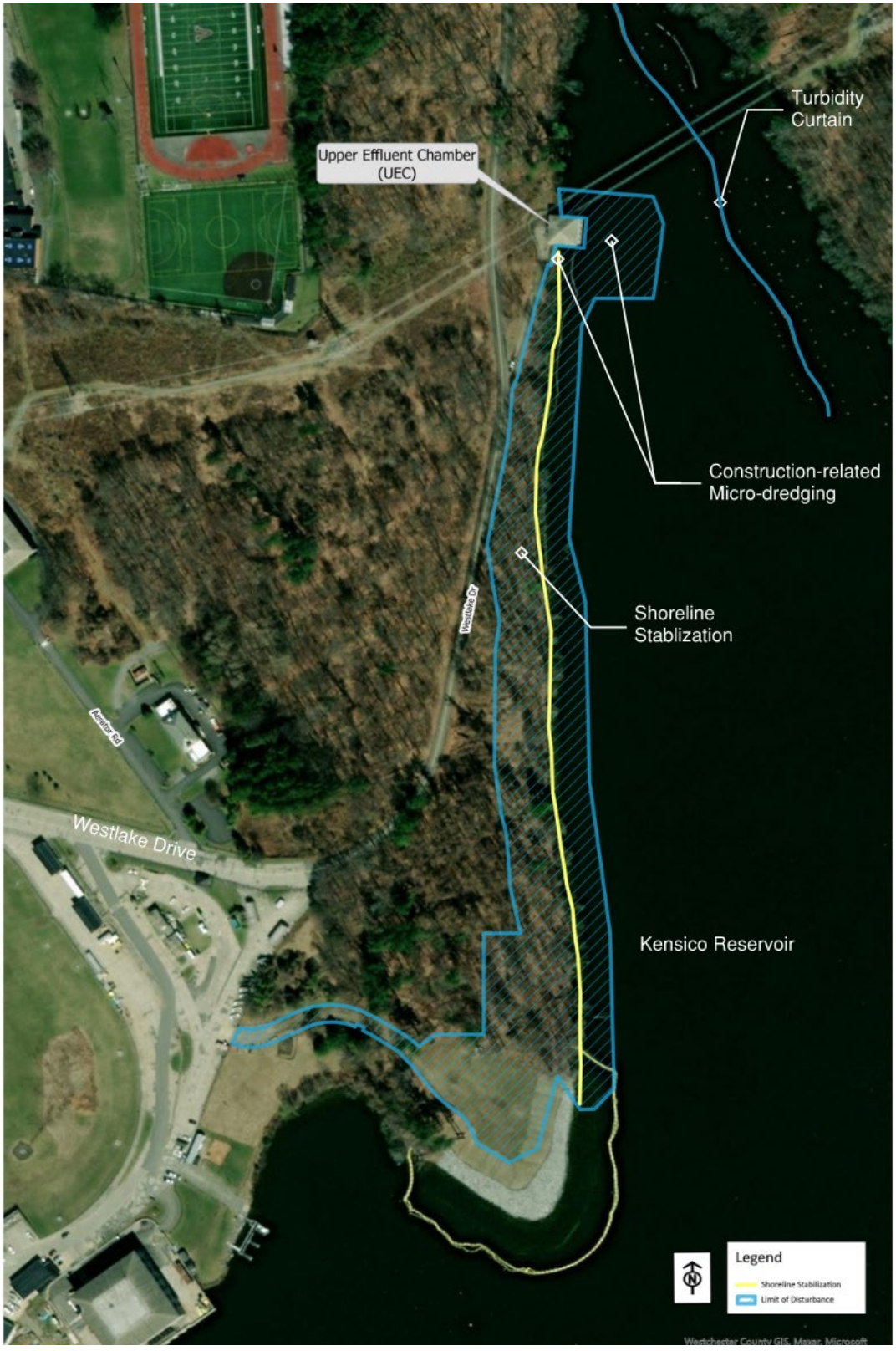

Figure 3.1-6. Shoreline Stabilization (KENS-EAST-SS) Limit of Disturbance

3.1.9 CONSTRUCTION TRUCK AND WORKER ESTIMATES

Construction activities as part of the overall Proposed Action would generate trips from construction workers traveling to and from the Kensico Campus and KEC Eastview Site, as well as construction trucks delivering materials and equipment, and removing debris. The phases, duration, and overlap of construction activities, and average daily worker and truck estimates, were identified for each quarter of construction for the Kensico Campus and KEC Eastview Site. **Table 3.1-1** shows the anticipated average number of daily construction workers, and trucks by quarter during the weekday.

Table 3.1-1. Average Weekday Number of Daily Construction Workers and Trucks by Quarter

	2024				2025				2026			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Workers	2	25	76	83	129	137	133	163	175	170	141	165
Trucks	1	4	60	160	124	25	23	27	25	25	27	29
	2027				**2028**				**2029**			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1[1]**	**Q2**	**Q3**	**Q4**
Workers	179	265	365	377	350	283	208	201	278	378	469	459
Trucks	36	83	171	167	169	165	150	111	52	95	156	132
	2030				**2031**				**2032**			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Workers	240	160	142	173	173	192	178	185	163	50	30	50
Trucks	44	23	22	23	28	31	25	27	22	1	0	1
	2033				**2034**							
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**					
Workers	40	30	14	11	11	11	11					
Trucks	0	33	0	0	0	0	0					

Notes:
Q1 = first quarter; Q2 = second quarter; Q3 = third quarter; Q4 = fourth quarter

3.1.10 SITE ACCESS

Construction workers and trucks would access the Kensico Campus from the existing Westlake Drive from Columbus Avenue. As part of the Proposed Action, the existing Westlake Drive at the Kensico Campus would be closed to the public once construction is underway and access would only be provided to construction-related vehicles. Westlake Drive would be relocated to the north and once constructed, would connect Columbus Avenue with the existing section of Westlake Drive along Kensico Reservoir. The relocated Westlake Drive would be expected to be constructed and opened to the public in 2025. Access by existing emergency services vehicles, however, would be maintained until the relocated Westlake Drive has been completed and is available for public use.

As existing DEP employees would still need to access the Kensico Campus during construction, when Westlake Drive would be closed, a new, temporary dedicated access drive would be constructed for use by some DEP employees during construction. This access drive would enter the Kensico Campus from Columbus Avenue at the intersection of Lakeview Avenue and provide access to DEL Shaft 18 and the Fluoridation Building. All contractors as well as DEP employees accessing the LEC, UEC, and Kensico Regional Headquarters would continue to utilize the existing Westlake Drive.

Similarly, access to the KEC Eastview Site for DEP employees would be from the existing entrance along Walker Road between Grasslands Road and Dana Road. A dedicated contractor entrance, south of the existing entrance along Walker Road would allow for construction management and contractor access with the construction of a temporary entrance. Construction equipment, such as dump trucks, on-site deliveries, and concrete trucks would access the site from an existing entrance from Walker Road, north of the existing entrance, at the northwest corner of the site. At this entrance, a new security entrance would be constructed.

3.1.11 PARKING

On-site parking would be provided at the Kensico Campus and the KEC Eastview Site to fully accommodate the construction worker parking demand generated by the Proposed Action. While parking demand at the Kensico Campus and KEC Eastview Site would vary over the duration of construction based on the activities being performed, sufficient on-site parking would be provided.

3.2 COMMUNITY FACILITIES AND SERVICES

3.2.1 INTRODUCTION

Community facilities and services include public or publicly funded schools, libraries, childcare centers, health care facilities, fire and police protection, and emergency services (e.g., ambulance, emergency medical services (EMS)). A proposed action can directly affect community facilities or services when it physically displaces or alters a community facility or impedes access to a facility. A proposed action can also indirectly affect a community facility or service if it causes a change in population that would affect the facility or services delivered, as might occur if a facility is already over utilized, or if a project creates a demand that would exceed the capacity of an existing facility or service. Potential indirect, short-term effects to community facilities and services could occur as a result of proposed construction activities and these are assessed within this section.

Construction activities would not physically affect community facilities and services such as schools, libraries, community centers, and health care facilities. Construction activities, and more specifically, a temporary increase in construction workers due to the Proposed Action would not introduce a long-term or permanent increase in residential populations requiring these community services. Construction workers associated with the Proposed Action would be transient and

temporary and would not permanently relocate to the Kensico Campus or KEC Eastview study areas thereby not creating a long-term increase in demand on existing community facilities and services (i.e., any relocations would not result in exceedance of the five percent increase in population thresholds identified in the *CEQR Technical Manual* that warrant detailed analysis of indirect effects). As a result, an assessment of potential construction impacts upon these resources is not required.

Proposed construction activities and temporary increases in worker and construction vehicle traffic, however, could potentially result in indirect effects on access to community facilities and/or the ability of local service providers to respond as a result of proposed construction vehicle traffic. This section therefore is primarily focused on whether proposed construction:

- would significantly affect access to community facilities, and/or
- would result in significant changes in the ability of local service providers, such as fire protection, police, EMS, or medical facilities to respond to incidents and/or result in longer response times within the study area.

3.2.2 METHODOLOGY

The assessment identified existing community facilities and services within the proposed study area including those that would potentially be affected by the construction of the Proposed Action. A desktop evaluation and a windshield survey were performed to verify local community facilities and service providers within a one-half mile of the Kensico Campus and KEC Eastview Site. In particular, community facilities and service providers that would support the proposed construction sites and surrounding areas were noted. In order to define existing conditions for each type of service provider, information concerning the following was described - facility locations, geographic jurisdiction or service areas, and demand (i.e., number and frequency of service calls, staffing levels, and equipment), where readily available. Identification and discussion of the future without the Proposed Action was then prepared. This included the identification of reasonably anticipated or proposed changes to existing community facilities and services (e.g., a new fire station, police station, etc.) and evaluation of significant DEP and non-DEP projects that would be advanced at the Kensico Campus and KEC Eastview Site or within their one-half mile study areas. Potential development of new or expanded community facilities or services associated with these future without the Proposed Action projects, as well as potential increased needs for these projects, were identified and discussed. The future without the Proposed Action established a baseline against which the incremental changes due to the Proposed Action were assessed.

The future with the Proposed Action then looked at the potential impact of the construction of the Proposed Action upon community facilities and services. As noted previously, this assessment was primarily focused on indirect effects related to access or use of community facilities by the public and on the ability of local service providers to respond (i.e., access and response time) to potential

incidents or service needs at the proposed construction sites and within the Kensico Campus and KEC Eastview Site study areas.

3.2.3 EXISTING CONDITIONS

Numerous types of community facilities and services are located within, and serve, the Kensico Campus and KEC Eastview Site study areas. These facilities are shown in **Table 3.2-1**, **Figure 3.2-1,** and **Figure 3.2-2**. Various educational, childcare facilities, and hospitals are located within the study areas, with Valhalla High School and Middle School located immediately north of the Kensico Campus. These facilities provide public education, childcare, and medical facilities for the surrounding neighborhoods. As described below, area hospitals include Blythedale Children's Hospital and Westchester Medical Center. Westchester Medical Center also encompasses Maria Fareri Children's Hospital, Behavioral Health Center, and Ambulatory Care Pavilion. There is one library located in the Kensico Campus study area. There are no libraries located in the KEC Eastview Site study area.

Emergency service providers within the Kensico Campus and KEC Eastview Site study areas include the Valhalla Fire Department, Grasslands Fire Brigade, Grasslands Emergency Medical Services, DEP Police, Town of Mount Pleasant Police Department, Valhalla EMS, and the Valhalla Volunteer Ambulance Corps. In addition, various emergency service providers whose districts serve the community in the vicinity of Kensico Campus and the KEC Eastview Site include the Elmsford Fire Department, Town of Greenburgh Police, Hawthorne Fire Department, Westchester County Department of Public Safety, and New York State Police (see **Table 3.2-2** and **Figure 3.2-3)**. While a portion of the North White Plains Fire Department's service area is located within the Kensico Campus study area, there are no structures within that area, therefore, a further discussion of the department was not conducted.

3.2.3.1 Fire

Several fire departments service the Kensico Campus and KEC Eastview Site study areas including the Kensico Campus and KEC Eastview Site. The Kensico Campus and its study area are primarily located within the service area of the Valhalla Fire Department with a small portion located within the jurisdiction of the Hawthorne Fire Department (see **Figure** 3.2-1). In addition, a portion of the North White Plains Fire Department's service area includes Kensico Reservoir and is located within the southeast portion of the Kensico Campus study area. The KEC Eastview Site lies primarily within the jurisdiction of the Grasslands Fire Brigade and the Elmsford Fire Department. In addition, the eastern portion of the KEC Eastview Site study area lies within the Valhalla Fire Department and the Hawthorne Fire Department.

Fire departments within Westchester County participate in the County's mutual aid program, in which departments enter into agreements to provide backup support when necessary. If additional

aid is required beyond the immediate surrounding area, Westchester County's communication center is responsible for dispatching additional support (see "Other Emergency Services" below).

Provided below is additional information with regard to the fire districts within the Kensico Campus and KEC Eastview Site study areas.

Valhalla Fire Department. The Valhalla Fire Department provides fire protection in the area of Kensico Campus and is located at 330 Columbus Avenue, north of the Kensico Campus (see **Figure 3.2-1**). It is a volunteer fire department staffed by approximately 80 firefighters and two civilian volunteers. The Valhalla Fire Department consists of two fire companies. The Valhalla Fire Company No. 1 is located at 1 Entrance Way just off of Legion Drive, south of Kensico Campus. The Independent Fire Company is located at 14 Columbus Avenue at the intersection with Legion Drive, also south of Kensico Campus. Both companies respond to all the calls received.

The department is currently equipped with one Class A 500-gallon pumper, one Class A 750-gallon pumper, one 100-foot mid-mount tower ladder, one heavy rescue vehicle, and one mini-attack truck. The Valhalla Fire District predominantly covers residential development with a cluster of commercial office and institutional development. The department responds to over 300 calls for assistance each year, with 387 calls in 2020, ~~and~~ 402 calls in 2021, and 386 calls in 2022.[2]

Grasslands Fire Brigade. The Grasslands Fire Brigade provides fire protection for the Grasslands Reservation, including the KEC Eastview Site, and is located at the Westchester County Fire Training Center at 4 Dana Road, northwest of the KEC Eastview Site. The Brigade's staff consists of 19 volunteers and is equipped with six pieces of apparatus, including one engine and one ladder truck. The Grasslands Fire Brigade are the first responders to fire emergencies on and in the vicinity of the Grasslands Reservation from 8:00 AM to 3:30 PM on weekdays. After hours and on weekends, this area is covered by the Valhalla Fire Department and the neighboring Hawthorne Fire Department.

Elmsford Volunteer Fire Department. The Elmsford Volunteer Fire Department is located in the Town of Greenburgh and its service area includes the KEC Eastview Site. The Elmsford Fire Department includes the Elmsford Fire Company No. 1, a ladder company located on 144 Main Street, and the Live Oak Engine Company, located on 5 North Lawn Avenue. The department's staff consists of approximately 70 volunteers and 10 non-firefighting volunteers. The department is equipped with two ladder trucks, two engine trucks, and two other rescue units (i.e., utility response vehicle and rescue boat). The department responded to 653 calls for fire emergencies in 2020 and 650 calls in 2021.[3]

[2] Information obtained from the Valhalla Fire Department website, https://www.valhallafd.org/.
[3] Information obtained from the Elmsford Fire Department website, https://www.elmsfordrd.com/stats/.

Table 3.2-1. Community Facilities and Services

Community Facility	Address	Notes	Project Site
Schools			
Valhalla High School	300 Columbus Ave., Valhalla, NY	~~425~~ 416 students[4]	Kensico Campus
Valhalla Middle School		~~322~~ 311 students[4]	
Columbus Avenue Elementary School	580 Columbus Ave., Thornwood, NY	~~468~~ 470 students[4]	
New York Medical College	Grasslands Reservation, Valhalla, NY	1,234 full-time students, 309 part-time students	KEC Eastview Site
Blythedale School	95 Bradhurst Ave., Valhalla, NY	~~126~~ 119 students[4]	
Child Care Centers[5]			
Easter Seals Project Explore	70 Columbus Ave., Valhalla, NY	Center provides care from ages 18 months to 12 years. Total capacity of 256	Kensico Campus
Rise and Shine Child Care Group	373 Columbus Ave., Valhalla, NY	Home-based daycare center that provides group family care with a maximum capacity of 16 children	
All Aboard Childcare Center	400 Columbus Ave., Valhalla, NY	Center with a maximum capacity of 181 children	
Bright Horizons Children's Center	77 Executive Blvd., Elmsford, NY	Enrollment of infants, toddlers, and pre-school children (capacity of 95 children)	KEC Eastview Site
Hospitals			
Westchester Medical Center Campus	Grasslands Reservation, Valhalla, NY		
Westchester Medical Center		415-bed academic hospital	KEC Eastview Site
Maria Fareri Children's Hospital		136-bed advanced pediatric care center	
Behavioral Health Center		101-bed psychiatric facility	
Ambulatory Care Pavilion		Outpatient care facility	
Blythedale Children's Hospital	Bradhurst Ave., State Route 100A, Valhalla, NY	Children's Rehabilitation, 94-bed inpatient, an 8,000 square foot day hospital, a 24-bed long-term care, and a 6,000 square foot center for speech pathology	KEC Eastview Site

[4] https://data.nysed.gov/lists.php?type=school
[5] https://childcarecenter.us/new_york/valhalla_ny_childcare

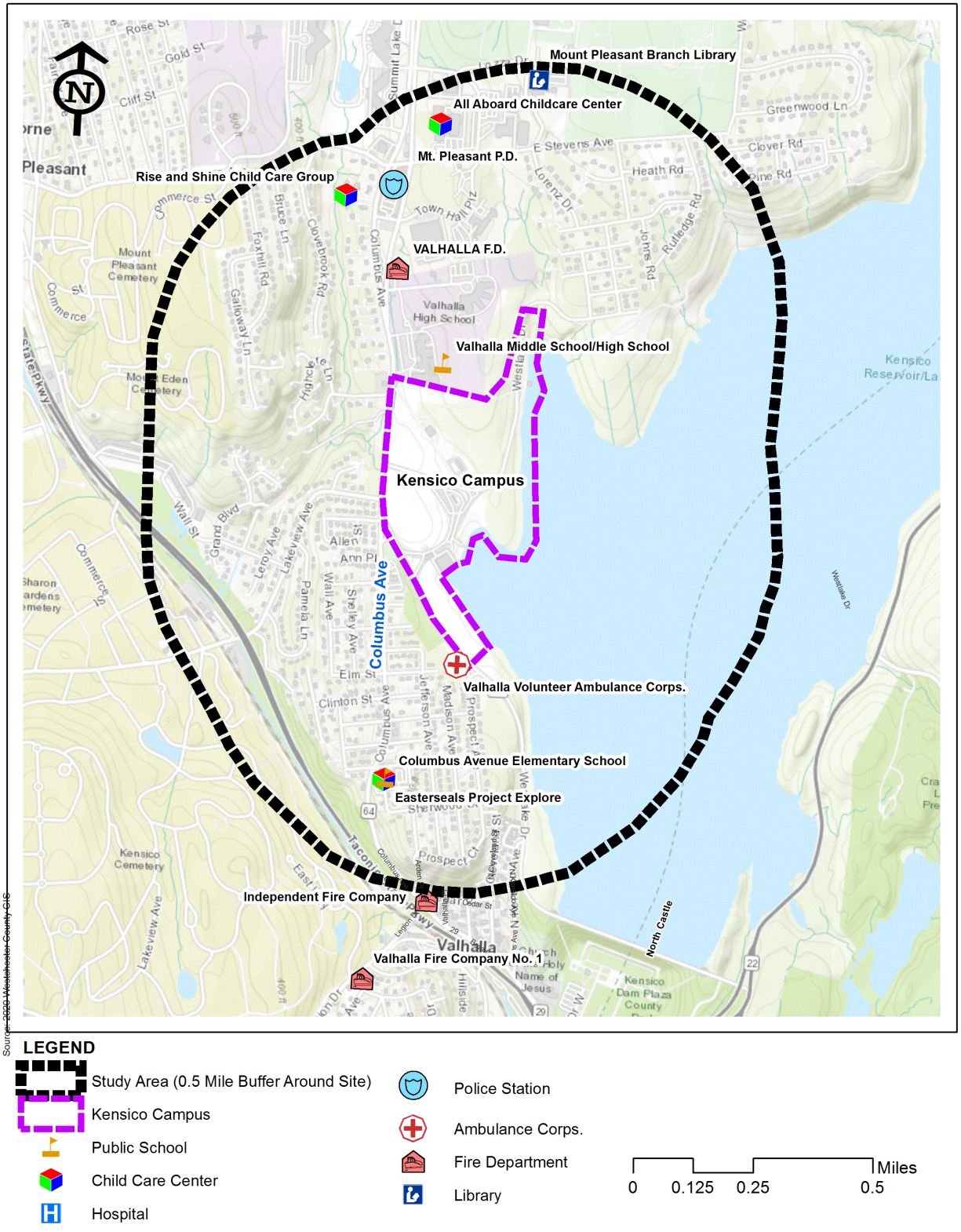

Figure 3.2-1. Community Facilities and Services – Kensico Campus Study Area

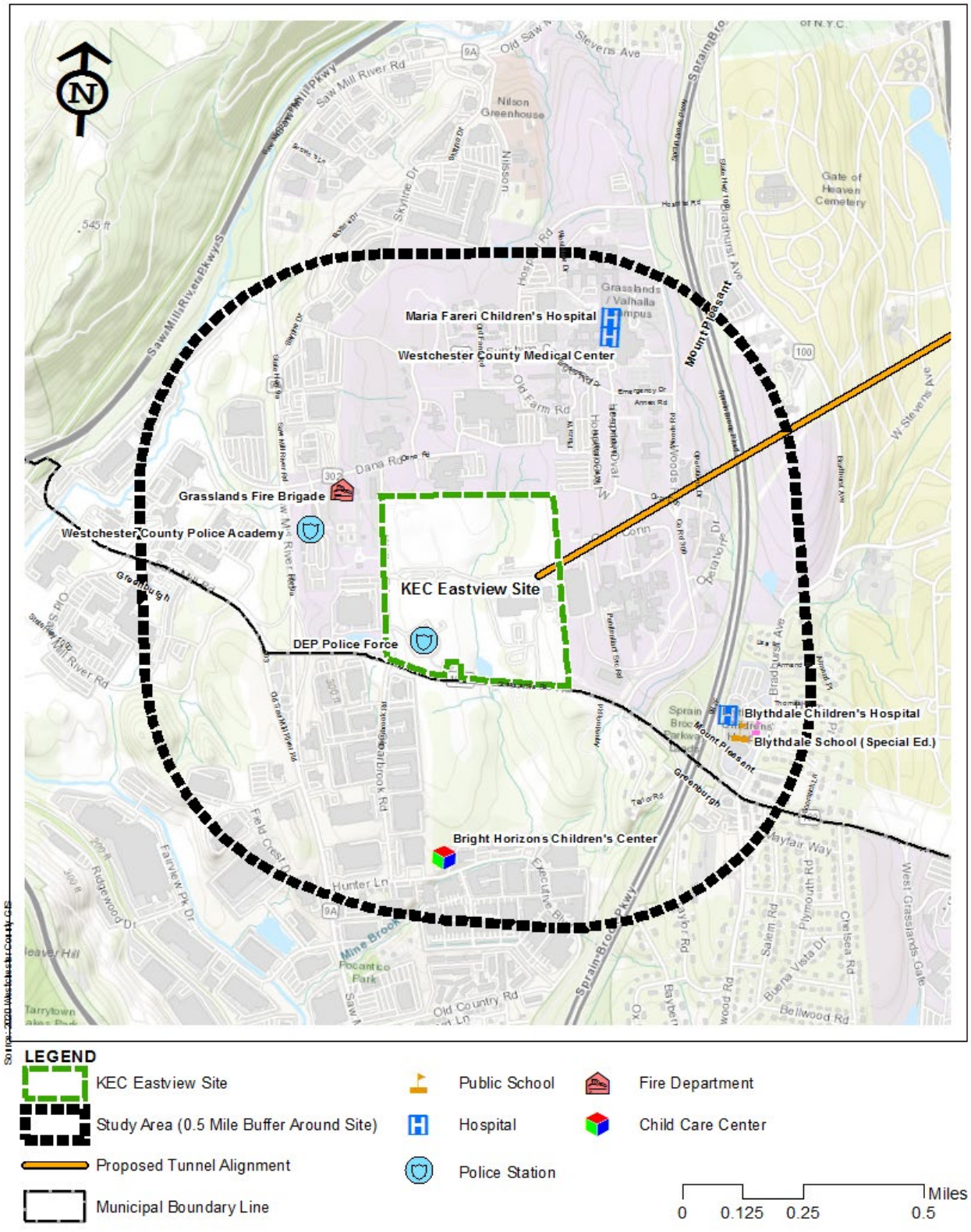

Figure 3.2-2. Community Facilities and Services – KEC Eastview Site Study Area

Table 3.2-2. Community Facilities and Services – Emergency Services

Community Facility	Address	Notes
Mount Pleasant Police Department	One Town Hall Plaza, Valhalla, NY	48 Police Personnel
Greenburgh Police Department and Emergency Medical Services	188 Tarrytown Rd., White Plains, NY	115 Police Personnel 31 Paramedics 12 Medical Technicians
DEP Police Force	2 Walker Rd., Valhalla, NY	NA
Valhalla Fire Department	330 Columbus Ave., Valhalla, NY	80 Fire Personnel, 2 Citizen Volunteers
Independent Fire Company	14 Columbus Ave., Valhalla, NY	Part of the Valhalla Fire Department
Valhalla Fire Company No. 1	1 Entrance Way, Valhalla, NY	Part of the Valhalla Fire Department
Grasslands Fire Brigade and EMS	Westchester County Fire Training Center, Grasslands Reservation, Valhalla, NY	19 Fire Personnel
Valhalla Volunteer Ambulance Corps.	1 Westlake Dr., Valhalla, NY	70 EMT-trained Volunteers
Westchester County Department of Emergency Services	Westchester County Fire Training Center, Grasslands Reservation, Valhalla, NY	Provides Training for Emergency Service Personnel
Elmsford Fire Department	144 Main St., Elmsford, NY, and 5 North Lawn Ave., Elmsford, NY	70 volunteers and 10 non-firefighting volunteers
Westchester County Department of Public Safety	Headquarters: Saw Mill River Parkway, Hawthorne, NY Police Academy: New York State Armory, Grasslands Reservation, Valhalla, NY	300 Police Officers
New York State Police	200 Bradhurst Ave., Hawthorne, NY	

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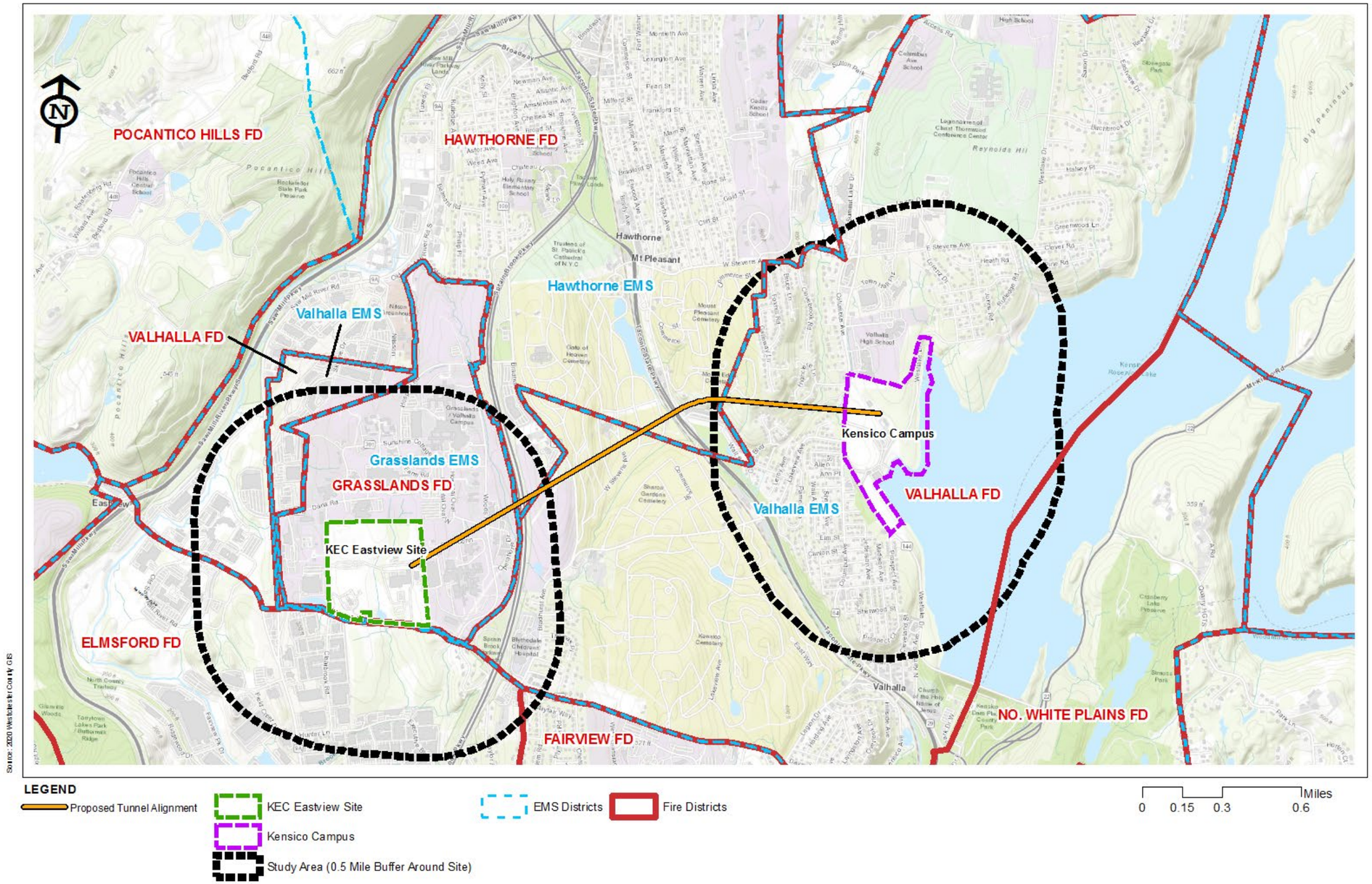

Figure 3.2-3. Emergency Services and Districts – Kensico Campus and KEC Eastview Site Study Areas

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3.2.3.2 Police

Police protection at DEP facilities and within the larger study area are primarily provided by three units or departments. The primary providers include the DEP Police, the Town of Mount Pleasant and Town of Greenburgh Police Departments as described below.

Similar to fire departments, police departments in Westchester County participate in a mutual aid program that provides additional assistance to individual departments, including the Towns of Mount Pleasant and Greenburgh, when their local resources are fully deployed. Large-scale emergencies are considered any events that deplete or commit local department resources and necessitate assistance from additional local, County, or State agencies. As an example, this may include but is not limited to large-scale regional emergencies, the occurrence of multiple services needs within the Kensico Campus and KEC Eastview study areas, and/or a large event within a single district or municipality.

DEP Police Force. DEP maintains a police force to protect the City's water supply system, which includes more than 2,000 square miles of watershed land across nine counties, 19 reservoirs, three controlled lakes, and associated facilities. DEP Police patrol the watershed by foot, bicycle, all-terrain vehicle, motorcycle, boat, and aircraft. [6] The principal DEP Police Station, the 6th Precinct, is located at the KEC Eastview Site. The DEP Police are the primary responders for emergency and security calls for the City's water supply facilities, including the Kensico Campus and KEC Eastview Site.

Town of Mount Pleasant Police Department. The Mount Pleasant Police Department is located at One Town Hall Plaza on Columbus Avenue in Valhalla, north of the Kensico Campus. The Mount Pleasant Police Department is responsible for providing service to approximately 25,500 people in a 32 square-mile area that includes 113 miles of local roadways and approximately 15 additional miles of State and County roadways; it does not include the parkways in the Town of Mount Pleasant, which are patrolled by the Westchester County Department of Public Safety (see below). The Mount Pleasant Police Department services the unincorporated areas of Mount Pleasant, including the Hamlets of Hawthorne, Thornwood, Valhalla, and Pocantico Hills. The incorporated Villages of Pleasantville, Briarcliff Manor, and Sleepy Hollow maintain separate police departments and receive outside assistance only as needed through the County's mutual aid program.

The Mount Pleasant Police Department is currently staffed by ~~48~~ 50 police personnel and approximately 40 vehicles between the patrol, detective, command staff, and special service units. The Mount Pleasant Police Department provides 24-hour service and on average, the

[6] New York City Department of Environmental Protection News Briefing available at https://www.cb8m.com/wp-content/uploads/2016/10/04.19.13-Commissioner-Strickland-Promotes-Nine-Veteran-Members-of-DEP-Police-Force-and-City-Completes-38-Million-Water-Main-Installation.pdf.

department receives between 33,000 and 35,000 calls for service each year. Currently, the Mount Pleasant Police Department is able to adequately meet the needs of the service area.[7]

Town of Greenburgh Police Department. The Greenburgh Police Department is located at 188 Tarrytown Road in White Plains, NY, over two and one-half miles south of the KEC Project Area. The Greenburgh Police Department is responsible for providing service to the unincorporated portion of the Town of Greenburgh. The Greenburgh Police Department is currently staffed by 115 police personnel and more than 50 vehicles and six bicycles. The Greenburgh Police Department also provides EMS to the Town of Greenburgh.

In addition to DEP and local town police, additional support is provided by the Westchester County Department of Public Safety and the New York State Police as summarized below.

Westchester County Department of Public Safety. The Westchester County Department of Public Safety has an office located at 1 Saw Mill River Parkway in Hawthorne, New York, and a Police Academy located just west of the KEC Eastview Site within the New York State Armory located in the larger Grasslands Reservation. The department has 300 sworn officers and is the primary law enforcer and responder to emergencies along the parkways within the County, County parks, and buildings within the Grasslands Reservation. The department maintains several specialized units including, but not limited to, a Crime Analysis unit and Bomb Squad. While the department would not serve as a primary responder, they are available to provide backup support in the event of an emergency.[8]

The Department of Public Safety is currently able to meet the needs of the service area. On average, the department receives approximately 25,000 service calls each year and has seen an increase of three to five percent each year since 2010.[9]

New York State Police. The New York State Police maintains its Troop K barracks north of the KEC Eastview Site that serves Columbia, Dutchess, Putnam, and Westchester counties. The primary function of the State Police is deterring crime, stopping crimes in progress, investigating crimes, and serving as first responders for emergencies and situations that threaten public safety. The station is located at 200 Bradhurst Avenue in Hawthorne and is approximately 1.5 miles northwest of the Kensico Campus and approximately 1.5 miles north/northeast of the KEC Eastview Site. The State Police are typically notified in the event of an emergency where the DEP Police or other departments would require assistance, as appropriate. The State Police serve several towns in three different zones. Zone 3 covers Westchester County and includes Mount Pleasant, Hawthorne, Cortlandt, Lewisboro, Mohegan Lake, and Somers.

[7] Based on correspondence from Town of Mount Pleasant Police Department dated June 29, 2021.
[8] Westchester County Department of Public Safety website https://publicsafety.westchestergov.com/about-us/shared-services-and-programs.
[9] Based on correspondence from Westchester County on July 12, 2021.

3.2.3.3 Emergency Medical Services

Emergency medical services (EMS) within the Kensico Campus and KEC Eastview Site study areas are primarily provided by the Valhalla EMS at and in the area surrounding the Kensico Campus, and by the Grasslands EMS and Town of Greenburgh, through their Police and Fire Departments for the KEC Eastview Site. Additional support is provided through a mutual aid program that can access resources from surrounding towns and villages, as well as Westchester Medical Center.

Valhalla EMS. The Mount Pleasant Police Department is responsible for dispatching EMS in the Town of Mount Pleasant, and the Valhalla EMS, operating as the Valhalla Volunteer Ambulance Corps, responds to any medical emergencies within Mount Pleasant, including DEP's Kensico Campus. The Valhalla Volunteer Ambulance Corps is located at One Westlake Drive at the southern end of the Kensico Campus. The Corps has approximately 70 EMT-trained volunteers. The Corps responds to calls on a 24-hour basis and has an average response time of eight minutes. The Corps responded to approximately 655 calls in 2020 and 187 calls in 2021.[10] The Corps maintains two ambulances and has an Advanced Life Support system on contract. Based on discussions with the Mount Pleasant Police Department and Valhalla Volunteer Ambulance Corps, the Corps is currently able to adequately service its jurisdiction.[11]

Grasslands EMS District. The Grasslands EMS District provides emergency services through the Grasslands Fire Brigade for the Grasslands Reservation, including the KEC Eastview Site, and is located at the Westchester County Fire Training Center at 4 Dana Road. Grasslands EMS District members are first responders to emergencies on and in the vicinity of Grasslands Reservation from 8:00 AM to 3:30 PM on weekdays. After hours and on weekends, this area is covered by the Valhalla Fire Department and EMS. Presently, the Grasslands EMS District is able to adequately meet the needs of its service area.

Town of Greenburgh. EMS services in the Town of Greenburgh are provided by the Elmsford Volunteer Fire Department and the Greenburgh Police Department. The Elmsford Volunteer Fire Department is equipped with two ambulance units. The department responded to 647 calls for EMS service in 2020 and 650 in 2021.[12] In addition, the Greenburgh Police Department currently includes 31 certified paramedics and 12 emergency medical technicians among its police staff.

3.2.3.4 Hospital Facilities

Several hospital facilities are located in or in close proximity to the Kensico Campus and KEC Eastview Site study areas; however, the primary facility is the Westchester Medical Center

[10] Information obtained from Valhalla Ambulance Corps website, http://valhallavac.com/history, on April 9, 2021.
[11] Based on a telephone interview with Mr. James Spies, Valhalla Volunteer Ambulance Corps on March 10, 2021.
[12] Information obtained from the Elmsford Fire Department website, https://www.elmsfordrd.com/stats/.

Campus located northeast of the KEC Eastview Site. The Westchester Medical Center Campus consists of three hospitals: Westchester Medical Center, a 415-bed academic hospital; Maria Fareri Children's Hospital, a 136-bed advanced pediatric care center; and the Behavioral Health Center, a 101-bed psychiatric facility. These regional facilities serve residents of southern New York, northern New Jersey, and southeastern Connecticut.[13] The Westchester Medical Center Campus provides a broad range of medical services including emergency services, trauma services (including a 24-hour air ambulance); an Ambulatory Care Pavilion; and burn care center. Westchester Medical Center is the only Level 1 Trauma Center in the Hudson Valley. Hospitals with a trauma rating are equipped and designated to provide emergency medical care on a large scale.

Blythedale Children's Hospital located at 95 Bradhurst Avenue is a children's hospital dedicated to improving the health and quality of life of children with complex medical illnesses and disabling conditions. The facility includes a 94-bed inpatient facility, an 8,000 square foot day hospital, a 24-bed pediatric long-term care facility, and a 6,000 square foot center for speech pathology and audiology.

3.2.3.5 Other Emergency Services (EMS)

In addition, to fire, police, EMS and hospital services within the Proposed Action's study area, additional emergency service resources are available including the Westchester County *Department of Emergency Services.* The Department of Emergency Services is comprised of three divisions: Fire Services, Emergency Medical Services, and the Office of Emergency Management. The department coordinates emergency management preparedness, response, recovery, and mitigation efforts for Westchester County by providing comprehensive training for fire and emergency medical personnel. The department is based out of the Westchester County Fire Training Center within the Grasslands Reservation, just west of the KEC Eastview Site. The communication center currently provides primary dispatch of fire and EMS for 52 fire departments and 32 emergency medical service agencies in the County.[14]

3.2.4 FUTURE WITHOUT THE PROPOSED ACTION

Several DEP projects would be implemented in the future without the Proposed Action. At the Kensico Campus, these would include a new permanent building to house the Waterfowl Management Program, the rehabilitation of an existing Lab Building into the Kensico Regional Headquarters, and various minor projects at DEL Shaft 18. At the KEC Eastview Site, projects include the installation of new cleanout access locations and modifications to an existing manhole at the CDUV Facility and a potential project to install a solar carport canopy and

[13] Information obtained from the website maintained by the Westchester Medical Center, http://www.wcmc.com.
[14] Information obtained from the website maintained by the Westchester County Department of Emergency Services, https://emergencyservices.westchestergov.com/.

rooftop solar. These DEP projects are not anticipated to directly or indirectly increase demand on any community facilities or services as they would not result in significant increases in the number of employees.

Several additional non-DEP projects are expected to be advanced in the future without the Proposed Action. More significant projects would include the Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, Regeneron Greenburgh Expansion that would be used for office and research development, as well as the North 60 and Baker Residential developments. The Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, and Regeneron Greenburgh Expansion are located approximately one-half mile west of the KEC Eastview Site. The North 60 development would be a proposed mixed-use development including commercial, medical research, residential and retail uses and would be located approximately 0.6 miles north of the KEC Eastview Site. Finally, the Baker Residential development project would be located over one-half mile north of the Kensico Campus and would involve the development of a cluster subdivision with approximately 116 units located at the northeast corner of the intersection of Lozza Drive and Columbus Avenue.

For fire and EMS emergencies, the primary responder for the Landmark at Eastview North Campus would be the Hawthorne Fire Department. The expansion of the existing campus would not be anticipated to significantly increase demand for existing community facilities or services. Primary uses would result in additional employees, but not new permanent residents. The primary responder for the Landmark Eastview South Campus Parcel D and Regeneron Greenburgh Expansion would be the Elmsford Fire Department. These two future without the Proposed Action developments would also involve the development of new office, research and development and laboratory uses which would result in an increase in the existing work population but would not be expected to result in an increase in current residential populations within the study area. The North 60 development would also be served by the Hawthorne Fire Department and Grasslands Fire Brigade for fire and EMS services. While some new permanent residents would be associated with this development, the majority of users would be comprised of new employees and retail customers which would not represent a significant new demand to community facilities and services. Likewise, only 143 new on-site residents were identified within the Final Environmental Impact Statement for the North 60 project.

The Baker Residential development, located north of the Kensico Campus and served by the Valhalla Fire Department, would add 116 new residences to the area. Both the Valhalla Fire Company No. 1 and the Independent Fire Company, located south of the Kensico Campus would respond to all the calls received and this increase in residential population is not anticipated to result in significant new needs for community facilities and services beyond what is currently available.

No significant changes to existing community facility needs and services (e.g., schools, child care services, libraries, etc.) would be expected in the future without the Proposed Action. More specifically, in the future without the Proposed Action, service providers (i.e., fire, police, EMS, and medical) in the surrounding areas are not anticipated to change their staffing levels substantially. Municipal service providers (Town and County) would continue to adjust staffing levels as required to maintain adequate levels of service in the future. Volunteer levels supporting local fire and EMS services are subject to change and generally accept applications for new members on an ongoing basis. Westchester Medical Center would continue to advance medical care based on the needs of the larger community it serves. It is anticipated that the community facilities would maintain adequate levels of service in the future.

As noted in Section 3.10, "Traffic and Transportation," the majority of traffic movements would continue to operate at acceptable levels of service in the future without the Proposed Action. No significant effects or changes in response times or the ability to respond and provide services would be expected. Emergency vehicles would continue to pass through the traffic network in the future without the Proposed Action much as they do today.

3.2.5 FUTURE WITH THE PROPOSED ACTION

During construction, the Proposed Action would not impede access to any community facilities or services in the Kensico Campus and KEC Eastview Site study areas. No new permanent user population would be introduced that would result in significant adverse effects to existing community facilities and services such as schools, libraries, childcare facilities, and other similar services. Vehicular access to residential neighborhoods located northeast of the Kensico Campus through the use of existing Westlake Drive would be temporarily precluded during construction until the relocated Westlake Drive is operational, a period of approximately six months. During this period, however, emergency vehicles would still be able to access those residential neighborhoods via the existing Westlake Drive until the relocated Westlake Drive is fully operational.

Construction activities would result in temporary increases in travel times (i.e., potential delays and congestion) along roadways in the Kensico Campus and KEC Eastview Site study areas (see Section 3.10, "Traffic and Transportation" for a more detailed discussion); however, traffic conditions and/or levels of service would generally remain comparable to existing and future without the Proposed Action conditions. Along Grasslands Road, significant traffic impacts were identified at two intersections along Grasslands Road and along Hillside Avenue which Grasslands Road transitions to east of the KEC Eastview Site. However, these significant impacts were identified for the minor street, i.e., not along Grasslands Road, or in the non-peak direction of travel for responding emergency vehicles. One of the impacts was identified at the southbound Walker Road shared left-through movement and may be used by fire and police emergency services. Traffic improvement measures identified in Chapter 9, "Mitigation," are

proposed to improve traffic conditions along this approach during construction. As part of the Proposed Action, Westlake Drive at the Kensico Campus would be closed to the public beginning in early 2025; however, access to the roadway would be maintained for emergency vehicles, which would have priority access over all other non-emergency traffic. Emergency vehicles would use relocated Westlake Drive once it is completed, which would connect Columbus Avenue and the section of Westlake Drive along the reservoir. Furthermore, the traffic movements analyzed along Columbus Avenue, which would be the main roadway used by emergency vehicles, would continue to operate with very low delays. Therefore, the Proposed Action is not anticipated to disrupt community facilities and services during construction and in particular the ability of emergency services to respond as discussed in more detail below.

3.2.5.1 Fire

In the event of a fire or other emergency within the community, the responding fire departments would respond as they currently do. As noted above, Westlake Drive would be available to emergency vehicles until relocated Westlake Drive is open. As noted above and in Section 3.10, "Traffic and Transportation," proposed construction would result in an increase in vehicular traffic over the duration of these activities. However, the proposed construction would not generate an increase in traffic volumes that would result in significant decreases in existing traffic levels of service. No effect to the ability to respond to fire emergencies at the construction sites or within the Kensico Campus and KEC Eastview Site study areas would be anticipated. Similarly, a significant change in average response times would also not occur as a result of the proposed construction as traffic conditions within the Kensico Campus and KEC Eastview Site study areas would not experience significant changes due to the Proposed Action.

In the event of a fire or other emergency at the Kensico Campus that requires assistance from off-site fire protection services, the Valhalla Fire Department would respond. For the KEC Eastview Site, the Grasslands Fire Brigade or Hawthorne Fire Department would serve as primary responders. As noted in Section 3.3.3, "Existing Conditions," additional fire and other emergency service resources would be available through in-place mutual assistance agreements, if required. Existing fire protection services would be able to respond to potential events associated with the construction of the Proposed Action without a need to increase available facilities or resources. Existing mutual aid agreements would also provide additional resources if necessary.

3.2.5.2 Police

DEP Police would continue to be the primary response team for emergency and security calls for the City's water supply facilities including those at the Kensico Campus and KEC Eastview Site. As DEP has the ability to directly manage and adjust the availability of DEP Police resources, adequate staffing would be maintained for their facilities. No significant adverse effects on DEP Police are anticipated from construction of the Proposed Action.

As noted previously, while DEP Police would hold primary responsibility for emergency response at both the Kensico Campus and KEC Eastview Site, the Town of Mount Pleasant Police Department would also assist as required. Additional assistance would also be available through mutual aid agreements that would provide access to local, County and State resources in the event of a significant need. Construction of the Proposed Action would therefore not require an increased need for facilities or resources to respond to potential emergency events at the proposed construction sites or within the Kensico Campus and KEC Eastview Site study areas.

Proposed construction would result in an increase in vehicular traffic, but this increase would not result in significant effects to existing traffic levels of service. No effect in the ability to respond to police emergencies would be anticipated. Likewise, significant change in average response times would also not occur as a result of proposed construction as traffic conditions within the Kensico Campus and KEC Eastview Site study areas would not experience significant changes, such as increases in delays, due to the Proposed Action.

3.2.5.3 Emergency Medical Services

Similar to fire and police services, construction of the Proposed Action would not result in significant adverse effects related to access to these services. Existing resources within the study area would remain adequate to address reasonably anticipated emergency events that could occur at the proposed construction sites, as well within the larger Kensico Campus and KEC Eastview Site study areas. No significant effect to the ability of EMS providers to respond to events at the proposed construction sites or the larger study areas would be expected to occur. Traffic conditions and more specifically, levels of service, would largely remain comparable with existing conditions and would not represent a significant traffic impact. As a result, no significant change in average wait response times due to the Proposed Action would occur.

3.2.5.4 Hospital Facilities

Construction of the Proposed Action is not anticipated to have a significant adverse effect on Blythedale Children's Hospital. The Westchester Medical Center Campus represents a region-wide medical facility within Westchester County and the Hudson Valley and as such maintains significant resources to address major medical or emergency needs that may be required. Construction of the Proposed Action would not introduce a long-term or a permanent new population within the Kensico Campus and KEC Eastview Site study areas that would require medical services on a recurring basis. Construction workers would likely already reside within the service area of the medical center or would be traveling to the proposed construction sites from outside this area. Construction of the Proposed Action is not anticipated to have a significant adverse effect on Westchester Medical Center Campus.

3.3 OPEN SPACE AND RECREATION

3.3.1 INTRODUCTION

Open space is defined by the *CEQR Technical Manual* as publicly or privately owned land that is accessible to the public and has been designated for leisure, play, or sport. Uses of open space may be categorized as either active or passive. Active open space is used for sports, exercise, or active play, while passive open space is used for sitting and relaxing. Open space can also be identified as lands set aside for protection and/or enhancement of the natural environment.

According to the *CEQR Technical Manual*, an open space assessment is recommended if a project would have a direct effect on open space, including, but not limited to, eliminating or altering a public open space or an indirect effort on open space and recreational resources, such as the introduction of a new population that may overburden existing and available resources. The potential impacts of the Proposed Action were assessed in accordance with the *CEQR Technical Manual*, which indicates that direct effects occur if a proposed action would:

- Result in a physical loss of public open space (by encroaching on or displacing an open space);
- Change the use of an open space so that it no longer serves the same user population (e.g., elimination of playground equipment);
- Limit public access to an open space; or
- Result in an increase in noise or air pollutant emissions, odors, or shadows on public open space that would affect its usefulness, whether on a permanent or temporary basis.

Potential indirect effects, according to the *CEQR Technical Manual,* may include the introduction of any new permanent residential or non-residential population.

3.3.2 METHODOLOGY

An evaluation of the potential effects of the Proposed Action on open space and recreation within one-half mile of the Kensico Campus and KEC Eastview Site was completed. The impact analysis for the study areas consisted of: (1) identifying and describing existing conditions within the Kensico Campus and KEC Eastview Site study areas by mapping existing open space and recreational resources; (2) establishing future conditions without the Proposed Action by identifying plans to expand or create new open space or recreational resources within the study areas or other potential future without the Proposed Action projects that may affect these resources; and (3) analyzing the potential for impacts from the Proposed Action on open space and recreational resources by evaluating if the construction of the Proposed Action would potentially restrict public access to or displace open space and recreational resources.

Direct impact to open space and recreational resources is not expected and an assessment of these potential impacts is not warranted, as the Proposed Action would not result in the physical loss of publicly accessible open space, would not result in any alterations to open spaces, and would not limit public access to open spaces in the Kensico Campus and KEC Eastview Site study areas.

This assessment identifies the existing open space and recreational resources that would potentially be indirectly affected by the construction of the Proposed Action. Resources within one-half mile of the Kensico Campus and KEC Eastview Site locations were identified, as this represents a reasonable walking distance that users would travel to reach local open space and recreational areas. The assessment then describes the future conditions without the Proposed Action to establish the baseline against which the potential impacts of the Proposed Action were assessed.

3.3.3 EXISTING CONDITIONS

3.3.3.1 Kensico Campus

The Kensico Campus is not open to the public, designated as open space, used for recreational uses, or ~~set aside~~ protected for the enhancement of the environment (e.g., conservation easement). Open space and recreational resources within one-half mile of the Kensico Campus include: the Taconic Parkway, Mount Eden Cemetery, Sharon Gardens Cemetery, Mount Pleasant Cemetery, and Kensico Cemetery to the west and southwest; Mount Pleasant Pool and Recreation Area to the north; Lakeside Park and Kensico Dam Plaza County Park to the south; and Kensico Reservoir immediately adjacent and east of the Kensico Campus (see **Figure 3.3-1**).

The Taconic Parkway is a four-lane highway, classified as a State Park, that generally runs south to north through the western edge of the Kensico Campus study area. Located within 0.4 miles of the limits of the Kensico Campus, the parkway is well traveled by motor vehicles with no pedestrian access.

Mount Eden Cemetery and Mount Pleasant Cemetery are also located within the one-half mile study area to the west of the Kensico Campus, north of the proposed tunnel alignment and east of the Taconic Parkway. Kensico Cemetery and Sharon Gardens Cemetery are located south of the proposed tunnel alignment, southwest of the Kensico Campus and west of the Taconic Parkway. Both are within the one-half mile study area. Sharon Gardens Cemetery is an approximately 75-acre facility, while the 130-year old Kensico Cemetery is approximately 250 acres. All of these cemeteries contain several gardens, pathways, and benches for leisurely and passive activities.

The Mount Pleasant Pool and Recreation Area is located to the north of the Kensico Campus at Lozza Drive. The pool is typically open to the public from July 6 to September 7 of each year. Lakeside Park on West Westlake Drive is a municipal park located immediately southwest of the

Kensico Campus and contains two recreational soccer fields. A small portion of the Kensico Dam Plaza County Park is also located along the southern edge of the study area. The Kensico Dam was acquired as parkland in 1963 from the New York City Watershed Commission and remains the property of DEP. The County Park, south of the study area, provides a variety of activities, including cultural heritage celebrations and concerts, fitness classes and courses, a playground, and areas for picnicking, in-line skating, walking, and nature study.

The Kensico Campus is also located along the western shoreline of Kensico Reservoir, which is a recreational resource. DEP provides the public with valid access permits, opportunities for recreational fishing (i.e., shoreline fishing and fishing from DEP-registered, non-motorized boats) and hunting in designated areas surrounding the reservoir. There are no designated hunting areas within the study area. As shown on **Figure 3.3-1**, fishing is not allowed from most of the shoreline within the study area and is not allowed along the shore of the Kensico Campus. Pursuant to the NYCDEP Rules for the Recreational Use of City Property, access and recreational uses are not permitted within 500 feet of any dikes, dams, tunnel outlets, spillways, buildings, and other significant water supply structures 16 RCNY §16-11(b)(1). As such, no fishing (i.e., either from the shoreline or from a boat) is permitted along the shore of the Kensico Campus and within the adjacent portion of Kensico Reservoir due to the presence of water supply structures, including the Kensico Dam, and spillway and intake structures (DEL Shaft 18 and the UEC). As shown on **Figure 3.3-1**, fishing is allowed in the reservoir east of the Kensico Campus and extending beyond the one-half mile study area.

Non-motorized boats used for fishing are launched at a number of designated access points and stored in designated areas along the shoreline, which are located along the eastern and northeastern portions of the reservoir, outside of the study area. The closest non-motorized boat access point is located near the southern limit of the study area, across the reservoir adjacent to New York State Route 22 (SR22).

3.3.3.2 KEC Eastview Site

The KEC Eastview Site is not accessible to the public and does not include any designated open space, recreational uses, or areas that provide for the protection or enhancement of the environment (e.g., conservation easement). The site is largely surrounded by institutional, County, and commercial uses and as a result, open space and recreational uses within the KEC Eastview Site study area is limited. The one open space and recreational resource within one-half mile of the KEC Eastview Site is the Tarrytown-Kensico Trailway (see **Figure 3.3-2)**.

The Tarrytown-Kensico Trailway extends further east and west of the KEC Eastview Site along Grasslands Road and is directly adjacent to the southern edge of the KEC Eastview Site. This trailway is comprised of a wide shoulder along the roadway designated for bicycle use.

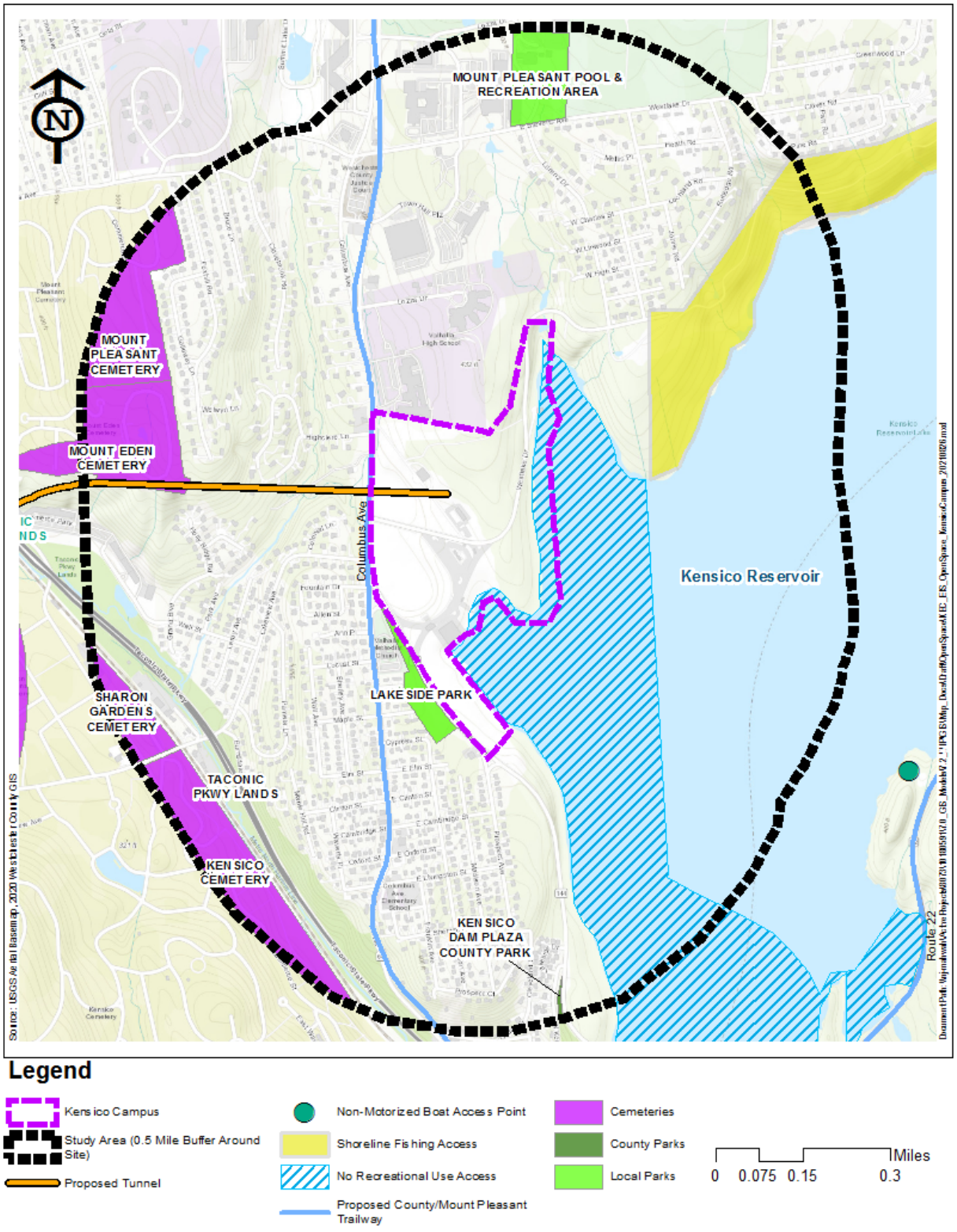


Figure 3.3-1. Open Space and Recreational Resources - Kensico Campus Study Area

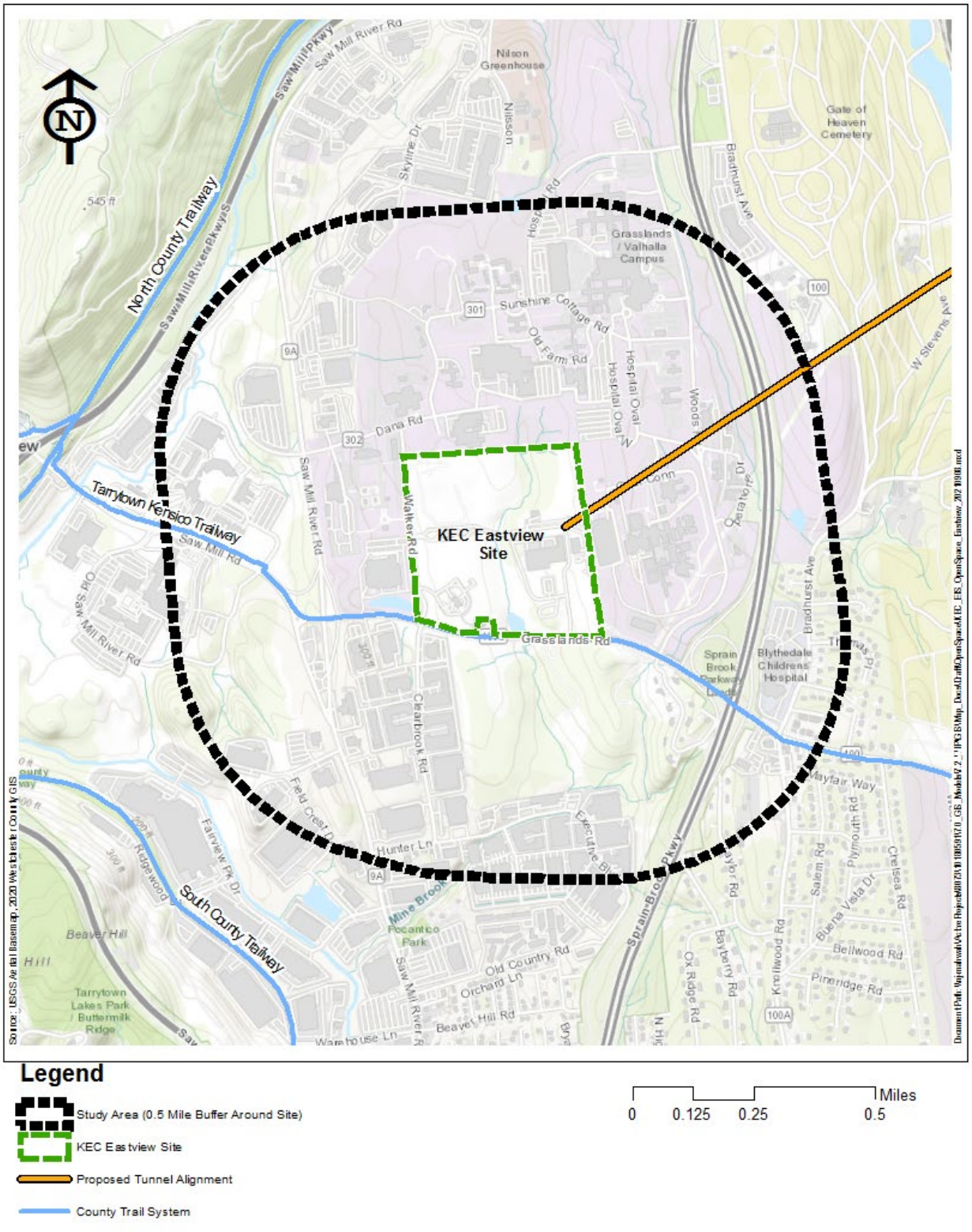


Figure 3.3-2. Open Space and Recreational Resources - KEC Eastview Site Study Area

3.3.4 FUTURE WITHOUT THE PROPOSED ACTION

An analysis of future conditions without the Proposed Action was conducted. This included the identification of plans to expand or create new open space or recreational resources within the Kensico Campus and KEC Eastview Site study areas. Likewise, an assessment of other projects that would occur in the future without the Proposed Action and their potential impact to these and existing resources was also evaluated.

Westchester County Parks has identified a proposed future bike route that would travel along Columbus Avenue from north to south along the western edge of the Kensico Campus (see **Figure 3.3-1**). This route would either share the roadway or be contained within the shoulder of Columbus Avenue, a portion of which is adjacent to Kensico Campus.

Likewise, the proposed Mount Pleasant Recreation Trailway was identified in the Town of Mount Pleasant's ~~draft~~ Comprehensive Plan, *Envision Mount Pleasant* (Town of Mount Pleasant ~~2020~~2022). The plan recommends that the Town of Mount Pleasant obtain a proposed secure, fenced easement through DEP property on the Kensico Campus, behind the former aerator site, along a section of Westlake Drive as a part of this trailway route. This route would require prior approval of DEP, as the proposed fenced easement would divide the Kensico Campus and restrict DEP's access between facilities within the Kensico Campus. *Envision Mount Pleasant* also identifies a proposed alternative route along Columbus Avenue if an access easement cannot be obtained from DEP. Since the Kensico Campus would be a secured site, such an easement would not be granted. The alternative route, along Columbus Avenue, a portion which would be adjacent to Kensico Campus, would coincide with the bike route proposed by Westchester County Parks, noted above (see **Figure 3.3-1**). The final generic EIS for *Envision Mount Pleasant* was released in September 2022 and acknowledged that the trail would use the alternative alignment along Columbus Avenue. See Section 4.1, "Land Use, Zoning, and Public Policy," for additional detail. *Envision Mount Pleasant* also recommends an expansion of the Mount Pleasant Pool and Recreation Area. This expansion would include additional sports fields. No new or expanded open space or recreational resources are proposed within one-half mile of the KEC Eastview Site.

Several DEP projects would be implemented at the Kensico Campus in the future without the Proposed Action. These include the Waterfowl Management Program Building, Kensico Regional Headquarters, and various minor projects, repairs, and/or replacement efforts at DEL Shaft 18. DEP projects at the KEC Eastview Site include the installation of cleanouts and foundation drain modifications at the CDUV Facility and the potential to install a carport canopy solar and rooftop project. Workers associated with the construction of these DEP projects would not be expected to significantly affect or change the use of existing open space and recreational resources. Workers would be largely expected to spend their lunch and breaks on either the Kensico Campus or the KEC Eastview Site. The open space or recreational resources within

walking distance of the Kensico Campus are Kensico Reservoir and Lakeside Park. The open space or recreational resources within walking distance to the KEC Eastview Site is the Tarrytown-Kensico Trailway. Changes due to construction or operation of these projects would not adversely affect these resources in the future without the Proposed Action. These DEP projects would only result in a transient worker population during construction activities with little or no change in worker population once operational. As a result, no significant change in open space and recreational resources near the Kensico Campus or KEC Eastview Site from DEP projects would occur in the future without the Proposed Action.

Several non-DEP projects are also planned within one-half mile west of the KEC Eastview Site. These include the Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, and Regeneron Greenburgh Expansion. These projects include expansion of the existing Regeneron Pharmaceuticals campuses including the addition of new manufacturing and process development suites, laboratories, and office space in the Towns of Mount Pleasant and Greenburgh. These projects would not include the creation of new open space or recreational facilities, nor would they be expected to adversely affect existing resources in close proximity to the KEC Eastview Site.

In the future without the Proposed Action, no significant changes to existing open space and recreational resources within the study areas would occur. Current recreational access in the Kensico Campus and KEC Eastview Site study areas and use of Kensico Reservoir is expected to remain largely the same as existing conditions in the future without the Proposed Action.

3.3.5 FUTURE WITH THE PROPOSED ACTION

As discussed in Chapter 1, "Project Description," the Proposed Action would not result in any loss of or alteration of any existing open space and recreational resources. Construction workers associated with the Proposed Action are anticipated to spend their lunch breaks on site since the only open space within walking distance of Kensico Campus is Lakeside Park, which has limited seating options associated with the on-site soccer fields. Likewise, the only open space within walking distance of the KEC Eastview Site would be the Tarrytown-Kensico Trailway, which is a bicycle trail and not anticipated to be utilized by construction workers. No other open space or recreational resources with the exception of Kensico Reservoir are within walking distance of the Kensico Campus and KEC Eastview Site; therefore, it is unlikely that employees or construction workers associated with the Proposed Action would overburden existing or future open space and recreational resources or create a significant new demand for these resources.

During construction of the Proposed Action, work activities in support of shoreline stabilization and modifications to the UEC along the Kensico Campus shoreline would occur in or adjacent to Kensico Reservoir that are currently restricted for recreational use (see **Figure 3.3-1**). Therefore, none of the existing access points (fishing or boating) to Kensico Reservoir would be affected by the Proposed Action.

Access to the Kensico Campus for construction worker and truck trips would be from Westlake Drive off of Columbus Avenue. No construction worker and truck trips are anticipated to travel along West Westlake Drive; therefore, no construction effect to Lakeside Park would occur. As noted in the future without the Proposed Action, a proposed County bike route and trail and the Mount Pleasant Recreation Trailway may be in place along Columbus Avenue during construction of the Proposed Action. If these trails are operational, appropriate signage and warnings would be installed at any potential crossings of construction traffic and the bike route/trail.

Construction worker and truck trips would access the KEC Eastview Site at the existing entrance along Walker Road between Grasslands Road and Dana Road. The existing Tarrytown-Kensico Trailway would remain operational during construction. It is not anticipated that work activities at the KEC Eastview Site would encroach upon, cause a loss, or adversely affect the use or physical character of the trailway. The trailway is anticipated to be utilized during construction of the Proposed Action. As such, appropriate signage and warnings would be installed at any potential crossings of construction traffic and the trailway.

Following completion of all work activities, the construction equipment and vehicles would be removed, and the use of the noted open spaces and recreation resources would return to existing conditions.

Construction activities may be visible from the open spaces and recreational resources discussed above, but this would not affect the use of these resources. Any potential effects due to disruption of views from open spaces and recreational resources are discussed in Section 3.5, "Urban Design and Visual Resources."

Therefore, construction of the Proposed Action would not result in significant adverse effects to open space and recreation.

3.4 CRITICAL ENVIRONMENTAL AREAS

3.4.1 INTRODUCTION

Critical Environmental Areas (CEAs) are specific geographic areas with exceptional or unique character as designated by local or State agencies. Certain criteria must be met for an area to be designated as a CEA; specifically, the area must present one of the following:

- A feature that is a benefit or threat to human health;
- An exceptional or unique natural setting (fish and wildlife habitat, forest, and vegetation, open space and natural areas) of important aesthetic or scenic quality;
- An exceptional or unique social, historic, archaeological, recreational, or educational value; or

- An inherent ecological, geological, or hydrological sensitivity to change that may be adversely affected by any physical disturbance.

This section evaluates the potential effects of the Proposed Action on CEAs within the study area. A one-half mile study area was established for the Kensico Campus and KEC Eastview Site. The Kensico Campus and KEC Eastview Site currently operate as part of DEP's water supply system and would continue to operate as such after the Proposed Action is completed. Operation of the Proposed Action would not result in any substantive changes to CEAs as previously noted in Chapter 2, "Analytical Framework." Therefore, the CEA assessment consisted of identifying the potential for construction of the Proposed Action to affect the preservation of open space or the exceptional or unique character of CEAs within the surrounding study areas.

3.4.2 METHODOLOGY

The impact analysis consisted of identifying the location of existing CEAs within the Kensico Campus and KEC Eastview Site study areas and describing the elements of these that were exceptional or unique. Establishment of future conditions without the Proposed Action included an investigation of proposed changes to existing CEAs or the establishment of new CEAs that would occur without the Proposed Action. As part of this assessment, an evaluation of potential changes to these that would be reasonably anticipated to occur, inclusive of changes resulting from independent actions or projects without the Proposed Action was completed. Potential changes, if any, were then described. Effects of the Proposed Action based on construction activities were then analyzed by assessing the potential incremental change from the future without the Proposed Action condition to determine if significant adverse impacts were expected.

3.4.3 EXISTING CONDITIONS

3.4.3.1 Kensico Campus

There are two CEAs within the Kensico Campus study area: the Westchester County Airport 60 Ldn Noise Contour CEA and the County and State Park Lands CEA, as shown on **Figure 3.4-1**.

The Westchester County Airport 60 Ldn Noise Contour CEA was designated by Westchester County in 1990 for its exceptional or unique character. The limits of the CEA are within the one-half mile study area and also extend into a small portion of the northeastern limits of the Kensico Campus. Ldn is a "day-night average sound level" or equivalent sound level over a 24-hour period, modified so that noise that occurs during the nighttime (from 10 PM to 7 AM) is artificially increased by 10 decibels (dB) to reflect the added intrusiveness of nighttime noise as ambient noise becomes quieter. The 60 Ldn contour represents the extent of low-level noise generated by airport operations, as determined in 1990, and includes an area in which people are

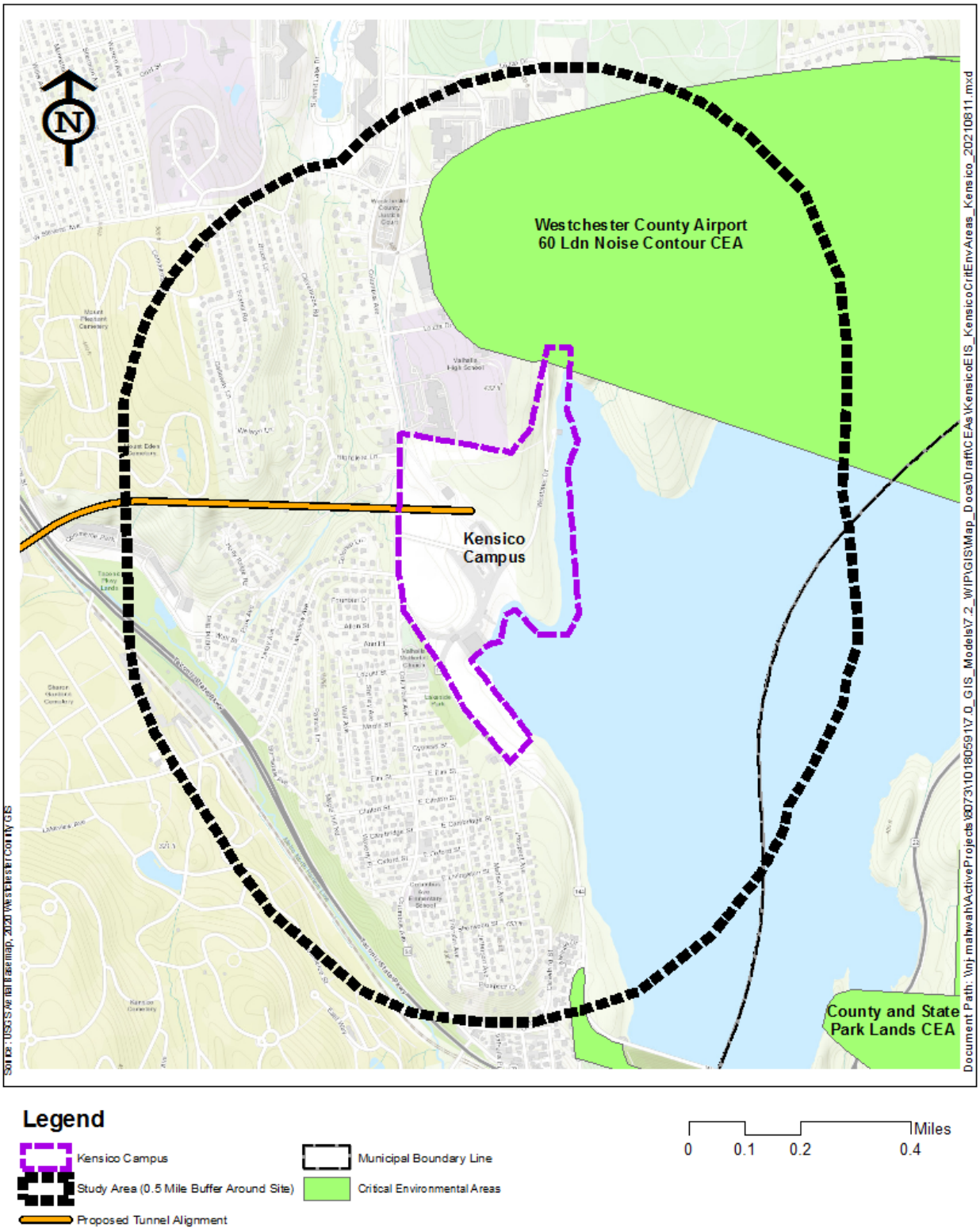


Figure 3.4-1. Critical Environmental Areas – Kensico Campus Study Area

subject to airplane noise conditions above this noise level (i.e., 60 Ldn) which was determined to be acceptable without mitigation to ensure human health and well-being. This area has been designated a CEA due to the potential for elevated aircraft-related noise levels, and in an effort to alert proposed noise-sensitive development, such as residences, recreational facilities, libraries, and churches, etc.[15] An updated 2002 noise evaluation for the airport commissioned by the Westchester County Department of Transportation determined that the extent of the 60 Ldn contour was significantly reduced from the earlier evaluations; however, the 1990 noise contour that intersects with the study area and Kensico Campus site remains as the limits of the current Westchester County Airport 60 Ldn Noise Contour CEA.

The County and State Park Lands CEA encompasses State- and County-owned park land in Westchester County. This CEA is designated due to the exceptional or unique character of the designated park land sites within the limits of the CEA. A small portion of Kensico Dam Plaza Park, located approximately one-half mile south of the Kensico Campus, is located within the limits of the Kensico Campus study area. This CEA is not within or substantially contiguous to the Kensico Campus.

3.4.3.2 KEC Eastview Site

There is only one CEA within the KEC Eastview Site study area: The hilltops at or above 400 feet Elevation CEA, as shown on **Figure 3.4-2**.

This CEA was designated by the Town of Greenburgh in 1993 to preserve open space with elevations ranging over 400 feet above mean sea level. There are multiple hilltops with elevations over 400 feet above mean sea level throughout the Town of Greenburgh including a small area within the KEC Eastview Site study area and located a little more than one-quarter mile southeast of the limits of the KEC Eastview Site. This CEA is not within or substantially contiguous to the Proposed Action.

3.4.4 FUTURE WITHOUT THE PROPOSED ACTION

Several DEP projects would be implemented in the future without the Proposed Action, primarily at the Kensico Campus. These include the Waterfowl Management Program Building, the Kensico Regional Headquarters, and various minor projects, repairs, and/or replacements at DEL Shaft 18. In addition, at the KEC Eastview Site, DEP is proposing to install cleanouts and foundation drain modifications at the CDUV Facility and may potentially locate a carport canopy and rooftop solar project at the KEC Eastview Site.

[15] Noise levels below 65 Ldn are generally considered compatible with residential and other sensitive land uses by the Federal Aviation Administration (FAA), and the U.S. Department of Housing and Urban Development (HUD), among other federal agencies.

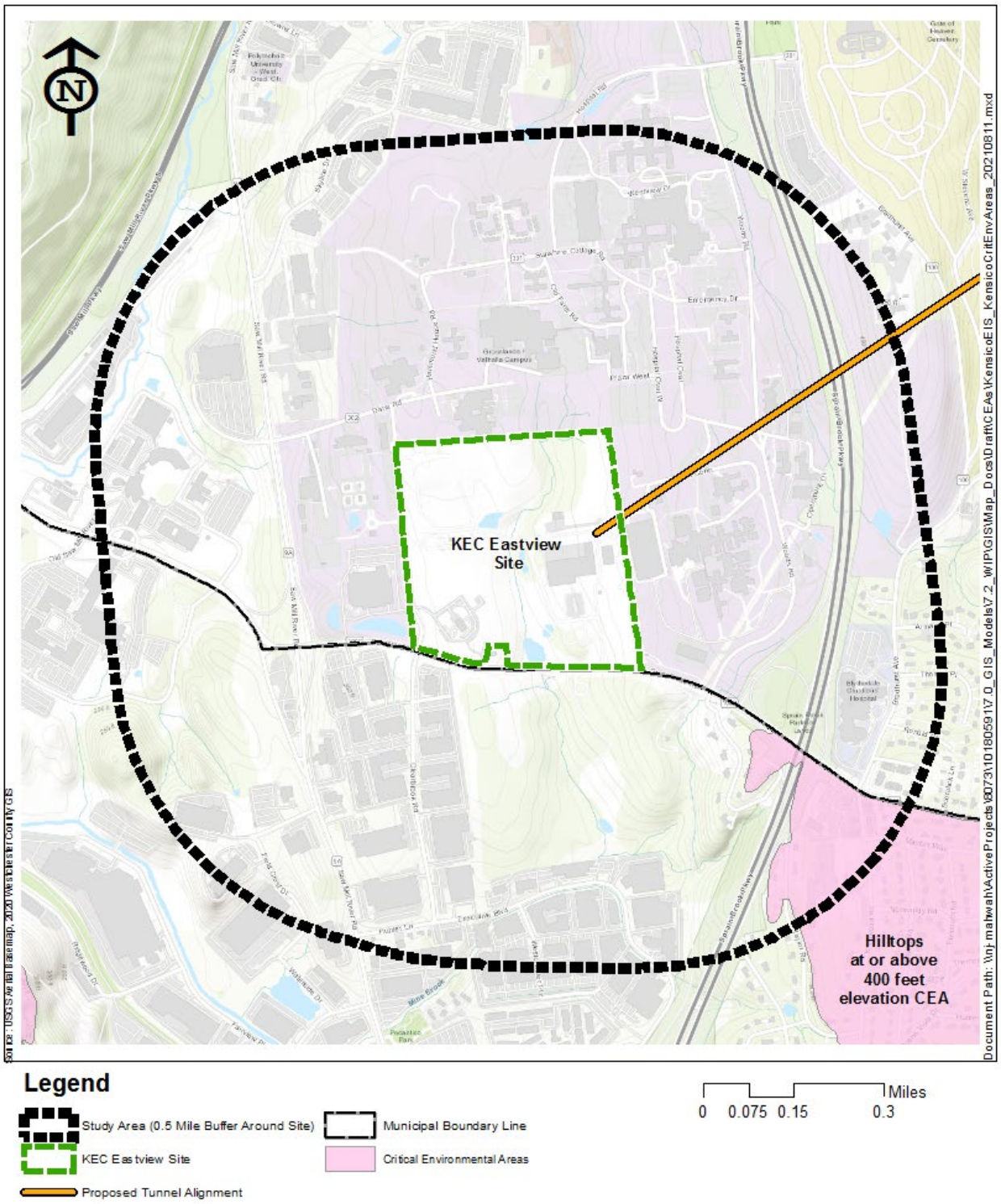


Figure 3.4-2. Critical Environmental Areas – KEC Eastview Site Study Area

In addition, several non-DEP projects, including Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, and Regeneron Greenburgh Expansion are located approximately one-half mile west of the KEC Eastview Site and have been identified in the future without the Proposed Action. These projects include expansion of the Regeneron Pharmaceuticals campuses and include plans for the addition of new manufacturing and process development suites, laboratories, and office space.

As noted above, Westchester County has documented changes to the Westchester County Airport 60 Ldn Noise Contour CEA since its designation[16]. The updated 2002 evaluation reduced the limits of the 60 Ldn noise contour[17] and would no longer include the Kensico Campus.

However, no change to the original 1990 limits have been made or are currently anticipated in the future without the Proposed Action. Likewise, no changes to existing CEAs or new CEA designations in the study area were identified. Similarly, other projects, including those being advanced by DEP, would not result in any effect to these CEAs in the future without the Proposed Action.

3.4.5 FUTURE WITH THE PROPOSED ACTION

The Proposed Action would not include the development of any residences, recreational facilities, libraries, churches, or other noise-sensitive receptors within the existing Westchester County Airport 60 Ldn Noise Contour CEA. Therefore, the Proposed Action would not result in a significant effect to this CEA. Likewise, while the two additional CEAs noted above were within the one-half mile study areas for the Kensico Campus and KEC Eastview Site, the Proposed Action would not result in any adverse impacts to the exceptional and unique character or open space associated with these CEAs. No effects to CEAs would occur due to the Proposed Action.

3.5 URBAN DESIGN AND VISUAL RESOURCES

The Proposed Action includes the construction of new buildings/structures, modification of existing buildings, and changes to the existing topography and landscaping, particularly at the Kensico Campus. As detailed in Section 3.1, "Construction ," construction activities on both project sites would extend from around January 2024 through 2033. While potential construction-related effects would be short-term and transient, this section considers the short-term potential changes in views and the potential to affect visual resources due to the construction activities at the Kensico Campus and KEC Eastview Site. Potential changes to visual resources as a result of the Proposed Action after the completion of construction are

[16] https://airport.westchestergov.com/images/stories/pdfs/noise/noisecontourstudy.pdf
[17] https://airport.westchestergov.com/images/stories/pdfs/noise/ContourMap.pdf

discussed in Chapter 4, "Potential Impacts from Operation of Proposed Action," Section 4.3, "Urban Design and Visual Resources."

Construction at the Kensico Campus would occur over an extended period of time with activities occurring at different locations across the campus at various times. Primary construction activities would include the new KEC Screen Chamber, KEC Shaft 1C, UEC Shaft, connection tunnels, police booth, electrical building, improvements to the UEC, installation of new stormwater management features including three new landscaped stormwater basins located along Columbus Avenue, earthworks including regrading of the western portion of the Kensico Campus, shoreline stabilization adjacent to Kensico Reservoir, a new perimeter fence, and new landscaping.

Construction of new structures would result in limited effects to existing viewsheds. The proposed electrical building and police booth are small structures and would not result in significant or long-term effects to visual resources during their construction. Likewise, improvements at the UEC would involve primarily interior work with minor exterior repairs, including roof replacement, and would not be visible from Columbus Avenue. Construction of the KEC Screen Chamber, the largest aboveground structure at the Kensico Campus, and work along the shoreline would involve the use of cranes, which would be used to lift structural components and other large materials. While these cranes would be visible from various locations surrounding the Kensico Campus and beyond, these would result in short-term changes and have limited effect to the larger views of the Kensico Campus from visual resources such as Columbus Avenue, Lakeside Park, or the walkway over the Kensico Dam.

The majority of earthwork at the Kensico Campus (Kensico Site Preparation (KENS-EAST-2) Contract) would be visible from Columbus Avenue. Construction activities may temporarily block some views of the existing National Registers of Historic Places (NRHP)-eligible structures on the site (i.e., LEC, former Kensico Laboratory building, DEL Shaft 18). Construction of the new stormwater ponds, the western portion of the relocated Westlake Drive, and a new parking lot in proximity to Columbus Avenue would occur early in the overall project construction and would largely be completed within the first year. Regrading of the areas adjacent to Columbus Avenue within the open lawn areas (former Catskill and Delaware aerators) would occur in phases. As noted in Section 3.1.5, "Kensico Site Preparation (KENS-EAST-2)," construction in the area of the Catskill Aerator, north of the existing Westlake Drive, would occur during early phases of construction. Construction in the area of the Delaware Aerator, south of the existing Westlake Drive, would occur during later phases of construction. During these periods, active construction activities would consist of various earthwork and regrading activities and would be limited to specific areas. Views of the Kensico Campus would be most affected during this construction; however, these would be short term (e.g., approximately 30 months overall). Upon completion of regrading activities along Columbus Avenue, new landscaped areas would be established to complement the topographic

changes and provide a visually interesting landscape. The remaining construction activities (Tunnel, Shafts, and Kensico Rock Excavation and Buildings (KENS-EAST-1) Contract) would be set back from the Columbus Avenue corridor and would not significantly change the viewshed along Columbus Avenue since activities would not be in the direct line of sight. Therefore, no long-term effects to visual resources associated with construction activities are anticipated.

Primary construction activities at the KEC Eastview Site would include KEC Shaft 2C, tunnel construction, construction of the new ECC, and a temporary soil stockpile area within the northwest portion of the site. In addition, temporary contractor offices, parking, and staging areas would be primarily located within the area north of the DEP Police 6th Precinct and east of Walker Road. The main aboveground construction would be the ECC and construction activities associated with the removal of tunnel and shaft materials and the installation of concrete tunnel lining. Limited views of the ECC and tunnel/shaft operations would be visible from the Walker Road entrance to the site, although Walker Road was not identified as a visual resource or viewshed. Views of most construction activities from visual resources along Grasslands Road (i.e., Hammond House and the Tarrytown-Kensico Trail) would be screened by the existing CDUV Facility. The ECC and tunnel/shaft activities would be located north of the existing CDUV Facility and involve the use of cranes. These cranes would be visible from the Tarrytown-Kensico Trail over the roof of the CDUV Facility. The cranes would not be in a direct line of sight for bicyclists using the trail, as they travel east/west with the CDUV Facility to the north (not in the direct line of sight). The cranes may be visible from Hammond House, although the existing vegetation surrounding Hammond House would provide screening. The cranes would be temporary and be removed upon construction completion. Other construction activities may also be visible from the trail and Hammond House, but similarly would not be within a direct line of sight for bicyclists along the trail and would also be temporary. The existing CDUV Facility and associated existing activities at the site would limit the effect of new construction activities upon visual resources due to screening of activities and the nature of operations and structures at the existing site.

In addition, during construction at both sites, temporary lighting would be installed to maintain the safety and security of the sites as necessary. This temporary lighting would be the minimum required for security and safety. Portable lighting units would be used to illuminate the work areas during nighttime or after dark construction activities. Construction lighting would be oriented away from neighboring properties. All lighting over 2,000 lumens would meet the full cut-off standard of the Illuminating Engineering Society of North America. Full cut-off standards generally include shielding of the lights to avoid light spilling onto adjacent properties or roadways. While there could be a glow at times visible from the sites when lighting is used, visual resources are generally viewed during daylight hours and, as a result, temporary nighttime lighting is not anticipated to result in any significant adverse effects to visual resources.

As discussed above, construction of the Proposed Action would involve temporary and largely short-term changes to views of the proposed sites, predominately at the Kensico Campus. These are not expected to result in significant adverse effects. Similarly, no views of the historic structures or features on the Kensico Campus would be eliminated due to construction activities.

3.6 HISTORIC AND CULTURAL RESOURCES

3.6.1 INTRODUCTION

The Proposed Action would result in construction activities at and in the immediate vicinity of the Kensico Campus and KEC Eastview Site. This section considers the potential for the Proposed Action to affect these resources. Historic and cultural resources include both archaeological and architectural resources. Cultural resources may encompass districts, buildings, structures, sites, and objects of historical, aesthetic, cultural, and archaeological importance.

This analysis has been prepared in accordance with the *CEQR Technical Manual*, SEQR requirements, Section 14.09 of the New York State Historic Preservation Act (Section 14.09), and the National Historic Preservation Act Section 106 environmental review regulations.

3.6.2 METHODOLOGY

3.6.2.1 Introduction

As part of the analysis, consultations were initiated related to potential cultural and historic resource concerns that might exist for the proposed KEC Project within the Kensico Campus and the KEC Eastview Site with the New York State Historic Preservation Office (SHPO)/New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP).[18]

As part of that consultation, a cultural resources survey, was based on two major and distinct factors.

- Records on the Cultural Resources Information System (CRIS) for both SHPO/NYSOPRHP and the New York State Museum (NYSM), as well as the Westchester County Historical Society, indicate numerous precontact- and historic-period

[18] National Historic Preservation Act Section 106 compliance also addresses the necessary federal permits and consultations due to federal funding through the Drinking Water State Revolving Fund administered by the New York State Environmental Facilities Corporation and anticipated approvals from the United States Army Corps of Engineers. In addition, due to the New York City ownership of the Kensico Campus and KEC Eastview Site land areas, the Proposed Action also comes under review of CEQR and the Public Design Commission (PDC). The DEP has initiated consultations with the PDC and submitted preliminary designs to the PDC.

archaeological sites within one-half mile of each of the Kensico Campus and KEC Eastview Site.

- In 2019, a Resource Evaluation of the Kensico Campus by SHPO/NYSOPRHP determined that the existing DEP-maintained six-building complex at Westlake Drive and Columbus Avenue was eligible for State and National Register Listing due to Criterion A (Engineering and Community Planning and Development) and Criterion C (Architecture). The significant, contributing buildings within this eligible district encompass a 40-year period of construction and are predominantly in the Renaissance Revival style. The period of significance extends from 1915 to 1969 and the district has integrity of location, setting, materials, workmanship, feeling, and association.

A Phase IA Cultural Resources Documentary Survey (Phase IA; HPI 2021) was therefore completed in accordance with the SHPO/NYSOPRHP standards. The Phase IA survey was uploaded to SHPO's online CRIS. The Phase IA evaluations and recommendations form the basis for the assessment presented within this section.

The intent of a Phase IA is to: (1) identify any potential archaeological resources and/or historic resources that might be present on a site; (2) examine the construction/demolition history of the study sites in order to estimate the probability that any potential cultural resources might have survived with integrity and remain on the site undisturbed; (3) assess potential project impacts; and (4) provide recommendations for further research, where necessary.

For the assessment, an appropriate study area for historic resources (e.g., buildings and structures) and the Area of Potential Effect (APE) for archaeological resources on each the Kensico Campus and the KEC Eastview Site were established.

3.6.2.2 Study Area for Historic Resources

The Phase IA evaluation took into consideration National Historic Landmarks, properties listed on or determined eligible for listing on the State or National Registers of Historic Places, or City-owned Landmarks, and Historic Districts or properties determined eligible for landmark designation located on the Kensico Campus or KEC Eastview Site or in the immediate area of each of the two sites. In addition, the Phase IA evaluated potential resources (i.e., properties that appear to meet the criteria for listing on the registers or for landmark designation) identified during the field survey of the Kensico Campus or KEC Eastview Site in 2021. The consideration of potential project effect on historic resources must consider direct impacts, as well as contextual and visual impacts.

Due to the size and public visibility of the Kensico Campus, a NRHP-eligible district, and the public frontage of the NRHP Hammond House, which abuts the KEC Eastview Site on Grasslands Road, the search radii for each of the two sites was expanded to one-half mile from the limits of each proposed site.

3.6.2.3 Area of Potential Effect (APE) on Archaeological Resources

A formal Phase IA report takes into consideration both precontact and historical archaeological resource potential on a project site. Only those lands to be directly affected by a proposed action requires a Phase IA survey; this direct effect is considered the APE. Further archaeological consideration of effects is restricted to those lands within the APE that have not been previously, severely disturbed.

Following the acceptance of the results of the Phase IA Study by SHPO, a Phase IB Archaeological Field Investigation was initiated on the specific, limited areas of sensitivity at both the Kensico Campus and KEC Eastview Site.

Phase IB testing is designed to ascertain the presence/absence, type, and relative extent of any archaeological resource. Standard testing efforts includes the hand excavation of 50 centimeter (cm) x 50 cm shovel tests spaced at 15 meters (approximately 50 feet) intervals within the APE, as well as judgmentally. Areas in the APE with clear disturbance were not tested, as per SHPO guidelines. All shovel tests were excavated to either undisturbed, non-artifact bearing subsoil, or terminated due to obstructions that prevented further soil removal. Each shovel test is hand excavated with the soil sifted through one-quarter inch screen.

Each of the soil strata encountered during field testing is documented and all cultural materials collected in order to determine their context and integrity, as well as to further ascertain whether or not any potential *in situ* cultural resources or features are present. Modern material (e.g., modern trash, plastic, cigarette filters, etc.) were noted on the field forms, but not always collected.

3.6.2.4 Research

Over the past 25 years, there have been significant changes to both the Kensico Campus and KEC Eastview Site, including the construction of the CDUV Facility at the KEC Eastview Site. The cultural resource issues for each of these improvements are tracked through SHPO/NYSOPRHP's CRIS data. Prior archaeological surveys and field investigations have been completed on the majority of the DEP's larger parcel at Eastview; these studies and agency correspondence are available on CRIS. The effect of these former improvements and the multitude of studies and agency reviews addressing installations, improvements, and new construction served as a foundation for the Phase IA research.

Twelve Native American sites inventoried with either SHPO/NYSOPRHP and/or the NYSM are located within one-half mile of the Kensico Campus or KEC Eastview Site, although the vast majority are geographically much closer to the KEC Eastview Site. The pattern of precontact recoveries on DEP lands along the Mine Brook corridor on both sides (north and south) of Grasslands Road has been thoroughly documented over the last 25 years; recoveries were noted

on the surface and excavated from below grade. Archaeologically sensitive loci were identified and repeatedly noted on site preparation plans until full Phase III Data Recovery[19] was completed (e.g., DEP, Eastview Overall Fence, Cable Barrier, and Ditch Plan, Catskill and Delaware Water Treatment Ultraviolet Light Disinfection Facility, November 2004). The recurring pattern for recovery was associated with terraces above Mine Book.

As for historic resources, there are only two NRHP-listed or eligible historic sites within or abutting either the Kensico Campus or KEC Eastview Site as shown in **Table 3.6-1**.

Table 3.6-1. Historic Resources on CRIS within an Approximately One-Half Mile Radius of Kensico Campus and KEC Eastview Site

SHPO/ NYSOPRHP # and Historic Site Name	Additional Data; Names/ Size	Owner	Time Period	Site Type	NR Status
90NR02444/ 90PRO5539 Hammond House	Adjacent to KEC Eastview Site, one-acre on Grasslands Road	Fred and Michael Rock	Early 18th C.	Farmhouse and yard site	Listed State & National Register of Historic Places, 1980
11908.000423 Kensico Campus (District)	6 buildings and campus acreage, in full operation as Kensico Campus	City of New York, managed by DEP	1915 - 1969	Italian Renaissance Revival buildings	Determined State & National Reg. eligible (A and C), 2019
02NR05036 Taconic State Parkway	State Scenic Highway from Kensico Dam Plaza to I-90; approx.7,000 feet west of Kensico Campus and approx. 3,000 feet east of Eastview	New York State, managed by DOT	1923 - 1963	Limited-access scenic pleasure drive	Listed State & National Reg. (A and C), 2003

The Kensico Campus District was determined by SHPO/NYSOPRHP to be a NRHP-eligible district of six contributing buildings (2019), which includes the Catskill Screen Chamber located on the west side of Columbus Avenue. The NRHP-eligible district is eligible under Criterion A

[19] Phase III Cultural Resource investigations are required if an archaeological resource listed on or eligible for inclusion on the S/NR is identified and impacts to this resource by a proposed project are anticipated. If impact cannot be avoided through project redesign, then other measures would be needed to mitigate the adverse impact to the site. Phase III Data Recovery is a very standard form of mitigation that includes intensive field investigations on the site before its destruction.

in the area of Engineering and Community Planning and Development, as well as Criterion C in the area of Architecture. The six buildings within this NRHP-eligible district encompass a 40-year period of construction and are predominantly in the Renaissance Revival style. These buildings, identified on **Figure 3.6-1**, are listed below with construction dates.

- Catskill Screen Chamber (1915)
- Catskill Upper Effluent Chamber (1915)
- Catskill Lower Effluent Chamber (1915)
- Former Kensico Laboratory Building (1955)
- Delaware Shaft 18 Building (1938)
- Comfort Stations (currently the Fluoride Building) (1942)

The period of significance extends from 1915 to 1969 and the district has integrity of location, setting, materials, workmanship, feeling, and association.

The one-acre, 1720's Hammond House property on Grasslands Road, which abuts the KEC Eastview Site on its east, north, and west property lines, was listed on the National Register in 1980 (see **Figure 3.6-2)**. The frame building is one of only two remaining tenant houses from the 18th century Philipsburg Manor. It also has a rich Revolutionary War history. Col. James Hammond, son of the original owner, commanded the Patriot Westchester Militia. Care has been taken by DEP to consistently maintain a boundary between various improvements and changes and the historic NRHP-listed Hammond House and yard.

The Kensico Cemetery is west of the Kensico Campus and was noted as specific concerns of SHPO/NYSOPRHP in the agency's initial review letter dated April 29, 2021. However, there are numerous lanes, public streets, and housing developments that serve as a sufficient buffer between the Kensico Campus and the cemetery to protect all potential historic resources from visual and/or contextual effects. Similarly, the Taconic State Parkway, which was noted by SHPO/NYSOPRHP as a concern, is removed from the direct viewscape of the Kensico Campus and KEC Eastview Site by elevation, tree cover, distance, and the built environment.

Site inspections were conducted on October 7, 2020, May 18, 2021, and March 22, 2022 and photographs of existing conditions were completed.

3.6.3 EXISTING CONDITIONS

Both the Kensico Campus and KEC Eastview Site share a common history as part of the expansive Philipsburg Manor from 1693 through the Revolutionary War era. The Manor of Philipsburg was officially established by a grant from the English and was over 52,000 acres in size, it lay between the Hudson and Bronx Rivers and extended from the northern tip of the

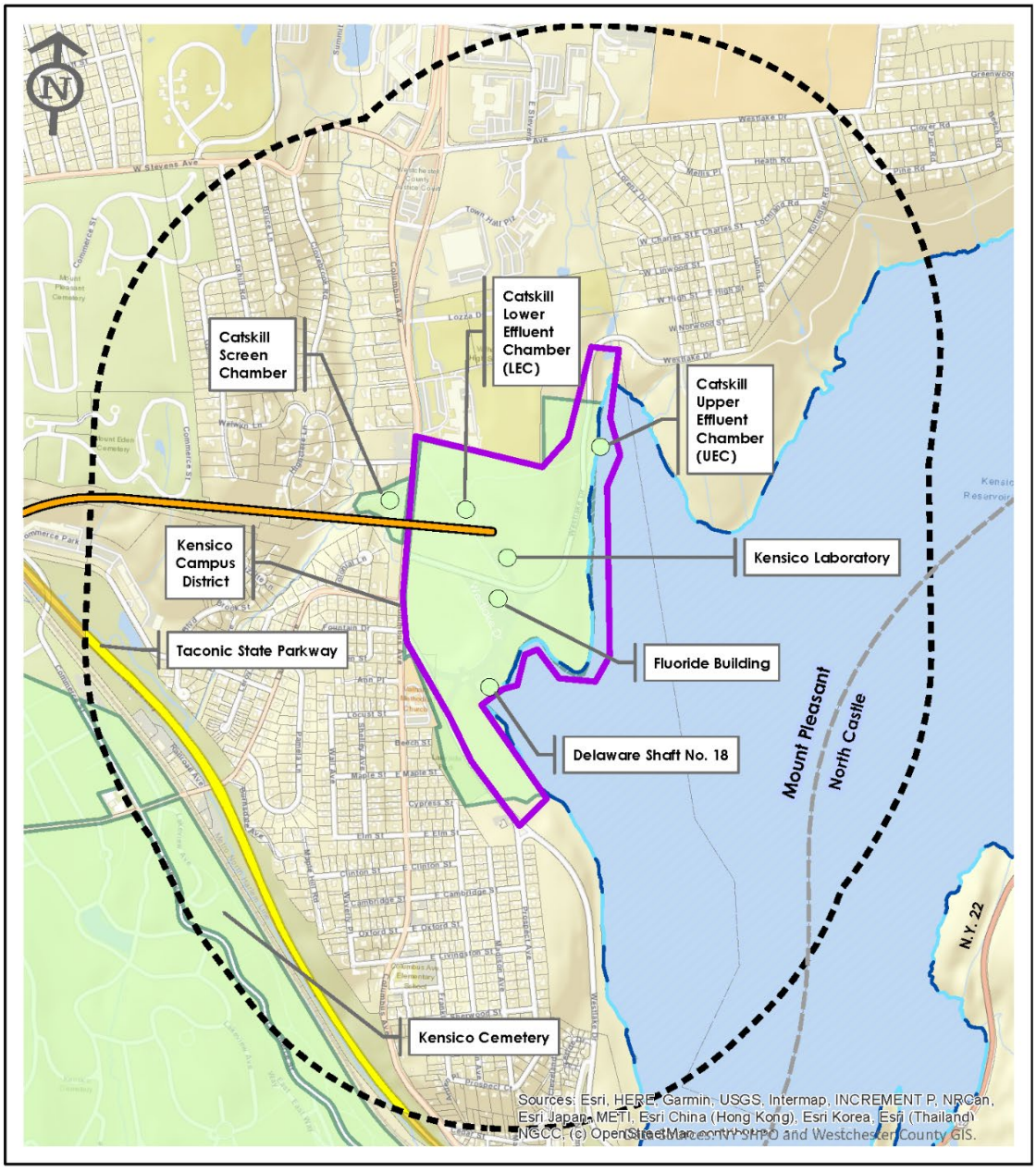
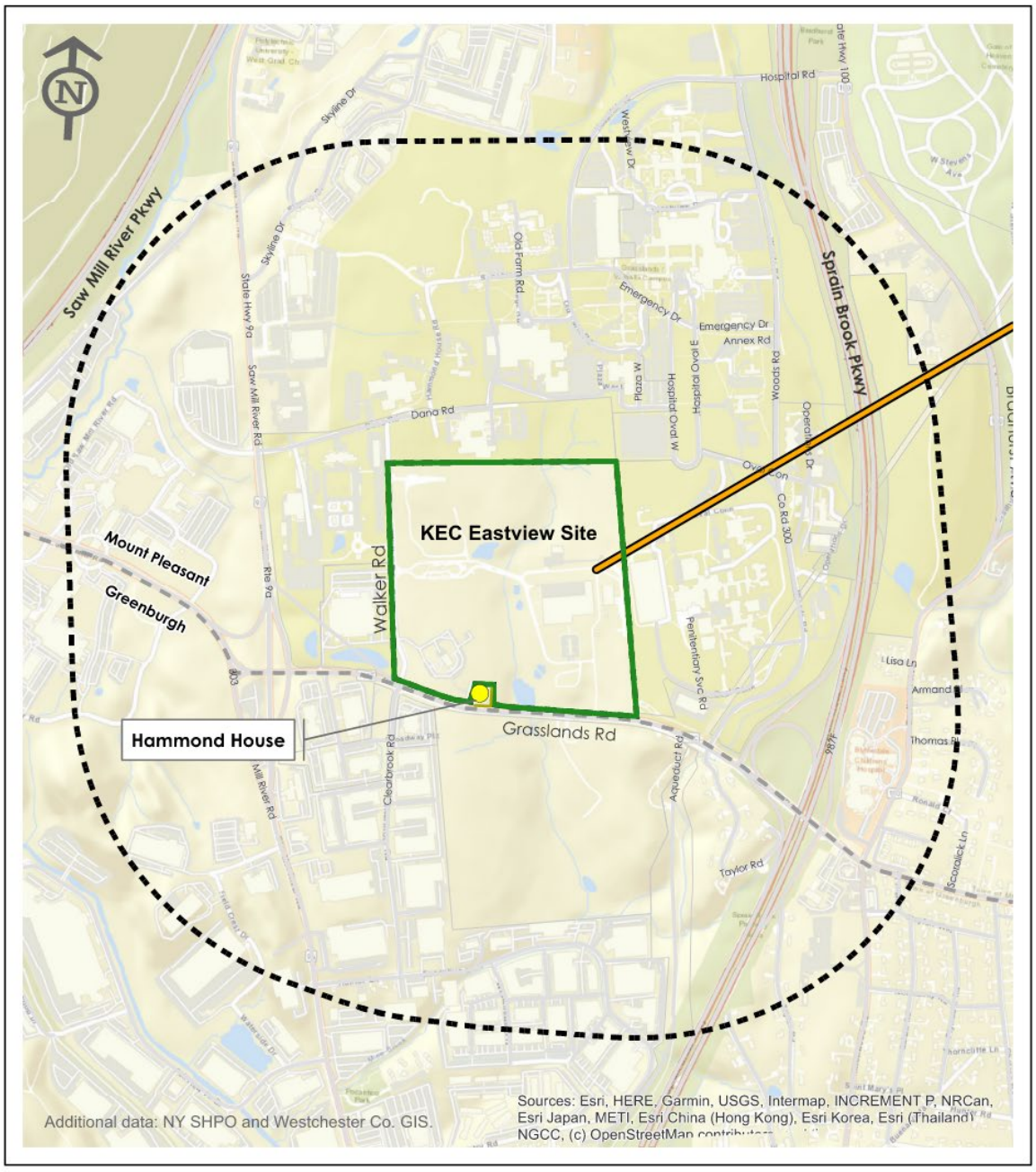


Figure 3.6-1. Historic Resources – Kensico Campus Study Area



LEGEND

- KEC Eastview Site
- Listed Historic Site (Building)
- Listed Historic Site (Parcel)
- Municipal Boundary
- Study Area Boundary (West)
- Proposed Tunnel Alignment

0 0.125 0.25 0.5 Miles

Figure 3.6-2. Historic Resources – KEC Eastview Site Study Area

Bronx to the mouth of the Croton River. By the 1750s over a thousand people were living in the Manor; most were tenant farmers clearing forests to support the demand for lumber.

The Philipsburg Manor, which had remained intact for over 80 years, was dissolved following the Revolutionary War when the Philipse family, who sided with the British, lost their land rights. Many of the former tenant farmers purchased and often subdivided their holdings. Farming continued as a way of life until the beginning of the 20th Century.

3.6.3.1 Kensico Campus

Historical Background

Initially, the Croton water system, which began operation in 1842, supplied over 60 million gallons of water a day to New York City. Almost immediately, there was a need for more water. By the turn of the century, the City was facing severe water problems. Not only had the population within its original bounds grown but, in the years just prior to 1900, the City expanded to incorporate the Bronx, Staten Island, Queens, and Brooklyn. The Kensico area was chosen as the location for the possible construction of a large reservoir and preliminary surveys were made in 1906. Three years later, the contract for the project was awarded. As a link in the municipal water management chain, Kensico Reservoir would act as a storage location for the immense amount of water that flows through the Catskill Aqueduct from the Ashokan Reservoir in Ulster County. A review of the 1908 Belcher Hyde Atlas clearly indicates the planning stages for Kensico Reservoir; the outlines of the proposed reservoir and surrounding streets are noted on the historic atlas. The Kensico Reservoir, which was constructed slowly over several years, was completed in 1915 and the former village of Kensico (Wright's Mills) was flooded.

A series of 19th century historic atlases were also reviewed as part of the archaeological research effort (HPI 2021). There was, however, no direct association noted between the future Kensico Campus and earlier farmsteads, mills, owners, and/or landscape features.

Ancillary feeders (streams, brooks, and other small watercourses) were also affected by the creation of the reservoir. Because these resources supplied water to the system, some grading, channeling, and course alterations took place during and after the construction phase of the reservoir construction project. Since the construction of the system, erosion, erosion control methods, and further route alterations have had a significant impact to the immediate corridor surrounding each tributary.

Existing Conditions

SHPO/NYSOPRHP previously determined that the Kensico Campus is a NRHP-eligible district with six contributing buildings (August 29, 2019). DEP is aware of the historic and handsome presence of the Kensico Campus and the legacy of this complex within the history of the City's water system and, also, within the community of Valhalla today.

The determination of NRHP-eligibility takes into consideration the relatively recent loss of the two water-quality aerators (previously determined to be individually NRHP-eligible) consisting of massive concrete basins at grade located on the lawn areas abutting Columbus Avenue. After filling of the aerators, the open and depressed lawn areas between Columbus Avenue and the balance of the Kensico Campus echo the prior basins and have arguably maintained integrity of setting, feeling, and association.

Historic aerator construction photographs on file at DEP convey the areal extent and prior depth of the construction within the Kensico Campus lawn area for the aerators. In addition to the aerator excavation disturbances, the photographs indicate the presence of construction offices and worker dormitories that certainly contributed to the extent of profound disturbances on the Kensico Campus landscape.

Underground water-system tunnels, shafts, and connections have also been an active part of the history of the evolving Kensico Campus, as are routine infrastructure maintenance and/or installations in and between the various buildings, and the above-grade, electrical support system to the east of the former Kensico Laboratory building. The degree of prior disturbance for these tunnels, tunnel shafts, internal service roads, electrical easements, installation of earlier water pump buildings, and construction activities during the initial decades of Catskill connections is not fully understood, but is assumed to have significantly disturbed a major portion of the northwest border of the property that abuts Valhalla High School to the north.

During site inspections, a small, conical-roofed, reinforced-concrete water pump station was noted within the limits of the northern edge of the Kensico Campus; it is not included in the SHPO/NYSOPRHP listing of contributing properties for the Kensico Campus potentially eligible district. The history of the small building was not available; however, it is located outside the limits of proposed disturbance.

3.6.3.2 KEC Eastview Site

Historical Background

As noted above, the Philipsburg Manor, which had remained intact for over 80 years, was dissolved following the Revolutionary War when the Philipse family, who sided with the British, lost their land rights. Many of the former tenant farmers purchased and often subdivided their holdings. James Hammond and his cousin, Nicholas Storm, purchased their lands on either side of Lower Cross Road, later renamed to Grasslands Road.

Both the Town of Mount Pleasant and the Town of Greenburgh were officially incorporated in March 1788 following the end of the war. Roads were officially organized, including Lower Cross Road, whose northwest to southeast route forms the KEC Eastview Site southern project limit. In 1812, State aid was made available for the creation of local schools. School District

Number 4, which became East Tarrytown and then later Eastview, encompassed the current project site; a school was built approximately one-quarter mile west of the KEC Eastview Site on the north side of Lower Cross Road. This area remained primarily agrarian until the beginning of the 20th Century.

Between 1867 and 1872, the New York and Boston Railroad (later called the Putnam Line) had been laid out through Greenburgh, west of the Hamlet of Eastview - then called East Tarrytown. The railroad ran some distance from the KEC Eastview Site.

As New York City rapidly expanded during the 19th century, the need for clean water was of paramount importance. The search for significant outside sources of water was a continuing problem that required a large-scale solution. When 3,500 people died during the cholera epidemic of 1832, and millions of dollars were lost in the catastrophic Great Fire of 1835, it became clear that the growing City needed a new and abundant source of water.

The New York City Board of Water Supply began to look for a parcel of land in nearby Westchester County for the construction of a large reservoir that would be a link in the municipal water management chain. The Kensico site was chosen for the construction of the reservoir that would act as a storage location for the immense amount of water flowing through the Catskill Aqueduct from the Ashokan Reservoir in Ulster County to New York City. During the first decade of the 20th century, the Board of Water Supply also recognized that "no matter how pure the Catskill water may be, with the increasing population of the watersheds, filtration will eventually become imperative." Following the Board's recommendation, New York City purchased a 315-acre site near the Catskill Aqueduct for the future Eastview filtration plant.

The Catskill Aqueduct, which was completed between 1907 and 1917, was able to supply twice as much water as the New Croton Aqueduct. Because of the increase in the clean water supply and the installation of a chlorination system at Kensico Reservoir, the plans for the construction of the Eastview filtration plant were set aside and the City sold a portion of the land. Less than ten years later, the City's plans included the construction of the Delaware Aqueduct, which would also pass beneath the City-owned land in Eastview. In addition, the discussion about the construction of a potential filtration plant at Eastview was temporarily revived. Delaware Shaft No. 19 was designed to be a connection to the potential Eastview filtration plant. The Delaware Aqueduct was completed in 1945 and is noted for being the longest continuous tunnel in the world.

As the 20th century progressed, the KEC Project Area became more commercial/industrial as farmland was sold to these ventures. The KEC Eastview Site was acquired by the City in the early 20th century and the Westchester County Department of Public Welfare purchased the surrounding former farmland. The County built Grasslands Hospital and the Westchester County Penitentiary and Work House to the north and east of the site. The County also established a small cemetery for the indigent population to the north near Dana Road and outside of the limits

of the KEC Eastview Site. Vast additional improvements were planned for the KEC Eastview Site acreage after the initiation of Delaware Aqueduct service in 1945. However, these changes were not undertaken until relatively recently, but once initiated; the bucolic farm fields to the north, east, and west of the Hammond House disappeared.

These changes included the construction of the CDUV Facility, an access drive off of Walker Road with security booths, stockpiles on both the northwest quadrant and, to a much smaller extent, on the southeast quadrant. Introduced drainage swales, storm discharge piping and manholes, infrastructure installations, as well as roadways and parking areas and landscaping have each had their effect.

Existing Conditions

The larger Eastview parcel owned by the City has experienced changes and development on both the north and south sides of Grasslands Road. Prior to any prior construction, improvements, or installations, DEP carefully followed the environmental review requirements through Phase I, II, and III Archaeological Data Recovery to satisfy concerns for precontact archaeological sites on both the north and south sides of Grasslands Road. Similarly, care has been taken to consistently maintain a boundary between these changes and the historic NRHP-listed Hammond House that fronts on Grasslands Road.

On the north side of Grasslands Road, the DEP Police 6th Precinct was added in the southeast portion of this site, northeast of the intersection of Grasslands Road and Walker Road and the CDUV Facility was completed on the east side of the KEC Eastview Site. The currently proposed Walker Road staging areas have been previously used for stockpiling soils during construction periods and/or used as a contractor laydown/storage and parking area as part of the CDUV construction efforts.[20]

Much of the KEC Eastview Site was graded and contoured; these altered landscapes were evident during the field inspections of the KEC Eastview Site. The extent of this landscape modification is also confirmed through geotechnical investigations carried out in 2018: "There has been extensive geotechnical investigation at the Eastview Site for the construction of the Ultraviolet Disinfection Facility over the years. The soil subsurface profile based on these boreholes can be summarized as 15 to 20 feet of fill underlain by glacial till and residual soils with a thickness of 15 to 50 ft."[21]

[20] New York City Department of Environmental Protection (DEP), Eastview Overall Fence, Cable Barrier, and Ditch Plan, Catskill and Delaware Water Treatment Ultraviolet Light Disinfection Facility, November 2004.
[21] ARUP, DEP/Bureau of Engineering Design and Construction: Kensico to Eastview Connection: Work Plan for Geotechnical Investigation Program for Connection Chamber and Screen Chamber, Phase II. June 20, 2018.

3.6.4 FUTURE WITHOUT THE PROPOSED ACTION

3.6.4.1 Kensico Campus

The Kensico Campus would undergo changes within the heart of the NRHP-eligible complex even without the Proposed Action. These ongoing projects are part of separate DEP actions with independent utility and have successfully completed the required environmental reviews for both architectural and archaeological resources. These improvements and changes to the Kensico Campus, and the anticipated year of completion, are listed below.

- Waterfowl Management Program Building, estimated completion in 2025. This new one-story administrative building would be sited along the reservoir shoreline northwest of DEL Shaft 18. This would be a critical addition to the management of waterfowl populations and water quality at key reservoirs throughout the City water supply system for meeting stringent water quality regulations. The City's PDC recently recognized this building design as one of its 39th Annual Awards recipients for Excellence in Design.
- Kensico Regional Headquarters, estimated completion in 2025. The new Regional Headquarters would be housed within the former 1955 Kensico Laboratory building, one of the six contributing properties of the NRHP-eligible Kensico Campus District. SHPO/NYSOPRHP has previously reviewed an Alternatives Analysis of this adaptive reuse, as well as the interior rehabilitation plans, and has provided a letter of acceptance for the improvements.22
- DEL Shaft 18, estimated completion in 2026. A number of maintenance and improvements are underway to guarantee continuous safe water distribution: electric/HVAC upgrades; traveling water screens replacement; a spill response shed; and floor operator's office improvements. The exterior of DEL Shaft 18 would not be impacted.

Archaeological Resources

No areas of potential archaeological sensitivity would be disturbed in the future without the Proposed Action by these future projects and these resources would remain unchanged.

Architectural Resources

As noted above, specific previously-approved changes to the Kensico Campus would occur in the future without the Proposed Action. The Waterfowl Management Program Building would be constructed along the reservoir shoreline. DEL Shaft 18, one of the NR-eligible district buildings, would also undergo ongoing agency-approved operating and maintenance

[22] Derek Rohde, Historic Site Restoration Coordinator. Letter to Mr. David Lee, DEP, Review of Alternatives Analysis for the Lab Building, April 26, 2021.

improvements. The former Kensico Laboratory building (Kensico Regional Headquarters), another of the six NR-eligible district properties, would undergo SHPO/NYSOPRHP-approved interior changes and exterior rehabilitation without altering "the building's relationship to the historic district or the character of the district."[23]

No additional changes to archaeologic, historic, or architectural resources would occur at the Kensico Campus in the future without the Proposed Action. These projects would not significantly alter the historic district or contributing structures from existing conditions.

3.6.4.2 KEC Eastview Site

Currently, no substantive projects are proposed by DEP for the KEC Eastview Site in the future without the Proposed Action. Minor DEP projects include foundation drain modifications and installation of new cleanouts at the CDUV Facility. This project consists of work in areas of prior disturbance. In addition, DEP may potentially install a solar carport canopy over an existing parking lot just south of the CDUV Facility and solar panels on the CDUV Facility rooftop. As a result, no changes to historic or cultural resources would be anticipated in the future without the Proposed Action.

Archaeological Resources

No areas of potential archaeological sensitivity are slated for disturbance in the future without the Proposed Action.

Architectural Resources

No changes in the future without the Proposed Action are anticipated. The neighboring historic Hammond House, fronting on Grasslands Road, would remain as it does today.

3.6.5 FUTURE WITH THE PROPOSED ACTION

The Proposed Action would include the construction of a deep-rock tunnel, which would pass underneath the Taconic State Parkway and potentially historic cemeteries, such as the Gate of Heaven and Mount Eden Cemeteries (see **Figure 4.1-1**). The deep-rock tunnel would be more than 100 feet below grade, drilled through bedrock. As such, construction of the tunnel would not disturb any intact soils or otherwise effect the cemeteries or parkway at the ground surface.

[23] Derek Rohde, Historic Site Restoration Coordinator. Letter to Mr. David Lee, DEP, Review of Alternatives Analysis for the Lab Building, April 26, 2021.

3.6.5.1 Kensico Campus

Archaeological Resources

There are only two limited areas of possibly intact soils within the Proposed Action APE in the northwest portion of the Kensico Campus that may have been left undisturbed during extensive and episodic land manipulation. These two areas include the construction of the KEC Screen Chamber building and a 30-car parking lot and would include disturbance and grading activities that would disturb potentially intact soils, as shown on **Figure 3.6-3**.

- One area would be located within the KEC Screen Chamber footprint. This elevated landform, according to historic maps, was bordered on the east and west by feeder streams and has not experienced documented below-grade disturbances. The KEC Screen Chamber footprint would include significant grading prior to construction as well as excavation beyond bedrock for the construction of the downtake shaft (KEC Shaft 1C).
- The second area is a proposed 30-space parking lot located north of relocated Westlake Drive with a sidewalk connection to Columbus Avenue in the northwest corner of the Kensico Campus. Establishing this amenity, in potentially undisturbed soil, would require the removal of trees, grading for the proposed parking area, as well as additional grading for the connection with relocated Westlake Drive.

Phase IB testing within these two archaeologically sensitive areas was completed in December 2021 to confirm the presence or absence of archaeological resources (**Figure 3.6-3**).

Kensico Campus Area 1 is the site of the proposed parking lot. Area 1 is located adjacent to a stone fence line at the northern edge of the campus and is bordered at the base of the slope on the west; the western portion of the hillside includes slopes greater than 12 percent. Bedrock outcrops were found throughout Area 1. No significant features or precontact artifacts were found in Area 1.

Kensico Campus Area 2 is the site of the KEC Screen Chamber and downtake shaft. Area 2 is located on the sloping hillside to the west of the Kensico Regional Headquarters. This location had numerous treefalls and a portion of the hillside had slopes greater than 12 percent. Although some modern refuse, including some dump piles, were noted in Area 2, no artifacts were recovered.

Within the Kensico Campus Areas 1 and 2, relatively uniform stratigraphy and subsoil was encountered in almost all of the shovel tests that were excavated.

Based on NYSOPRHP's review of the Phase IB Field Investigation report, no additional archaeological investigations are required, and the Proposed Action does not have the potential to disturb cultural or archaeological resources.

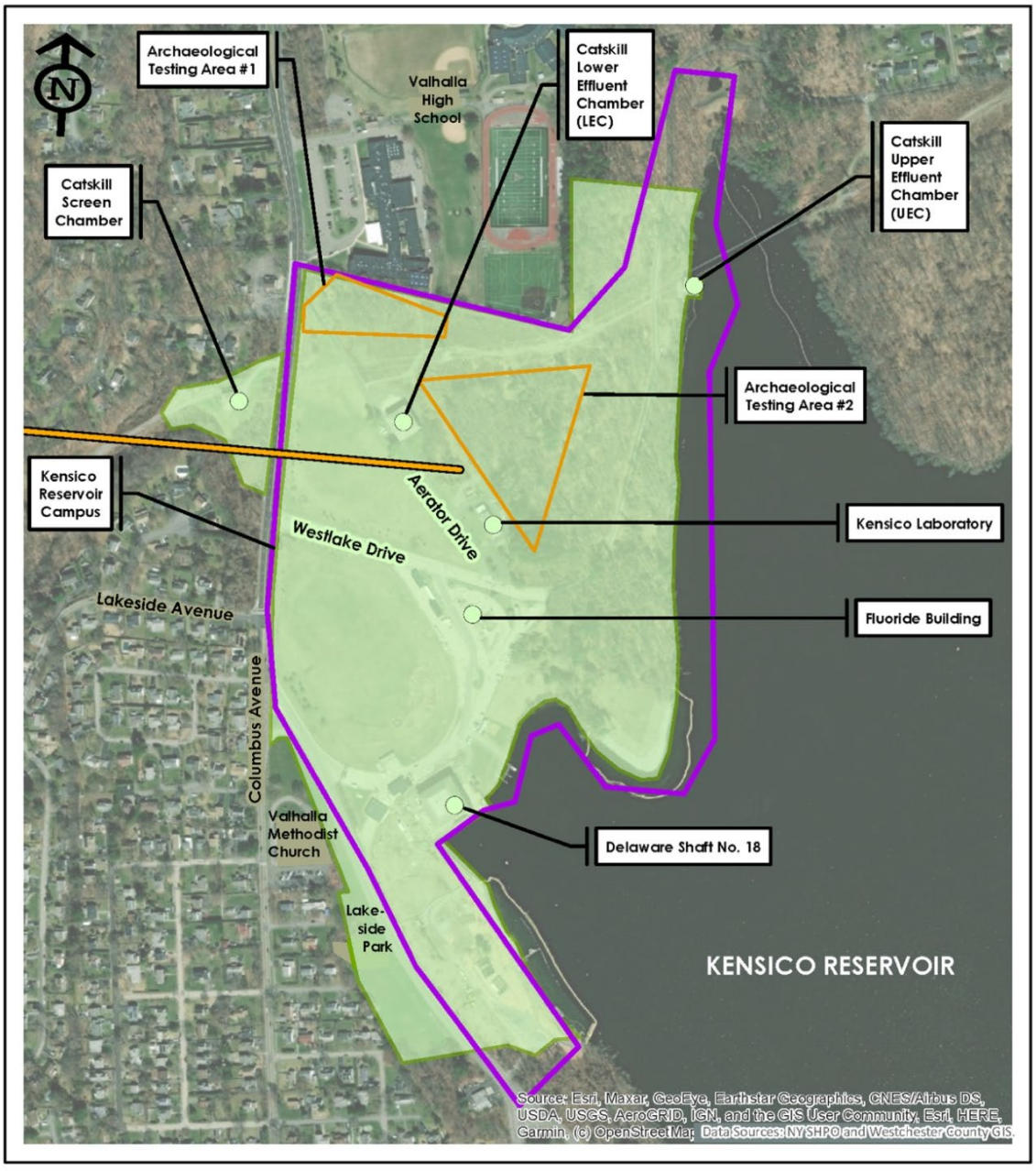


Figure 3.6-3. Potential Archaeologically Sensitive Areas – Kensico Campus

Architectural Resources

The construction associated with the Proposed Action would not directly affect or alter the six buildings within this NRHP-eligible district. Direct effects include destruction, demolition or substantial alterations to an architectural resource, and damage from vibration (e.g., from construction-related blasting or pile driving) as well as from falling objects, subsidence, collapse, or other adjacent construction activity. For a discussion of indirect effects based on visual and/or contextual changes, see Chapter 4, "Potential Impacts from Operation of Proposed Action," Section 4.3, "Urban Design and Visual Resources," and Section 4.4, "Historic and Cultural Resources." No significant views of the historic structures on the campus would be eliminated and the historical features of the Kensico Campus would be maintained.

3.6.5.2 KEC Eastview Site

Archaeological Resources

As noted previously, the terraced areas slightly elevated above the Mine Brook corridor at the KEC Eastview Site have previously yielded significant Native American sites which are on file with SHPO/NYSOPRHP. Possible effects to these areas would potentially include a temporary conveyor system installation that would cross Mine Brook, stockpiling of soils, construction staging, and contractor offices and parking.

Potentially archaeologically sensitive areas at the KEC Eastview Site, are noted on **Figure 3.6-4** as Eastview Areas 3 and 4. Phase IB shovel testing was completed in December 2021 and March 2022. Testing was advanced for those areas identified as archaeologically sensitive within the portions of the KEC Eastview Site to be affected by the Proposed Action (**Figure 3.6-4**).

Eastview Area 3 is located along the northern fence line of the KEC Eastview Site. This location is a very small rectangular area located outside the existing exterior fence line of the overall complex that contained thick brush, which required hand clearing. Eastview Area 3 contained disturbed strata.

Eastview Area 4 is associated with the proposed footings of the temporary conveyor system that would extend from KEC Shaft 2C and the ECC to the proposed soil stockpile area in the northwest portion of the site. The conveyor would cross over Mine Brook. No significant features or precontact artifacts were found in Area 4.

Based on NYSOPRHP's review of the Phase IB Field Investigation report, no additional archaeological investigations are required, and the Proposed Action does not have the potential to disturb cultural or archaeological resources.

A complete record of the stratigraphy, as well as field photographs, from the December 2021 and March 2022 field investigations are included in the full Phase IB report prepared for SHPO.

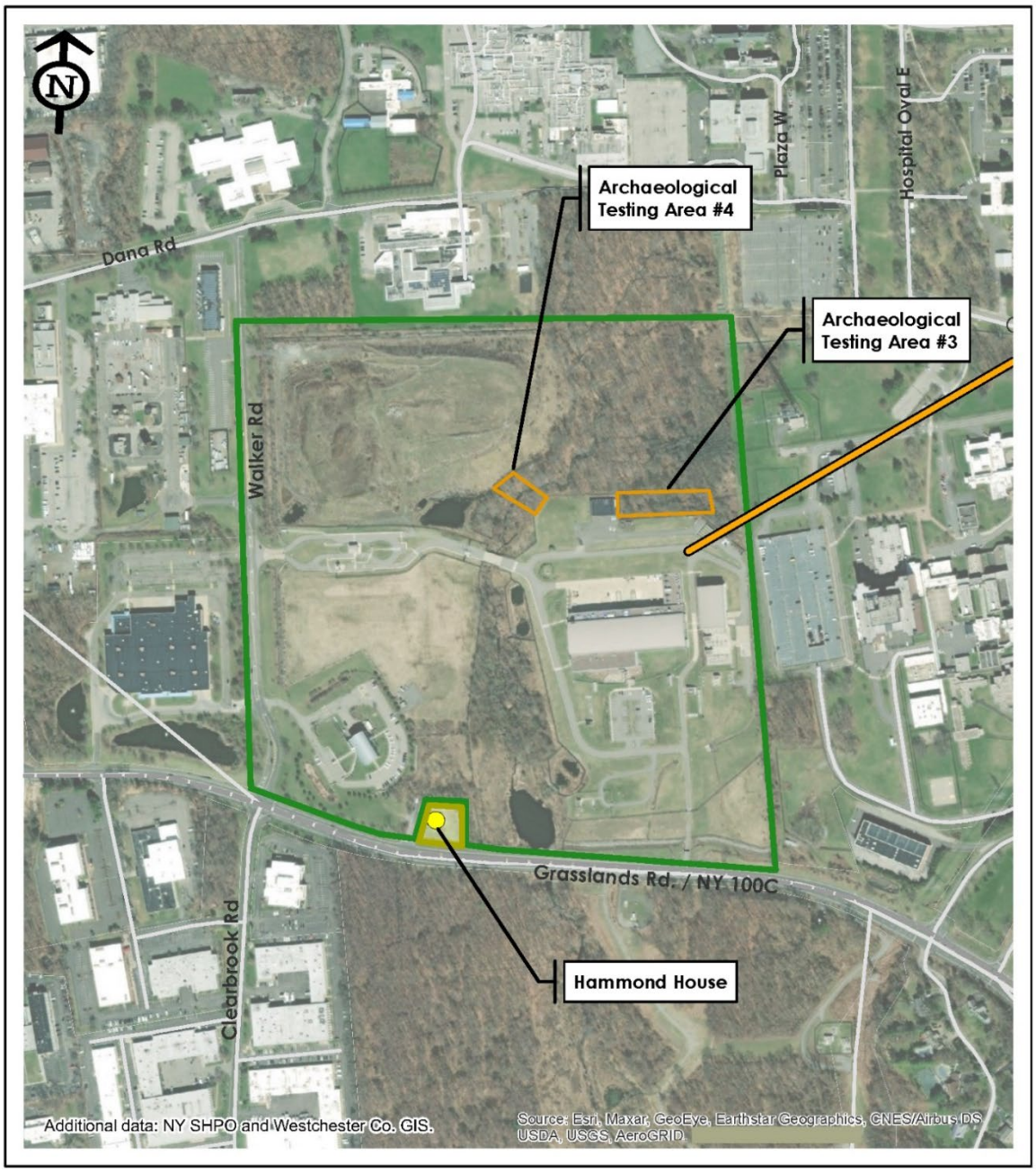


Figure 3.6-4. Potential Archaeological Sensitive Areas – KEC Eastview Site

Architectural Resources

The construction associated with the Proposed Action would not directly impact or alter the NRHP-eligible listed Hammond House. No significant adverse effects to architectural resources at the KEC Eastview Site are anticipated as a result of the Proposed Action.

3.6.5.3 Conclusions

No significant adverse effects to historic or cultural resources due to the construction of the Proposed Action would be anticipated at either the Kensico Campus or KEC Eastview Site. As noted above, field investigations of potential zones of archaeological sensitivity within limited areas of the Kensico Campus and KEC Eastview Site were completed in December 2021 and March 2022. The absence of potential resources was confirmed employing appropriate field techniques and reporting requirements and indicated no presence of archaeologically sensitive resources.

3.7 NATURAL RESOURCES

3.7.1 INTRODUCTION

This section examines the potential impacts from the KEC Project on natural resources. The *CEQR Technical Manual* identifies natural resources "as plant and animal species and any area capable of providing habitat for plant and animal species or capable of functioning to support ecological systems and maintain the City's environmental balance." Natural resources include vegetative communities (terrestrial, wetland, open water, and floodplain) and wildlife habitat (reptiles, amphibians, birds, mammals, fish, and benthic macroinvertebrates with a special emphasis on threatened and endangered species). Existing conditions can vary from cultural, man-made surfaces to emergent, scrub/shrub and forested wetlands, and forested uplands. This section describes existing conditions within the study area, conditions under the future with and without the Proposed Action and the identification of potential impacts on natural resources, and measures that would be developed to address and/or reduce the adverse impacts of the Proposed Action on natural resources.

3.7.2 METHODOLOGY

Natural resources within the Kensico Campus and KEC Eastview Site were assessed and mapped to establish a baseline for existing conditions. The techniques utilized to assess existing communities, populations, and the functions of various natural resource parameters are described below. Information sources included, but were not limited to, high resolution aerial photography, NYSDEC streams and wetlands mapping, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping and the Information for Planning and Consultation (IPaC) database, United States Geological Survey (USGS) topographic mapping, the Soil Survey

Geographic Database (SSURGO), the New York Natural Heritage Program database, NYSDEC Environmental Resource Mapping, and the NYSDEC Nature Explorer database.

In addition, field surveys were conducted by experienced field biologists, ecologists, and/or arborists, as appropriate.

3.7.2.1 Terrestrial Communities

Terrestrial and wetland vegetative communities were classified based on the descriptions provided in the *Ecological Communities of New York State* (Edinger et al. 2014). To support the vegetative community classification, tree surveys and floristic surveys were performed on site. As part of the tree surveys, trees were identified to species, inspected visually to rate overall health and condition, measured for trunk diameter at diameter at breast height (dbh), dbh is defined as 4.5 feet above the ground, geo-located using survey equipment or a Trimble GPS field device with sub-meter accuracy, assigned a unique identifying number, and marked with a small aluminum tag. Tree surveys were conducted between March and April of 2018, August and October of 2020, and August and October of 2021. Trees greater than or equal to four inches in dbh were surveyed and mapped.

Field surveys for mapping terrestrial and wetland vegetative communities were conducted between August and October of 2020. An untimed, meandering search approach was utilized to sample herbaceous and understory vegetation throughout both the Kensico Campus and the KEC Eastview Site. Meander search procedures consist of a qualitative survey where at least two experienced biologists walk through a study area in such a way as to cover all variations likely to occur within the study area, capturing both typical and unique ecological conditions. Meandering involves doubling back or following a zig-zag pattern throughout the study area, to ensure maximum coverage of vegetative variation. Additional plant species were also identified and noted during tree surveys and wetland delineations.

Vegetative communities on the sites were classified as either terrestrial or wetland communities, which were further broken down into natural or cultural communities. Terrestrial communities have well-drained soils that are dry to mesic (i.e., containing a moderate level of moisture), but rarely hydric, and vegetative cover that is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated. Wetlands are areas where soil saturation is the dominant factor in determining the nature of soil development and the types of plant and animal communities capable of being supported. Terrestrial communities are distinguished from wetland communities by the lower availability of water and the consequent importance of water as a limiting factor within the systems. Natural communities are recurring assemblages of plants and animals found in particular physical environments while cultural communities include communities that are either created and maintained by human activities or are modified by human influence to such a degree that the physical nature of the substrate, or the

biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence.

3.7.2.2 Wetlands, Open Water, and Floodplains

Wetlands and Open Water

Wetlands and open water were delineated in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual, as well as the Regional Supplement to the USACE Wetland Delineation Manual for the Northcentral and Northeast Region, Version 2.0 (USACE 2012). "Open water" refers to all bodies of water forming physiographical features, such as streams or reservoirs. The wetland indicator status of each plant species identified was determined using the National Wetland Plant List (USACE 2020) and wetlands were classified according to the Cowardin code (Cowardin et al. 1979). Wetland and open water delineations were conducted during August 2020.

Floodplains

Floodplains and/or floodways in the study areas were identified through a review of Federal Emergency Management Agency (FEMA) maps.

Submerged Aquatic Vegetation

Submerged aquatic vegetation (SAV) is rooted aquatic vegetation that grows completely under water. Field surveys were conducted to determine the extent of native SAV within Kensico Reservoir adjacent to the Kensico Campus study area during the appropriate peak growing season, typically between June and September. The SAV area is determined by estimating the maximum area of potential impact a proposed action may have on populations of native SAV beds. This may include direct impacts, such as excavation, or indirect impacts such as shading or sedimentation from an activity. Prior to the field evaluation, various SAV mapping sources and any locally available SAV reports were analyzed to compare the potential extent and composition of SAV beds on site or within the vicinity of the study area. Surveys are conducted on clear, non-rainy days, with wind under 20 mph (miles per hour) and with minimal wake/wave action to guarantee efficient and accurate data collection and to assure optimal visibility.

A SAV survey within Kensico Reservoir was conducted within 50 feet of the shoreline contiguous with the Kensico Campus. This survey was conducted using a series of transects placed perpendicular to the shoreline, extending 50 feet from shore. Transects were spaced 10 feet apart. Observations of SAV were made using a combination of a transparent bottom bucket and a SAV rake. The bucket was effective for identifying SAV visually where visibility allowed (generally up to depths of four to five feet). The SAV rake was used to dislodge vegetation from the substrate and haul it up to the surface for identification. SAV surveys were conducted on September 22 and 23, 2020.

Modeling of Potential Dewatering Impacts to Wetlands

The Proposed Action does not have the potential to lower shallow groundwater ("drawdown") due to dewatering needs at the Kensico Campus, as dewatering rates are not anticipated to exceed the typical groundwater inflow from Kensico Reservoir. As the Proposed Action does have the potential for drawdown at the KEC Eastview Site due to dewatering needs which could impact delineated wetlands and open water, a transient groundwater flow model was developed using Aquaveo's Groundwater Modeling Software (GMS ver. 10.5, Aquaveo 2021) and simulated using the USGS groundwater flow model MODFLOW NWT (Niswonger et al. 2011). Elevations in the model, unless specified for the modeling effort, were taken from the USGS geo-TIFF raster digital elevation model for the area (USGS 2016) and were applied directly to the boundary condition in MODFLOW from the raster image. The geo-TIFF was also used to simulate the ground surface.

The groundwater modeling of the Proposed Action's dewatering at the KEC Eastview Site was completed using three transient models sequenced end to beginning, simulating proposed dewatering between 2026 and 2033 for the three major construction phases described below, and one transient model simulating six years without dewatering. The transient models used 15-day stress periods and evapotranspiration was varied throughout the modeled time using monthly average evapotranspiration rates. The 15-day stress periods were chosen to simulate USACE's technical standard for wetland hydrology so that wetlands meeting the definition would be identified by the model. The USACE's technical standard for wetland hydrology indicates that the root zone (within one foot of ground surface) must be seasonally saturated or inundated for a minimum of 14 consecutive days during the growing season, during a normal climatic year (5 out of 10 years), to provide suitable conditions for establishment of wetland vegetation and anaerobic soil conditions (USACE 2005).

The first dewatering groundwater model, the 180-day model, simulated dewatering to the planned excavated elevation within the scheduled six-month timeframe (construction Phase 1, January to June 2026). Dewatering was simulated using MODFLOW drain package cells that were set to high conductance (1,000 feet/day [ft/d]) at the excavation bottom elevation, 265 feet above mean sea level (amsl). The drainage area covers 12,500 square feet, closely matching the footprint and location of the planned initial excavation. Layers 1 and 2 of the model in this area were changed from overburden veneer and overburden to excavation material (void). This excavation material has the same storage and yield values, but much higher hydraulic conductivity (500 ft/d) to simulate a void.

The second groundwater model simulated the six years after excavation and initial dewatering, when support of excavation would be installed, and pumping would continue to maintain water levels from precipitation, runoff, and infiltrating groundwater (construction Phase 2). The model assumed that the support of excavation would be comprised of sheet piling with a conductance of $1x10^{-5}$ cm/sec. The sheet piling was simulated using MODFLOW horizontal flow barrier with a

flow through conductance of 0.02284 ft/d over a thickness of 0.5 ft that surrounds the excavation void, causing a resistance to flow into the excavation. The flow barrier accounts for the $1x10^{-5}$ cm/sec leakage expected through standard sheet piling. The model only simulates the removal of groundwater seepage and does not include direct precipitation and runoff into the excavation.

The third groundwater model simulated the final utility pipe connection. This would be final connection between the ECC and the CDUV Facility with an excavation period of two years and added a new excavated area down to 280 feet amsl at the end of the six years (construction Phase 3). Drains were used to simulate the additional dewatering used to dewater this area and sheet piling was simulated using horizontal flow barriers around the new excavation and connected to the previous excavation.

The groundwater model that simulated six years without dewatering was used to compare the seasonal changes in water levels for existing conditions to those that would occur during dewatering based on the dewatering simulations. This model was simply the second model modified so that no pumping occurred and using the steady state model's simulated heads as the starting condition. Because the model was transient, the area of one-foot depth to water increased slightly each year, so the sixth year's early spring water levels were used for the comparison to water levels (depths to water) from the dewatering models. The simulated water levels from the sixth non-pumping year have the greatest area where depth to water is less than one foot making it the most conservative year (greatest amount of area meeting the depth to water criteria for wetlands and greatest amount of difference between dewatering and non-pumping simulations).

To determine surface water influences on the delineated wetlands, water budgets were created using WetBud software (Wetbud Development Team, 2020) for typical wet (2006), normal (2000), and dry years (2012), and for the existing and future conditions with and without the Proposed Action. The wet, normal, and dry years were determined using the last 30 years of precipitation data recorded at Westchester County Airport and were assumed to be representative of the range of climatic conditions that may occur during the Proposed Action. The water budgets included inflows (direct precipitation, surface water, overbank flow, and groundwater) and outflows (evapotranspiration, surface water, and groundwater). The groundwater flow parameters within the water budget used the outputs from groundwater model simulations to reflect potential change to groundwater flow from dewatering.

The water budgets were prepared on a monthly timestep and the output is a predicted water level relative to the ground surface for each of the analysis years, which was used to determine if the wetland meets the USACE wetland hydrology technical standard for each year [i.e., the site is inundated (flooded or ponded) or the water table is less than or equal to one foot below the soil surface for at least 14 consecutive days during the growing season, at a minimum frequency of five years in 10 ($\geq$ 50 percent probability)].

The "normal" year is defined as having normal precipitation conditions occurring five out of 10 years and was used to determine if a potential impact from dewatering existed (i.e., if predicted water level was not within one foot of the ground surface during at least one month during the growing season for a normal year, then the wetland hydrology criterion is not met, and the wetland is classified as potentially impacted). The dry and wet year results were reviewed to assess potential inflows, outflows, and water levels for a range of climatic conditions.

In addition to the water budget analysis, a HEC-RAS model of Mine Brook was used to simulate the water surface elevation for a range of flows from baseflow to bankfull flow. The results were reviewed to determine the likelihood of surface water connectivity from upstream reaches of Mine Brook that would be expected to maintain streamflow and would avoid potential impacts to the open water areas as a result of dewatering.

3.7.2.3 Wildlife

All vegetative communities were evaluated for their potential to support general suites of common terrestrial, aquatic, and semiaquatic wildlife including migratory and nesting birds, insects, mammals, reptiles, and amphibians. A listing of species encountered (directly or indirectly – e.g., tracks, scat, etc.) was noted. Targeted species surveys were not performed, but species observed opportunistically in the field during the habitat assessments were recorded and are also presented in this section. Special emphasis was placed on suitable habitat for threatened and endangered species identified through NYSDEC and USFWS and species of special concern with the State and candidate species in the federal databases. Field surveys and habitat assessments were conducted between August and October of 2020.

Habitat on site was visually assessed for its potential to support a variety of wildlife, including reptiles, amphibians, birds, mammals, fish, and benthic macroinvertebrates. All species incidentally observed during the habitat assessments were recorded. Special emphasis was placed on identifying habitat suitable for threatened and endangered species known to potentially occur within the area. During the tree surveys, features suitable for bat roosting habitat, including exfoliating bark, cavities, cracks, and crevasses were recorded.

On September 9, 2020, a survey of lake trout (*Salvelinus naymaycush*) spawning habitat along an approximately 1,700-foot-long section of Kensico Reservoir shoreline contiguous with the Kensico Campus was conducted. This study included characterizing the composition of sediments within the limits of potential disturbance contiguous to the Kensico Campus. The survey was conducted from a boat. Seventeen transects, each approximately 108 feet apart, were established from the recently completed area of stabilized shoreline in proximity to DEL Shaft 18 and extending north. Each transect consisted of observations from three stations, moving perpendicular from the water's edge to the limit of potential disturbance, 50 feet from shore. Estimates of percent coverage of hard cover (e.g., gravel, cobble, boulder) were made

through visual observation using a Fieldmaster Acuview underwater viewer and an Aqua Vu Z series underwater camera. Water depth measurements were collected at each sampling station.

Lake trout spawning habitat was assessed according to descriptions outlined in Royce (1951), Scott and Crossman (1973), and Smith (1985). Stations where no rocky substrate or interstitial spaces were found were listed as absent, stations where less than 40 percent of the field of view (FOV) had rocks with some interstitial spaces were listed as poor, stations where 40 to 75 percent of the FOV were rock with interstitial spaces were listed as moderate, and stations where the FOV was greater than 75 percent rock with interstitial spaces were listed as excellent for lake trout spawning habitat.

3.7.2.4 Federal/State Threatened and Endangered Species and State Species of Special Concern

Database searches were conducted to identify whether there are any recorded occurrences of threatened, endangered or species of special concern on either site. An IPaC letter was obtained from the USFWS to identify federally threatened or endangered species as well as migratory birds that are known to occur on or near either site. For State listed species, the NYSDEC Nature Explorer and Natural Heritage databases were searched for known occurrences. Habitat on site was visually assessed for its potential to support threatened, endangered, or species of special concern between August and October of 2020. USFWS IPaC data searches were updated on May 26, 2023 to reflect recent changes including the USFWS change for northern long-eared bat (*Myotis septentrionalis*) from federally-threatened to federally-endangered (as of March 31, 2023).

The IPaC database indicated that ~~one~~ two federally-protected species, Indiana bat (*Myotis sodalis*) and northern long-eared bat ~~was~~ were potentially located within the Kensico Campus and the northern long-eared bat was potentially located within the KEC Eastview Site. Female Indiana bats are known to rear their young in nursery colonies along the banks of streams or lakes in forested habitat. Suitable potential summer roosting habitat is characterized by trees (dead, dying, or alive) or snags with exfoliating or defoliating bark or containing cracks or crevices that could potentially be used by Indiana bats, northern long-eared bats, or other bats, as a roost. The Indiana bat ~~The species~~ is also known to hibernate in caves or mines. Northern long-eared bat summer roosting habitat includes live or dead trees of greater than three-inch dbh. Single bats or groups of bats may roost under the bark, in cracks or hollows of these trees and select tree species based on the presence of flaking bark, cracks, and holes. Males and non-reproductive females may also roost in cooler places, such as caves and mines. Data indicates that the northern long-eared bat are fairly opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. Foraging areas include forested wetlands and upland woodlots and linear forested corridors. Adjacent emergent wetlands, old fields, and pastures may also be utilized. Summer habitat is typically occupied from mid-May through mid-August (USFWS 2014).

During the tree inventory, trees were evaluated for their potential suitability, including exfoliating bark, cavities, cracks, and crevasses, as roosting habitat for bats.

The IPaC also lists the monarch butterfly (*Danaus plexippus*) (a federal candidate species) as potentially occurring on both the Kensico Campus and KEC Eastview Site. During habitat assessments, suitable habitat for the larval and adult stages of this butterfly species were noted. The larval life stage of the monarch requires the presence of milkweed (*Asclepias* sp.) for survival, and the adult stage requires an abundance and variety of nectar producing flowering plants typically found in old field habitat.

In addition, the IPaC database indicated a number of migratory birds with the potential to occur within the KEC Project Area. The Bald Eagle (*Haliaeetus leucocephalus*) is a State listed threatened species and protected under the federal Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act that was identified by IPaC as potentially occurring at the Kensico Campus and KEC Eastview Site. Updated surveys conducted during the winter of 2021 and 2022 confirmed a pair of eagles nesting in relatively close proximity to the Kensico Campus. During qualitative wildlife surveys, special attention was placed on identifying tree nests that were known or could be potential Bald Eagle nests.

The NYSDEC Nature Explorer Report also identified the Kentucky Warbler (*Geothlypis formosus*) as potentially occurring on site. Kentucky Warbler is considered a High Priority Species of Greatest Conservation Need and prefers rich, moist, flat, or preferably hilly woodlands especially with stream-bearing ravines and a dense understory. They would breed in forests of various ages but are most common in medium-aged forests. Although the KEC Eastview Site includes some structural elements of Kentucky Warbler breeding habitat, such as moist forested areas associated with on site or nearby stream corridors, the understory is sparse, and the forested corridor is narrow along Mine Brook and the unnamed tributary to Mine Brook. DEP participated in the third Atlas of Breeding Birds (NYSDEC) project at Kensico Reservoir in the spring of 2020 and 2021 and was not able to confirm the presence of Kentucky Warbler.

3.7.3 EXISTING CONDITIONS

3.7.3.1 Kensico Campus

Terrestrial Communities

Within Kensico Campus, two natural terrestrial vegetative communities (Oak-Tulip Tree Forest and Successional Shrubland) and four cultural vegetative communities (Mowed Roadside/ Pathway, Spruce/Fir Plantation, Active Construction/Riprap/Artificial Lakeshore, and Urban Structures/Mowed Lawn with Trees/Roads) were identified and mapped on site (**Figure 3.7-1**).

Table 3.7-1 summarizes the acreage of each community noted and **Table 3.7-2** presents the dominant vegetation found within each community.

Table 3.7-1. Terrestrial Community Cover – Kensico Campus

Terrestrial Vegetative Community	Approximate Area (Acres)
Active Construction/Riprap/Artificial Lakeshore	1.4
Mowed Roadside / Pathway	1.1
Oak-Tulip Tree Forest	28.5
Spruce Plantation	0.8
Successional Shrubland	0.8
Unclassified Forest	0.5
Urban Structures/Mowed Lawn with Trees/Roads	42.4

Table 3.7-2. Dominant Vegetation within Each Terrestrial Community – Kensico Campus

Vegetative Community	Stratum	Common Name	Scientific Name
Riprap / Artificial Lakeshore	NA	NA	NA
Mowed Roadside / Pathway	Tree	NA	NA
	Shrub/Sapling	Multiflora Rose	*Rosa multiflora*
		Blackberry	*Rubus allegheniensis*
		Porcelain Berry	*Ampelopsis brevipedunculata*
	Herbaceous	Common Mugwort	*Artemisia vulgaris*
		Goldenrod	*Solidago* spp.
Oak-Tulip Tree Forest	Tree	Norway Maple	*Acer platanoides*
		Sugar Maple	*Acer saccharum*
		Red Oak	*Quercus rubra*
		White Oak	*Quercus alba*
		Sweet Birch	*Betula lenta*
		Tulip Tree	*Liriodendron tulipifera*
	Shrub/Sapling	American Beech	*Fagus grandifolia*
		Ironwood	*Carpinus caroliniana*
		Spicebush	*Lindera benzoin*
		Black Cherry	*Prunus serotina*
		Hop-hornbeam	*Ostrya virginiana*
	Herbaceous	White Wood Aster	*Eurybia divaricata*
		Goldenrod	*Solidago* spp.

Table 3.7-2. Dominant Vegetation within Each Terrestrial Community – Kensico Campus

Vegetative Community	Stratum	Common Name	Scientific Name
Spruce / Fir Plantation	Tree	Norway Spruce	*Picea abies*
Successional Shrubland	Tree	Red Cedar	*Juniperus virginianus*
		Eastern Cottonwood	*Populus deltoides*
		Black Walnut	*Juglans nigra*
	Shrub/Sapling	Eastern Cottonwood	*Populus deltoides*
		Red Cedar	*Juniperus virginianus*
		Multiflora Rose	*Rosa multiflora*
		Blackberry	*Rubus allegheniensis*
		Bush Honeysuckle	*Lonicera* spp.
		Autumn Olive	*Elaeagnus umbellata*
	Herbaceous	Common Mugwort	*Artemisia vulgaris*
		Goldenrod	*Solidago* spp.
Urban Structure / Mowed Lawn / Roadways	Tree	Red Cedar	*Juniperus virginianus*
	Herbaceous	Kentucky Bluegrass	*Poa pratensis*
		Plantain	*Plantago* spp.
		Crabgrass	*Digitaria* spp.

Figure 3.7-1. Terrestrial and Wetland Vegetative Community Map – Kensico Campus

Forested lands provide many benefits, with the primary benefit for water supplies being the retention and storage of water. According to the U.S. Forest Service, the best way to provide clean and abundant water in the future is to keep as much existing forestland as possible and to manage it using best management practices including, but not limited to, fire management, revegetation or replanting, and maintaining forest size, structure, and biodiversity. During storm events, vegetation increases the time of concentration for rainfall to travel across the ground surface and enter a waterbody, as leaves and branches intercept rain during its descent. Vegetation hinders rain from reaching the soil strata and generating runoff. The soil layer itself would delay the peak flow, as it absorbs and retains water. The ability of forests to detain rainwater and thereby offset runoff, erosion, and flooding, is dependent on the health and density of the trees and shrub layers, as well as the depth of the soil and its organic content.

A total of approximately 3,145 trees (including over 240 dead trees) were surveyed within Kensico Campus. The most abundant species was red maple (*Acer rubrum,* approximately 13 percent) followed by black cherry (*Prunus serotina*, approximately 11 percent) and Norway maple (*Acer platanoides,* approximately 10 percent). When individual trees are grouped together, they form forested areas. A forest is an area dominated by trees, spanning more than 1.2 acres.[24] On the Kensico Campus, there are approximately 18.8 acres of forest. Immature natural vegetative community areas exist without the benefit of trees larger than four-inch dbh. Additionally, single trees in lawn or roadside areas are found throughout the campus, neither immature stands nor single trees are included in the acreages of forested areas.

Signs of emerald ash borer, (*Agrilus planipennis*), a jewel beetle native to northeastern Asia, were observed within Kensico Campus. Emerald ash borer is a recently introduced pest that affects species of ash trees. Emerald ash borer larvae hatch and bore into ash trees where they feed on the inner bark and phloem, causing significant damage to the tree. In late spring, adults begin to emerge through "D" shaped exit holes. Emerald ash borer can spread rapidly throughout a site after introduction. Small trees can die as soon as one to two years after infestation, while larger infested trees can survive for three to four years. Out of the approximate 3,145 trees within Kensico Campus, 95 ash trees, nine of which were dead, were surveyed. Emerald ash borer is present within Kensico Campus, but likely would not have a large impact to the forest as ash trees make up only approximately three percent of the forest on site.

There are two main areas of contiguous forested tree cover on the Kensico Campus. The larger area is bounded by Westlake Drive to the south and east, the LEC, former Kensico Laboratory building and Aerator Road to the west, and existing utility right-of-way power lines to the north and is approximately 10.6 acres in size. The other area is located along the reservoir shoreline,

[24] The United Nations' Food and Agriculture Organization (FAO) defines a forest as, "Land spanning more than 0.5 hectares (1.2 acres) with trees higher than 5 meters (16 feet) and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ."

bounded by the reservoir to the east, Westlake Drive to the west and the UEC to the north and extends approximately 1,600 feet to the south and is over 5.9 acres in size. Other existing forested areas within the site total approximately 2.3 acres.

Cultural vegetative communities comprise the vast majority of the Kensico Campus site, covering approximately 43 acres. This includes the UEC, the chemical feed facility, and their appurtenant features such as roads, parking areas, and maintained lawns. The remaining vegetative communities consist of relatively undisturbed upland forested areas (approximately 29 acres) and shrubland (less than one acre) all located within the northeast half of the site.

A number of tree species recorded within Kensico Campus are classified as non-native invasives. These included Norway maple, tree-of-heaven (*Ailanthus altissima*), Japanese angelica-tree (*Aralia elata*), and European alder tree (*Alnus glutinosa*). Norway maple can grow approximately 40 to 60 feet in height and contains a shallow root system. The shallow root system of such a large deciduous tree competes with native wildflowers and shrubs in the understory. Additionally, the Norway maple produces excessive shade due to the dense canopy further degrading the native understory. Tree-of-heaven is an aggressive invasive with the ability to reproduce quickly, creating dense patches of trees that crowd out native plant species. Not only does it place added stress on native plants to compete for space, but it also secretes a chemical into the soil that is toxic to native species, effectively killing native plants near it. Within areas of the Kensico Campus along the shoreline of Kensico Reservoir a number of invasive species were noted. Invasive plant species identified within this specific area included Japanese barberry (*Berberis thunbergii*), Asian bittersweet (*Celastrus orbiculatus*), multiflora rose (*Rosa multiflora)*, Asiatic tearthumb or mile-a-minute vine (*Persicaria perfoliata*), porcelain berry (*Ampelopsis brevipedunculata)*, Japanese angelica-tree, Japanese amur and bush honeysuckles (*Lonicera japonica, L. maackii, L. tartarica*), and Norway maple. In addition, seven invasive species: common mugwort (*Artemisia vulgaris*), winged spindletree (*Euonymus alatus*), wine raspberry (*Rubus phoenicolasius*), Japanese stilt grass (*Microstegium vimineum)*, garlic mustard (*Alliaria petiolata*), jetbead (*Rhodotypos scandens*), and common reed (*Phragmites australis*) were noted within this area and are identified on NYSDEC's Prohibited and Regulated Invasive Species list (6 NYCRR Part 575; 2014) or are otherwise a commonly known exotic species in the region. Commonly known exotic species that occurred within this area of the campus included tree-of-heaven, European alder, white mulberry (*Morus alba*), and European privet (*Ligustrum vulgare*).

Wetlands, Open Water, and Floodplains

Wetlands

Within Kensico Campus, one palustrine wetland vegetative community (Shallow Emergent Marsh/Stormwater) was identified and mapped on site (**Figure 3.7-1**). In addition, the adjacent Kensico Reservoir is classified as a lacustrine cultural ~~vegetative~~ community

(Reservoir/Artificial Impoundment). See **Table 3.7-3** for the acreage of each community and **Table 3.7-4** for the dominant vegetation found within these communities. The Shallow Emergent Marsh/Stormwater (approximately 0.2 acre) is located in the field north of DEL Shaft 18. This area formed as a result of surface water sheet flow from the surrounding area being collected near abandoned storm drains in the field which created a ponded area. Wetland communities influenced by stormwater hydrology like the Shallow Emergent Marsh mentioned above are not regulated by the USACE. The lacustrine ~~vegetative~~ community within the Kensico Campus study area (approximately 9.0 acres adjacent to Kensico Campus) is a portion of Kensico Reservoir within approximately 50 feet of the shoreline.

Table 3.7-3. Wetland Community Cover – Kensico Campus

~~Vegetative~~ Community	Approximate Area (Acres)
Reservoir / Artificial Impoundment	9.0
Shallow Emergent Marsh/Stormwater	0.2

Table 3.7-4. Dominant Vegetation within Each Wetland Community – Kensico Campus

~~Vegetative~~ Community	Stratum	Common Name	Scientific Name
Reservoir / Artificial Impoundment	Herbaceous	Canadian Waterweed	*Elodea canadensis*
		Slender pondweed	*Potamogeton pusillus*
		American Eelgrass	*Vallisneria americana*
		Clasping Leaf Pondweed	*Potamogeton perfoliatus*
		Eurasian Watermilfoil	*Myriophyllum spicatum*
		Water Hedge Hyssop	*Gratiola* sp.
		Quillwort	*Isoetes* sp.
Shallow Emergent Marsh/Stormwater	Shrub/Sapling	Silky Dogwood	*Cornus amomum*
	Herbaceous	Broadleaf Cattail	*Typha angustifolia*
		Purple Loosestrife	*Lythrum salicaria*
		Pennsylvania Smartweed	*Persicara pennsylvanica*
		Swamp Rose Mallow	*Hibiscus moscheutos*

As discussed previously, a SAV survey was completed within Kensico Reservoir within 50 feet of the shoreline contiguous with the Kensico Campus. SAV provides potential habitat to a wide array of aquatic organisms including fish, amphibians, and invertebrates. It provides refuge, foraging habitat, and a niche for breeding and reproduction to a host of different species. Aquatic plants also release oxygen as a byproduct of photosynthesis and dissolved oxygen is essential to fish and other aquatic organisms.

SAV was observed within 50 feet of the shoreline (see **Figure 3.7-2**), and included Canadian waterweed (*Elodea canadensis*), pondweed (*Potamogeton* sp.), American eelgrass (*Vallisneria americana*), clasping-leaf pondweed (*Potamogeton perfoliatus*), quillwort (*Isoetes* sp.), Eurasian water-milfoil (*Myriophyllum spicatum)*, and hedge-hyssop (*Gratiola* sp.).

Within the Kensico Campus, no NWI mapped wetlands are present; however, NWI mapping shows three deepwater habitats in the reservoir contiguous to the Kensico Campus. Two Riverine Unknown Perennial deepwater habitats (R5UBH, associated with Kensico Reservoir) and one Lacustrine Limnetic deepwater habitat (L1UBHh, representing Kensico Reservoir) are mapped on site. There are no NYSDEC mapped wetlands or wetlands identified on the Town of Mount Pleasant Wetland Control District Maps.

Open Water

NYSDEC established the Protection of Waters Program to protect important watercourses of the State. NYSDEC has classified all waterbodies of the State according to their expected best usage. This classification determines whether a particular watercourse is regulated by the State.

Kensico Reservoir is a NYSDEC-regulated Class AA mapped open waterbody that is present immediately east and adjacent to the Kensico Campus. It is fed by the Catskill and Delaware aqueducts, as well as the immediate watershed and the Bronx River. Class AA waters are a source of water supply for drinking, culinary, or food processing purposes. The reservoir encompasses approximately 2,145 acres of area and is up to 144 feet deep. Kensico Reservoir receives surface runoff from a portion of the Kensico Campus, adjacent to the reservoir.

In addition, Clove Brook is located west of the Kensico Campus and Columbus Avenue. Clove Brook, which ultimately flows to Davis Brook, is approximately 0.4 miles southwest of the Kensico Campus. Davis Brook then discharges into the Bronx River which is approximately 1.2 miles southwest of Kensico Campus. Clove Brook and Davis Brook are classified as C(TS) – water supporting fisheries, suitable for non-contact recreation, and suitable for trout spawning. While outside the limits of the campus, Clove Brook currently receives hydrologic input consisting of surface runoff from a majority of the adjacent Kensico Campus.

Floodplains

Within the Kensico Campus, the entire shoreline of Kensico Reservoir is mapped as a 100-year floodplain by FEMA (see **Figure 3.7-3**).

Figure 3.7-2. Submerged Aquatic Vegetation Map – Kensico Campus

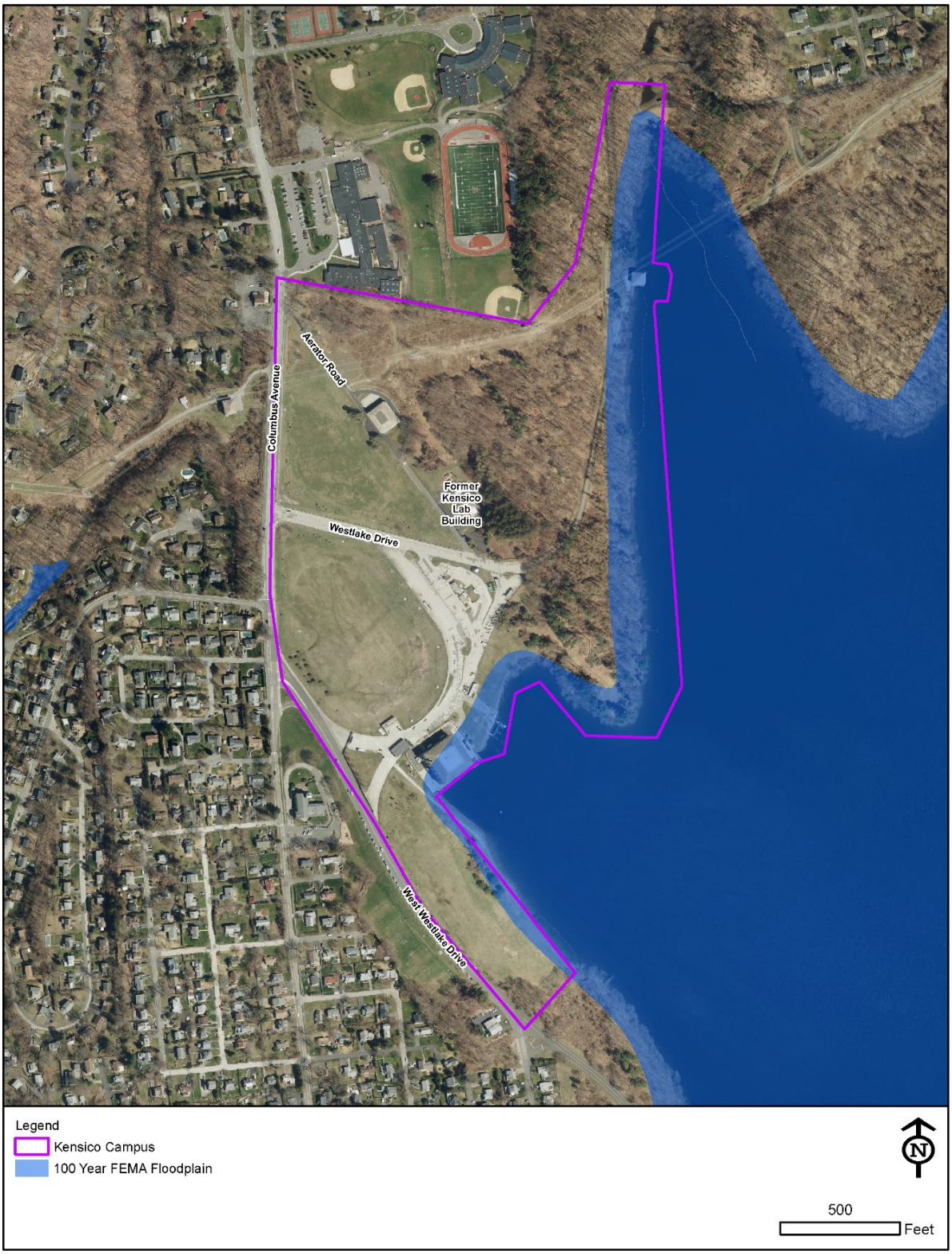


Figure 3.7-3. FEMA Floodplain Map – Kensico Campus

Wildlife

Within the Kensico Campus, 5 herptile, 40 avian, 10 mammalian species, and 1 marsupial were observed. Herptiles observed on site included eastern garter snake (*Thamnophis sirtalis*), snapping turtle (*Chelydra serpentina*), eastern red-backed salamander (*Plethodon cinereus*), northern two-lined salamander (*Euycea bislineata*), and green frog (*Rana clamitans*). Avian wildlife on site consisted of waterfowl, raptors, and passerines such as finches and wood warblers typical of mixed forests. Mammals observed on site included flying squirrel (*Glaucomys volans*), white-tailed deer (*Odocoileus virginianus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and red fox (*Vulpes vulpes*). Additional mammal species identified during wildlife surveys conducted at DEL Shaft 18 include coyote (*Canis latrans*), mink (*Neovison vison*), striped skunk (*Mephitis mephitis*), white-footed mouse (*Peromyscus leucopus*), and eastern cottontail rabbit (*Sylvilagus transitionalis*). Virginia opossum *(Didelphis virginiana)* was also observed at the Kensico Campus.

Kensico Campus is bound to the north, south, and west by educational, commercial, industrial, and/or residential development, and to the east by Kensico Reservoir. Movement of terrestrial species in and out of Kensico Campus is limited due to the surrounding land uses; however, a utility line right-of-way located on the northern portion of the Kensico Campus can serve as a wildlife corridor allowing connectivity with larger tracts of open space to the northeast.

Kensico Reservoir also supports a diverse population of fish that occur year round. In addition to naturally occurring species, the reservoir is stocked by NYSDEC yearly with over 8,000 brown trout (*Salmo trutta*). Lake trout were previously stocked but was curtailed when it was determined by NYSDEC there was sufficient natural reproduction in the reservoir. The most common species in the reservoir include chain pickerel (*Esox niger*), lake trout (*Salvelinus namaycush*), smallmouth bass (*Micropterus dolomieui*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), and redbreast sunfish (*Lepomis auritus*). Additionally, forage species, such as alewife (*Alosa pseudoharengus*) and rainbow smelt (*Osmerus mordax*) are found in the reservoir. While benthic macroinvertebrate sampling was not conducted in Kensico Reservoir; opportunistic observations included macroinvertebrates such as the mollusk eastern floater (*Pyganodon cataracta*), dragonfly larvae (suborder Anisoptera), and aquatic snails (Gastropoda).

Based upon field surveys within Kensico Reservoir adjacent to the Kensico Campus, the potential for lake trout spawning is low. Lake trout typically prefer a habitat consisting of deep coldwater and a rocky bottom that is free from sediment, to support spawning activities. No areas rated above poor, and in most instances, where rocky substrate was encountered, the rocks were embedded in the substrate and, therefore, do not provide the habitat the developing eggs require. The greatest coverage by rocky substrate occurred in the near-shore areas, where 53 percent of the stations had some coverage by rock substrate. In areas where rock occurred, the coverage

was low with 88 percent of the observations between 0 to 10 percent coverage. Only three stations sampled had rock coverage greater than 10 percent, two between 20 to 30 percent, and one between 70 to 80 percent. Gravel comprised 89 percent of all the rock type found with cobble comprising the rest.

Federal/State Threatened and Endangered Species and State Species of Special Concern

The USFWS IPaC report for Kensico Campus identifies Bald Eagle, Indiana bat, northern long-eared bat, and the monarch butterfly (a candidate threatened or endangered species) as potentially occurring on site. Potentially suitable Indiana bat and northern long-eared bat roost trees were observed during the 2020 field investigations. Marginally suitable monarch butterfly habitat was observed during the 2020 field investigation within the Mowed Roadside/Pathway (Utility ROW), Successional Shrubland and in the northwest corner of the Urban Structure/Mowed Lawn with Trees/Roads vegetative communities on the Kensico Campus. Suitable habitat for monarch butterflies includes open fields with a diversity of nectar-rich species that flower at various times of the year, from the beginning of summer through the end of fall. A necessary component within this habitat is milkweed, preferably the species *Asclepias syriaca,* which is the host plant of the monarch caterpillar.

The NYSDEC Nature Explorer database also identifies one listed species of concern, the Kentucky Warbler (*Geothlypis formosa*, State protected bird and protected under Migratory Bird Treaty Act). No optimal breeding habitat was observed on Kensico Campus, and this species was not observed during the 2020 field investigations or follow-up Breeding Bird Atlas surveys conducted during the spring of 2020 and 2021.

During the 2020 field investigation, Bald Eagle (State listed threatened) and Osprey (*Pandion haliaetus*, State listed species of special concern) were observed flying and vocalizing throughout Kensico Campus. Kensico Reservoir, bordering the campus, provides optimal foraging habitat for Bald Eagle and Osprey. Mature trees along the edge of Kensico Reservoir may provide nesting habitat for Bald Eagle. No raptor nests were observed during the 2020 field investigation. Construction of a new Bald Eagle nest was identified within an area east of the Kensico Campus, approximately 1,000 feet from the shoreline areas of the campus, with a nesting pair of Bald Eagles noted during the 2021/2022 winter season; however, observations conducted in summer 2022 and 2023 indicated the nest was not successful.

3.7.3.2 KEC Eastview Site

Terrestrial Communities

Within the KEC Eastview Site, five natural terrestrial vegetative communities (Maple-Beech Mesic Forest, Oak-Tulip Tree Forest, Successional Old Field, Successional Shrubland, and Successional Southern Hardwood) and three cultural vegetative communities (Unpaved Road/Pathway, Urban Structures/Mowed Lawn with Trees/Roads, and Successional Old Field

interspersed with Construction/Road Maintenance areas) were identified and mapped on site (**Figure 3.7-4**). **Table 3.7-5** presents the acreage of each community and **Table 3.7-6** identifies the dominant vegetation found within each community.

Table 3.7-5. Terrestrial Community Cover - KEC Eastview Site

Vegetative Community Type	Approximate Area (Acres)
Beech-Maple Mesic Forest	5.2
Oak-Tulip Tree Forest	1.3
Successional Old Field	8.7
Successional Old Field - Construction/Road Maintenance	15.9
Successional Shrubland	2.7
Successional Southern Hardwood	3.4
Unpaved Road / Pathway	2.5
Urban Structures/Mowed Lawn with Trees/Roads	38.9

Table 3.7-6. Dominant Vegetation within Each Terrestrial Community - KEC Eastview Site

Vegetative Community	Stratum	Common Name	Scientific Name
Beech-Maple Mesic Forest	Tree	Red Maple	*Acer rubrum*
		Norway Maple	*Acer platanoides*
		American Beech	*Fagus grandifolia*
	Shrub/Sapling	American Beech	*Fagus grandifolia*
		Black Cherry	*Prunus serotina*
		Sassafras	*Sassafras albidum*
	Herbaceous	Christmas Fern	*Polystichum acrostichoides*
		White Wood Aster	*Eurybia divaricata*
		Goldenrod	*Solidago* spp.

Table 3.7-6. Dominant Vegetation within Each Terrestrial Community - KEC Eastview Site

Vegetative Community	Stratum	Common Name	Scientific Name
Oak-Tulip Tree Forest	Tree	Norway Maple	*Acer platanoides*
		Sugar Maple	*Acer saccharum*
		Red Oak	*Quercus rubra*
		White Oak	*Quercus alba*
		Sweet Birch	*Betula lenta*
		Tulip Tree	*Liriodendron tulipifera*
	Shrub/Sapling	American Beech	*Fagus grandifolia*
		Ironwood	*Carpinus caroliniana*
		Spicebush	*Lindera benzoin*
		Black Cherry	*Prunus serotina*
		Hophornbeam	*Ostrya virginiana*
	Herbaceous	White Wood Aster	*Eurybia divaricata*
		Goldenrod	*Solidago* spp.
		Japanese Honeysuckle	*Lonicera japonica*
Successional Old Field	Tree	Black Locust	*Robinia pseudoacacia*
		Eastern Cottonwood	*Populus deltoides*
	Shrub/Sapling	Black Locust	*Robinia pseudoacacia*
		Eastern Cottonwood	*Populus deltoides*
	Herbaceous	Mugwort	*Artemisia vulgaris*
		Goldenrod	*Solidago* spp.
		Clovers	*Trifolium* spp.
Successional Old Field - Construction / Road Maintenance	Tree	Black Locust	*Robinia pseudoacacia*
		Eastern Cottonwood	*Populus deltoides*
	Shrub/Sapling	Black Locust	*Robinia pseudoacacia*
		Eastern Cottonwood	*Populus deltoides*
	Herbaceous	Mugwort	*Artemisia vulgaris*
		Goldenrod	*Solidago* spp.
		Clovers	*Trifolium* spp.
Successional Hardwood	Tree	Green Ash	*Fraxinus pensylvanica*
	Shrub/Sapling	Blackhaw viburnum	*Viburnum prunifolium*
		Common buckthorn	*Rhamnus cathartica*
		Apple	*malus spp.*
	Herbaceous	Goldenrod	*Solidago* spp.
Unpaved Road / Pathway	Herbaceous	Clovers	*Trifolium* spp.
Urban Structure Mowed Lawn with Trees/Roads	Tree	Eastern Red Cedar	*Juniperus virginiana*
	Herbaceous	Maintained Lawn	*Poaceae* spp.

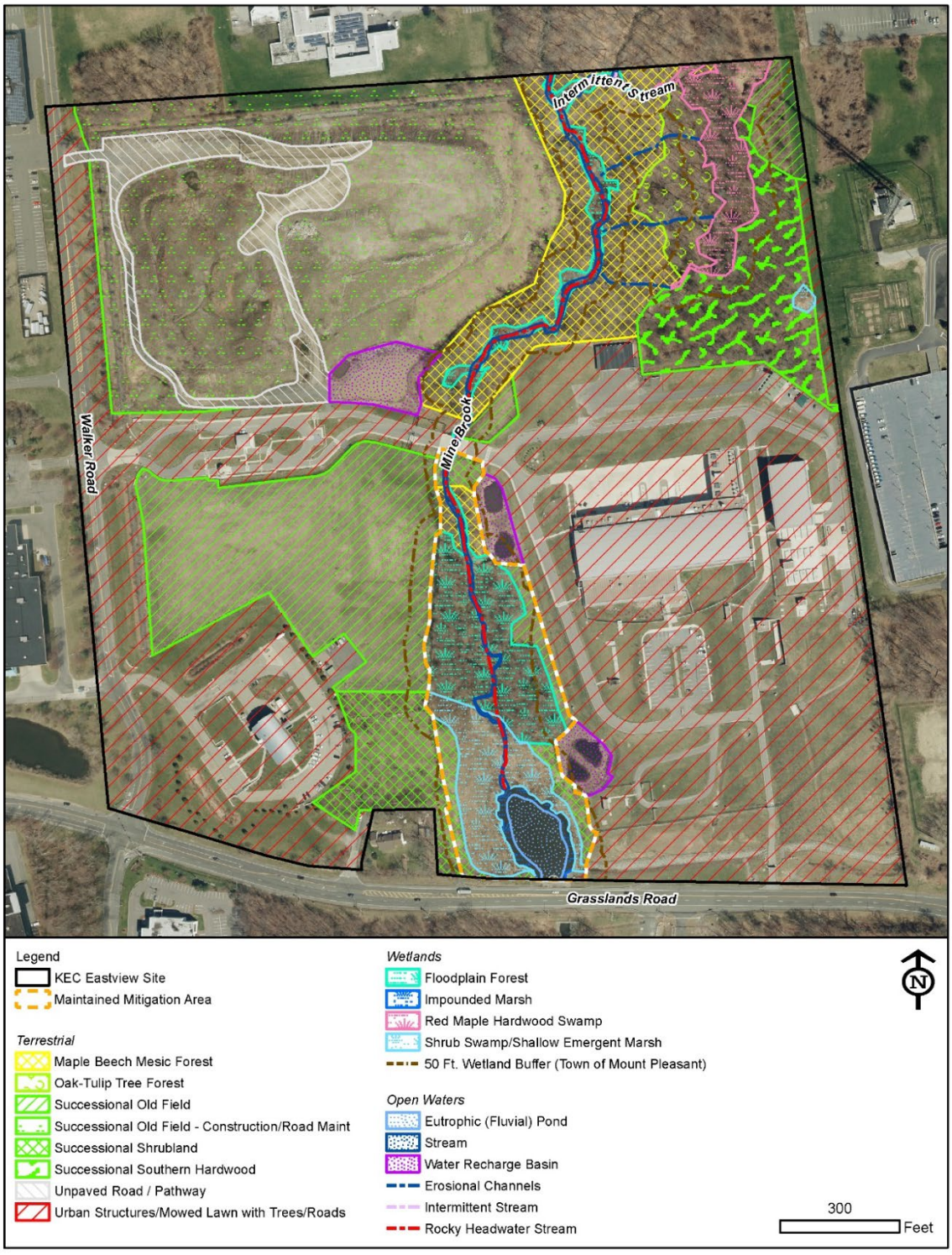


Figure 3.7-4. Terrestrial and Wetland Vegetative Community Map – KEC Eastview Site

Cultural vegetative communities comprise the vast majority of the site, covering approximately 57 acres. This includes the CDUV Facility and DEP 6th Precinct and their appurtenant features. The second largest vegetative community consists of the Successional Old Field and shrubland located between the CDUV Facility and the DEP 6th Precinct. This area encompasses approximately 11 acres. Upland forest makes up the third largest vegetative community complex with approximately 10 acres, which is predominantly located in the northeastern portion of the KEC Eastview Site. Additional communities, discussed below and presented in **Table 3.7-7**, comprised approximately eight acres of wetlands and open water.

Table 3.7-7. Wetlands and Open Water Community Cover - KEC Eastview Site

Community Type	Approximate Area (Acres)
Eutrophic Pond	0.5
Floodplain Forest	3.0
Impounded Marsh	0.3
Red Maple Hardwood Swamp	1.4
Shrub Swamp / Shallow Emergent Marsh/Stormwater	1.6
Stream	0.5
Water Recharge Basin	1.6

Over 3,550 trees were surveyed within the KEC Eastview Site. The most abundant species was green ash (*Fraxinus pensylvanica*, approximately 29 percent), followed by American beech (*Fagus grandifolia*, approximately 13 percent) and Norway maple (approximately 10 percent).

Green and white ash on site were heavily affected by emerald ash borer. Based upon visual assessments conducted during the tree inventory, the average health of ash trees within the KEC Project Area appeared to be 50 percent. This low health rating is directly correlated with the presence of emerald ash borer. Direct signs of emerald ash borer observed on site include thinning and dying ash tree crowns, heavy sprouting at the base of trees, blonding (damage caused by woodpeckers as they strip bark in search of ash borer larvae and pupae), and "D" shaped exit holes. In addition, evidence of ash yellows (*Candidatus Phytoplasma fraxini*) has been observed throughout the KEC Eastview Site over the past few decades, which causes a similar decline in ashes. Within the next five years, approximately one-third of the trees within the KEC Eastview Site are likely to decline to the point of mortality due to the number of ash trees observed to be infected by emerald ash borer on site, and the rapid spread and decline associated with emerald ash borer infestations.

Wetlands, Open Water, and Floodplains

Wetlands

Within the KEC Eastview Site, four palustrine wetland vegetative communities (Shallow Emergent Marsh/Stormwater, Shrub Swamp, Floodplain Forest, and Red Maple Hardwood Swamp), two palustrine cultural wetland vegetative communities (Impounded Marsh and Water Recharge Basin), one lacustrine wetland ~~vegetative~~ community (Eutrophic Pond), and two riverine wetland vegetative communities (Rocky Headwater Stream and Intermittent Stream) were identified and mapped on site (**Figure 3.7-5**). **Table 3.7-7** summarizes the acreage of each community and **Table 3.7-8** identifies the dominant vegetation found within each community. Floodplain Forest was the most prevalent wetland community encompassing approximately three acres. The Floodplain Forest is closely associated with the banks of Mine Brook in the northern portion of the project area, but this forest type expands beyond the banks of Mine Brook shortly after crossing the existing access road to the CDUV Facility. The Red Maple Hardwood Swamp, located in the northeast portion of the site, is connected to Mine Brook and the associated Floodplain Forest Wetland noted above via an intermittent stream and several erosional ditches (see **Figure 3.7-4**). In combination, this forested wetland complex encompasses approximately 3.5 acres. The Shrub Swamp / Shallow Emergent Marsh/Stormwater, Impounded Marsh, and Eutrophic (Fluvial) Pond make up the next largest wetland complex with approximately 2.4 acres of area that is a DEP-built and maintained wetland mitigation area that was previously constructed for a separate project.

Table 3.7-8. Dominant Vegetation within Each Wetlands and Open Water Community - KEC Eastview Site

Vegetative Community	Stratum	Common Name	Scientific Name
Eutrophic Pond	Herbaceous	Duckweed	*Lemna* sp.
Floodplain Forest	Tree	Black Gum	*Nyssa sylvatica*
		Green Ash	*Fraxinus pensylvanica*
	Shrub/Sapling	Norway Maple	*Acer platanoides*
		Slippery Elm	*Ulmus rubra*
		Multiflora Rose	*Rosa multiflora*
		Spicebush	*Lindera benzoin*
		Green Ash	*Fraxinus pensylvanica*
	Herbaceous	Skunk Cabbage	*Symplocarpus foetidus*
		Clearweed	*Pilea pumila*
		Jewelweed	*Impatiens capensis*
		Stout Woodreed	*Cinna arundinacea*

Table 3.7-8. Dominant Vegetation within Each Wetlands and Open Water Community - KEC Eastview Site

Vegetative Community	Stratum	Common Name	Scientific Name
Impounded Marsh	Herbaceous	Broadleaf Cattail	*Typha angustifolia*
		Purple Loosestrife	*Lythrum salicaria*
		Pennsylvania Smartweed	*Persicara pennsylvanica*
		Duckweed	*Lemna* sp.
Red Maple Hardwood Swamp	Tree	Red Maple	*Acer rubrum*
		Pin Oak	*Quercus palustris*
		Green Ash	*Fraxinus pensylvanica*
	Shrub/Sapling	Hophornbeam	Ostrya virginiana
		Spicebush	*Lindera benzoin*
	Herbaceous	Sensitive Fern	*Onoclea sensibilis*
		Stout Woodreed	*Cinna arundinacea*
Shallow Emergent Marsh/Stormwater	Shrub/Sapling	Silky Dogwood	*Cornus amomum*
	Herbaceous	Broadleaf Cattail	*Typha angustifolia*
		Purple Loosestrife	*Lythrum salicaria*
		Pennsylvania Smartweed	*Persicara pennsylvanica*
		Swamp Rose Mallow	*Hibiscus moscheutos*
Water Recharge Basin	Shrub/Sapling	Silky Dogwood	*Cornus amomum*
	Herbaceous	Broadleaf Cattail	*Typha angustifolia*
		Spotted Joe-pye-weed	*Eupatorium maculatum*

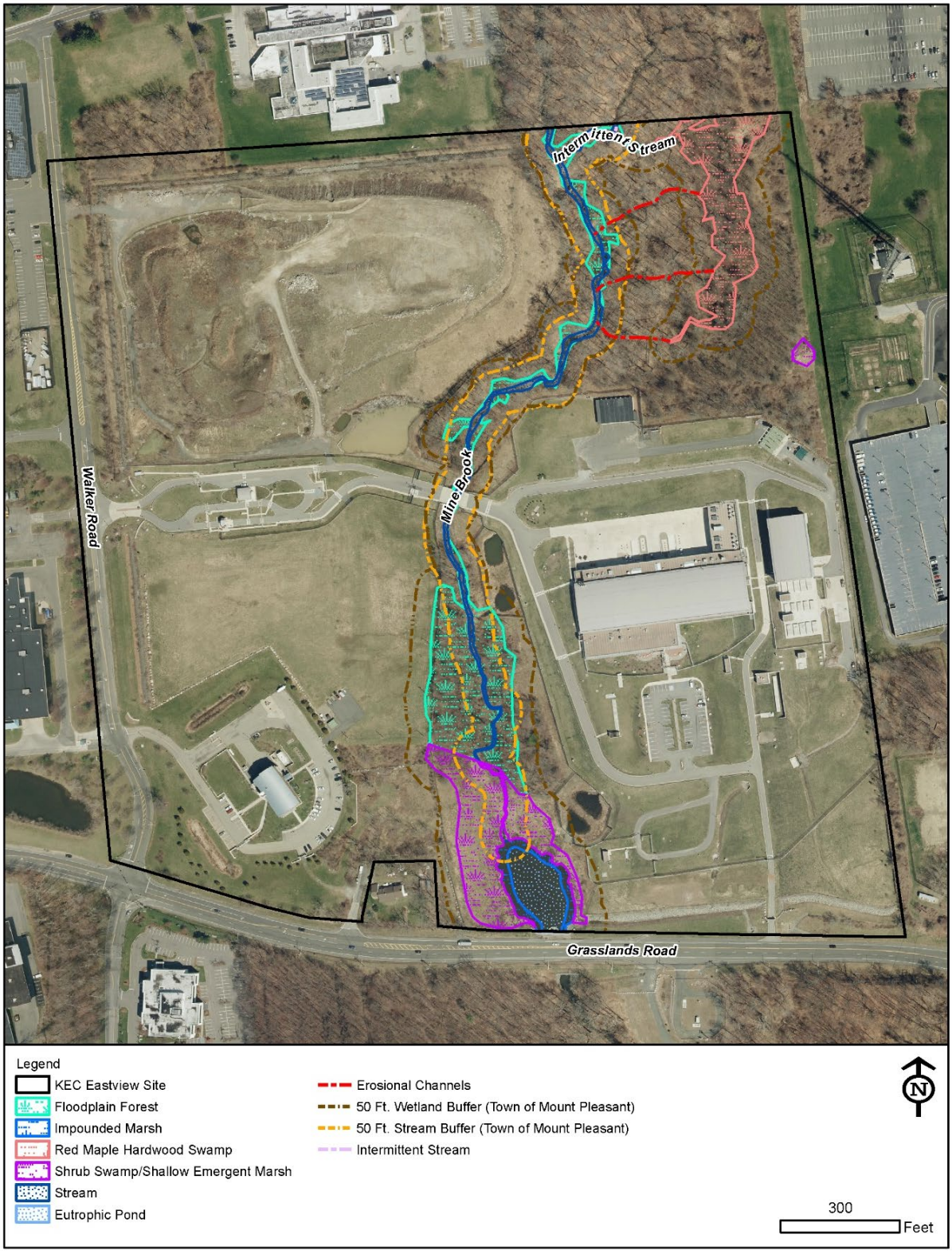


Figure 3.7-5. Wetland Delineation Map – KEC Eastview Site

A review of existing wetland maps of the KEC Eastview Site identified two wetlands mapped by NWI: a Palustrine Forested Wetland (PFO1C, associated with Mine Brook) and a Palustrine Emergent Wetland (PEM1E, associated with an impounded marsh resulting from the previous placement of a weir across Mine Brook near Grasslands Road). No NYSDEC mapped wetlands or wetlands identified on the Town of Mount Pleasant Wetland Control District Maps were noted. In addition to a review of existing maps, an on-site wetland delineation was performed to confirm the boundaries of the mapped wetlands and the presence or absence of additional features within the KEC Eastview Site. Based on the field delineation, wetland areas were primarily found in association with the Mine Brook riparian corridor (**Figure 3.7-5**) which was generally consistent with existing mapped wetland areas.

Open Water

One NYSDEC mapped waterway is present at the KEC Eastview Site. Mine Brook is a NYSDEC-designated Class C tributary of the Saw Mill River that runs in a north to south direction through the site. The best usage of Class C water is fishing, and Class C water is suitable for both fish propagation and survival. Class C watercourses are not regulated by NYSDEC unless they are trout associated waterbodies, which Mine Brook is not. In addition, an intermittent, unnamed tributary to Mine Brook was also identified during the field delineation efforts. Mine Brook and the intermittent stream to Mine Brook are not regulated by NYSDEC.

Floodplains

No FEMA-designated 100-year or 500-year floodplains are located within the KEC Eastview Site.

Wildlife

Field investigations identified 3 herptile, 43 avian, and 7 mammalian species at the KEC Eastview Site. Herptiles observed included the eastern garter snake (*Thamnophis sirtalis*), American toad (*Bufo americanus*) and green frog (*Rana clamitans*). Avian species observed included waterfowl, raptors, and passerines such as finches and wood warblers typical of mixed forests. Seven species of mammals, including groundhog (*Marmota monax*), white-tailed deer (*Odocoileus virginianus*), white-footed mouse (*Peromyscus leucopus*), gray squirrel (*Sciurus carolinensis*), eastern cottontail rabbit (*Sylvilagus transitionalis*), eastern chipmunk (*Tamias striatus*) and red fox (*Vulpes vulpes*) were observed.

The abundance and diversity of wildlife at the KEC Eastview Site appears to be severely limited by habitat fragmentation. Although the varying terrestrial communities present within the site can provide habitat to a wide variety of species, with the exception of birds, there is little chance of recruitment of new species, including threatened or endangered species, moving into the area. The KEC Eastview Site is bounded on its north, east, and west sides by existing commercial and institutional development which limit the existence of potential wildlife corridors. There is an

undeveloped property that is part of the City's overall property at Eastview on the south side of Grasslands Road that is contiguous with a utility right-of-way that can be utilized as a wildlife corridor, but this utility corridor is bounded on the east by the Sprain Brook Parkway and to the south by Cross Westchester Expressway (I-287) and is cut off from the KEC Eastview Site by Grasslands Road.

Due to size and limited water depth within the on-site Mine Brook, there is a very small population of minnows. Only a few fish were observed during field investigations, and none could be identified to species due to their size. A qualitative assessment of the macroinvertebrate population of Mine Brook was also conducted during the field assessments. Cobbles were picked up and closely observed for macroinvertebrate organisms. Larvae of organisms observed included mayflies (*Ephemeroptera*), caddis flies (*Trichoptera*), leeches (*Hirudinia*), dragonflies (suborder *Anisoptera*), damselflies (suborder *Zygoptera*), water strider (*Gerridae*) and water penny (*Psephenidae*). Each of the species observed, except the leech, is an indicator of good water quality. In general, Mine Brook contains habitat and water quality that is suitable for a diverse population of macroinvertebrates.

Federal/State Threatened and Endangered Species and State Species of Special Concern

The USFWS IPaC report for the KEC Eastview Site identifies the northern long-eared bat and monarch butterfly (a candidate threatened or endangered species) as potentially occurring on site. Potentially suitable northern long-eared bat roost trees were observed during the 2020 field investigations, a majority of which is located in the northeastern portion of the KEC Eastview Site. Suitable monarch butterfly habitat was observed during the 2020 field investigation within the Successional Shrubland vegetative community in the southern portion of the KEC Eastview Site and the Successional Old Field in the northeast corner of the site. Suitable habitat for monarch butterflies includes open fields with a diversity of nectar rich species that flower at various times of the year, from the beginning of summer through the end of fall. A necessary component within this habitat is milkweed, preferably the species *Asclepias syriaca,* which is the host plant of the monarch caterpillar.

The NYSDEC Nature Explorer database identifies one listed species of concern, the Kentucky Warbler (State protected bird and protected under Migratory Bird Treaty Act). No optimal breeding habitat was observed at the KEC Eastview Site, and this species was not observed during the 2020 field investigations.

During the 2020 field investigation, Bald Eagle (State listed threatened), Osprey (*Pandion haliaetus*, State listed species of special concern), and Red-shouldered Hawk (*Buteo lineatus*, State listed species of special concern) were observed flying and vocalizing above the KEC Eastview Site.

3.7.4 FUTURE WITHOUT THE PROPOSED ACTION

In the future without the Proposed Action, natural processes, such as changes in habitat due to ecological succession, are anticipated to continue as would naturally occur in those areas of the Kensico Campus and KEC Eastview Site that are not currently maintained as structures, roadways, or open lawn. Ecological succession is the process by which a vegetative community changes over time in the absence of outside disturbance. As ecological succession occurs, the structure of the vegetative community may become more complex and vertically stratified as new species are recruited to the area and existing species mature. Habitats subject to ecological succession may be able to support more wildlife over time due to an increase in vegetative biodiversity and the presence of larger trees and shrubs. As the on-site forested portions of both sites are relatively isolated within the surrounding area, the potential for new species to migrate to the sites is limited. Birds, herptiles, and mammals that currently exist on site would benefit the most in this situation.

Due to the nature of immediately adjacent land uses at the Kensico Campus and KEC Eastview Site, without active management the potential for the introduction of invasive species to the sites exist. Significant invasive species pressure already exists on site, especially within the Kensico Campus as described in Section 3.7.3.1, "Kensico Campus." Invasive species could further invade and decrease vegetative biodiversity in the future without the Proposed Action.

3.7.4.1 Kensico Campus

In the future without the Proposed Action, several DEP projects would be developed at the Kensico Campus. These include a new Waterfowl Management Program Building that would replace temporary facilities, the Kensico Regional Headquarters that involves rehabilitation of the existing laboratory building and several minor projects at DEL Shaft 18. None of these projects are anticipated to result in significant alteration of existing habitats, vegetative communities, or wetlands and do not include significant tree removal. Therefore, these projects are not expected to significantly alter natural resources in the future without the Proposed Action from their current conditions.

The majority of the natural vegetative communities on the Kensico Campus consist of Oak-Tulip Tree Forest. In the future without the Proposed Action, little to no change is anticipated to occur in this mature forested habitat over the next few decades unless a significant natural disturbance, such as a large hurricane, strikes the area. Invasive species populations would expand in the absence of management, degrading forest, and habitat quality. Eventually, successional processes would lead to the death of mature individual trees and the gradual replacement with new, shade-tolerant tree and shrub species, and additional invasive exotic species.

Water quality within Kensico Reservoir is not anticipated to change significantly in the future without the Proposed Action. Surface water runoff from on-site and off-site areas would largely

continue as it does today with the potential risk for additional shoreline erosion if significant storm events were to occur. It is anticipated, however, that in the future without the Proposed Action, the reservoir would continue to support a similar aquatic faunal population, consisting primarily of fish and benthic macroinvertebrates.

3.7.4.2 KEC Eastview Site

In the future without the Proposed Action, DEP plans to install new cleanout access locations and modify an existing manhole associated with the underdrain piping at the CDUV Facility. In addition, placement of a solar canopy over an existing parking lot at the KEC Eastview Site and on the roof of the CDUV Facility may be advanced. These projects would occur within previously developed areas and therefore natural resources in the future without the Proposed Action would be unaffected.

Several off-site non-DEP projects would also occur in the future without the Proposed Action. These would include the Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, and the Regeneron Greenburgh Expansion. These projects would all be located approximately one-half mile west of the KEC Eastview Site and would likewise not result in any significant change in natural resources at or in close proximity to the KEC Eastview Site.

As approximately one-third of the trees on the KEC Eastview Site are ash trees, many with current evidence of infestation by the emerald ash borer, it is likely that many of the on-site ash trees, even with potential intervention, would die within three to five years, thereby altering the characteristics of the on-site forests. A reduction in tree cover due to ash tree die-off would potentially alter the plant (i.e., displacing shade-tolerant species) and animal (i.e., displacing forest dwelling species) communities on site.

In the future without the Proposed Action, water quality within Mine Brook would be expected to remain the same and continue to support a similar aquatic faunal population, consisting primarily of macroinvertebrates, fish, and amphibians.

No substantive change to groundwater and surface conditions would occur. Groundwater and surface water modeling show that in the future without the Proposed Action, the Red Maple Hardwood Swamp wetland would continue to meet wetland hydrology criteria for wet and normal years and would not meet the criteria for the dry year scenario. During the dry year scenario, a significant drop in the water level during the summer months would be expected to occur naturally without the Proposed Action. The Floodplain Forest Wetland would meet the wetland hydrology criteria for the wet, normal, and dry years. The Mine Brook streamflow overbank contribution to the wetland would continue to be sufficient to sustain wetland hydrology throughout the growing season, and it is expected that the area would continue to meet the wetland hydrology criterion in the future without the Proposed Action.

3.7.5 FUTURE WITH THE PROPOSED ACTION

3.7.5.1 Kensico Campus

Terrestrial Communities

Construction of the Proposed Action would affect several vegetative communities at the Kensico Campus. Two natural terrestrial vegetative communities (Oak-Tulip Tree Forest and Successional Shrubland), three cultural vegetative communities (Urban Structures/Mowed Lawn with Trees/Roads, Mowed Roadside/Pathway, and Spruce/Fir Plantation), and one palustrine wetland vegetative community (Shallow Emergent Marsh/Stormwater) would be affected by the construction and modification of facilities and structures on the Kensico Campus. In addition, construction activities would also affect Kensico Reservoir.

None of the terrestrial habitats that would be affected by the Proposed Action are rare or unique, and additional areas of these habitats are found off site and in the vicinity of the Kensico Campus. Areas disturbed by the Proposed Action, outside of locations of new impervious surfaces (i.e., buildings, pavement, riprap), would be revegetated with a mix of native trees, shrubs, and appropriate native perennials/groundcovers. These would continue to provide some wildlife habitat as well as stormwater infiltration/transpiration and soil stabilization.

The Proposed Action would result in the clearing of approximately 30 acres of the Urban Structures/Mowed Lawn with Trees/Roads vegetative community, approximately 18 acres of the Oak-Tulip Tree Forest vegetative community, and one acre or less of the Mowed Roadside/Pathway, Spruce/Fir Plantation, and Successional Shrubland vegetative communities. A summary of these effects is provided in **Table 3.7-9** and on **Figure 3.7-6**.

Table 3.7-9. Terrestrial Community Affected Areas - Kensico Campus

Community	Approximate Area Disturbed (Acres)
Active Construction / Riprap / Artificial Lakeshore	1.4
Mowed Roadside / Pathway	1
Oak-Tulip Tree Forest	18
Spruce/Fir Plantation	0.8
Successional Shrubland	0.8
Urban Structures / Mowed Lawn with Trees/Roads	30

Figure 3.7-6. Terrestrial and Wetland Vegetative Community Affected Areas – Kensico Campus

Based upon a review of New York State Natural Heritage Program (NY~~S~~NHP) information, Oak-Tulip Tree Forest is considered secure globally but somewhat limited in the State. Spruce/Fir Plantation, Urban Structures/Mowed Lawn with Trees/Roads, and Mowed Roadside/Pathway vegetative communities are unranked and distributed widely throughout New York State. None of the anticipated effects to vegetative communities at the Kensico Campus, however, are currently described as critically imperiled globally or as having very few acres remaining in the State by NY~~S~~NHP.

As part of the effects associated with these vegetative communities, tree removal would be required as part of the Proposed Action. Approximately 2,250 trees would be removed from the Kensico Campus site (see **Figure 3.7-7**). This tree removal would occur over different construction phases ~~in~~ around January 2024 and/or 2025. Tree removal activities would be coordinated to the extent possible with work period restrictions associated with the Indiana bat and northern-long eared bat (April 1 to ~~September 30~~ October 31). For the restrictive window for Indiana bat and northern-long eared bat, tree removal would be conducted between ~~October~~ November 1 and March 31; however, if tree clearing cannot be confined to the appropriate window further coordination with NYSDEC and/or USFWS may be required. Trees may initially be cut and then the remaining stumps could be removed as each of the remaining phases of construction are advanced. Tree cutting with later removal of stumps would serve to limit potential runoff concerns associated with full scale tree clearing activities that would have more extensive soil disturbance. The Proposed Action would include the replanting of trees within the campus that meets or exceeds the Town's ordinance requirements.

Of the 18.8 acres of existing forested area[25] on the Kensico Campus, approximately 5.6 acres would remain undisturbed, resulting in the removal of 13.2 acres of forested areas (see **Figure 3.7-7**). As part of the Proposed Action, new landscaping would be installed on the Kensico Campus. The proposed landscaping would include areas of native trees and shrubs including approximately 3.9 acres of new reforestation. Therefore, there would be a total of 9.5 acres of forested area upon completion of construction. The net loss of forested area due to the Proposed Action would therefore be approximately 9.3 acres.

In addition, the Town of Mount Pleasant regulates the removal of trees in accordance with Chapter 201: Tree Preservation Ordinance of the Town of Mount Pleasant. Trees are defined in the Town code as, "any woody plant having at least one well-defined trunk at least four inches dbh and having a clearly defined crown." Tree restoration (as opposed to forest replacement as discussed above) is also required by the Town of Mount Pleasant. Based on the Town's regulations, the Proposed Action would be required to replant approximately 1,880 trees. The planting plans for Kensico Campus would include at least 1,880 trees and would meet

[25] The United Nations' FAO defines a forest as, "Land spanning more than 0.5 hectares (1.2 acres) with trees higher than 5 meters (16 feet) and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ."

Figure 3.7-7. Tree and Forest Impacts – Kensico Campus

the Town's tree restoration requirements. Prior to implementation, the landscaping plan would be subject to review and approval by the Town as part of required site plan approvals.

Removal and control of invasive species is essential to improving forest health and maintaining the high-water quality of Kensico Reservoir. Invasive plants are an ever-growing threat to natural areas. Federal and State invasive laws define invasive species as non-native or alien species whose introduction is likely to cause economic or environmental harm or harm to human health. Invasive plants are non-native species that have been introduced for agricultural, horticultural, and medicinal purposes, and have managed to escape cultivation. Invasive plants such as mugwort, Japanese knotweed (*Reynoutria japonica*), and common reed grass are very prolific and can easily displace native plants, altering native species composition and ecosystem function, unless management to remove the invasives and re-introduce appropriate native species is undertaken. The removal of some invasive species would potentially reduce the seed source to the remaining nearby forested areas at the Kensico Campus. The Proposed Action would remove approximately 350 trees of invasive species and numerous areas of invasive shrubs and vines. Removed vegetation would be replaced with native species, thus improving the overall quality of the vegetation on the Kensico Campus. In addition, best management practices such as properly cleaning equipment prior to entering construction sites, the use of clean fill, and utilizing approved seed mixes for stabilization would prevent the introduction of new invasive species during proposed construction activities. The Proposed Action would meet Town of Mount Pleasant requirements for tree restoration at the Kensico Campus and would include new landscaping and reforestation efforts (3.9 acres) adjacent to existing contiguous forested areas across the site. A net loss of approximately 9.3 acres of forest, however, would be anticipated as part of the Proposed Action. This would be considered a significant adverse impact. A discussion of the mitigation efforts to be implemented to address this impact is provided within Chapter 9, "Mitigation."

Wetlands, Open Water, and Floodplains

The Proposed Action would result in impacts to wetlands and surface water primarily within or immediately adjacent to Kensico Reservoir. Impacts would occur due to regrading within portions of the upland areas of the Kensico Campus, proposed shoreline stabilization activities along the shoreline of the reservoir adjacent to the campus, removal of accumulated sediments required as part of UEC improvements to support a new design capacity of up to 2,645 mgd, and for the removal and replacement of a turbidity curtain within Kensico Reservoir to manage turbidity associated with Malcolm Brook.

Kensico Campus Site Preparation

As described in Section 3.1, "Construction ," significant regrading of the areas to the east and west of Aerator Road would occur as part of the Proposed Action. Within the area west of Aerator Road, the disturbance of approximately 0.2 acres of Shallow Emergent

Marsh/Stormwater vegetative community would be required. This area is located within the area of maintained lawn grass south of Westlake Drive and north of DEL Shaft 18 (see **Figure 3.3-1**). Shallow Emergent Marsh is considered globally secure and secure in New York State. This small wetland community developed as a result of drainage associated with abandoned stormwater infrastructure within a limited area and as it is man-made, it is not subject to regulation by the USACE or NYSDEC. The abandonment of the stormwater drainage features in this area resulted in a ponded or wet area that has developed characteristics of this vegetative community. As a result, no significant effects would be associated with the loss of this area or to this community. No effects to any wetland communities described as rare by NYSNHP would occur at this location or elsewhere within the campus.

Shoreline Stabilization

As discussed in Chapter 1, "Project Description," the Proposed Action would include the completion of shoreline stabilization along the western shore of Kensico Reservoir. Prior shoreline stabilization efforts are currently in construction north and south of DEL Shaft 18 and the KEC Project would include the extension of this area approximately 1,600 linear feet to the north, terminating immediately south of the UEC. This construction would include work within and immediately adjacent to the reservoir with final stabilization of the shoreline consisting of a combination of regrading, excavation, riprap placement, concrete curb walls, gabion walls, and upland plantings. As part of the construction, temporary sheet pile and/or cofferdam would need to be placed along the length of the proposed shoreline stabilization to facilitate construction activities landward of the sheeting and/or cofferdam which would be removed upon the completion of construction.

Proposed construction would impact open water and existing local SAV populations. Impacts would primarily consist of the conversion of areas of open water and SAV to different communities as summarized in **Table 3.7-10**, **Figure 3.7-8,** and **Figure 3.7-9**. SAV habitat loss would also occur in areas temporarily disturbed by the placement of temporary sheeting that would be utilized during construction. If recolonization of SAV in temporarily impacted areas is observed, it would be documented. Permanent loss of SAV would occur in areas where riprap would replace the natural reservoir bottom that currently contains SAV (approximately 0.78 acres) or an SAV area is converted to upland (0.01 acres). The shoreline stabilization would therefore result in permanent impacts to approximately 0.79 acres of SAV. Permanent loss of SAV would also occur in areas the UEC inlet channel with the removal of accumulated sediment (approximately 0.2 acres), see description below. As a result, a total of 0.99 acres of SAV would be impacted.

Table 3.7-10. Wetland and Open Water Impacts - Kensico Campus

Community	Construction Activity	Type of Disturbance	Approximate Area Impacted (Acres)
Open Water	Shoreline Stabilization	Open Water to Upland	0.01
Open Water	Shoreline Stabilization	Open Water to Inundated Riprap	1.33
SAV	Shoreline Stabilization	SAV to Upland	0.01
SAV	Shoreline Stabilization	SAV to Inundated Riprap	0.78
SAV	Removal of Accumulated Sediments	SAV to Open Water	0.20

Likewise, loss of existing open water would also occur due to shoreline stabilization through its conversion to upland or inundated riprap (see **Table 3.7-10**). The installation of riprap and/or regrading of the shoreline would not result in a significant loss of surface water area in the reservoir, approximately 0.01 acres due to conversion to upland. An additional 1.33 acres of open water, however, would be impacted by the shoreline stabilization through the conversion of open water to inundated riprap. As a result, a total of 1.34 acres of open water would be impacted.

In-water construction activities (e.g., sheet pile or cofferdam placement) would be conducted in accordance with applicable environmental work restrictions as required, such as warmwater fisheries requirements (March 1 to July 15~~May 1 to June 30~~). As part of overall shoreline stabilization construction activities, additional measures would be put in place to limit potential impacts to reservoir water quality. Placement of temporary sheet pile would result in temporary impact to existing sediments but is intended to isolate construction activities from the larger reservoir to allow for construction to occur in the dry or wet behind the sheet piling. In the dry construction typically entails the creation of a watertight construction area through the placement of steel sheet piling and/or cofferdams in conjunction with dewatering to create a largely dry working condition. Alternatively, in the wet construction uses the placement of non-watertight steel sheet piling to limit, but not eliminate, the inflow of water in conjunction with active dewatering. In addition, a series of three turbidity curtains would be put in place on the waterward side of the sheet piling, approximately six feet apart, and water quality monitoring of turbidity and/or other parameters would be conducted to be protective of water quality conditions.

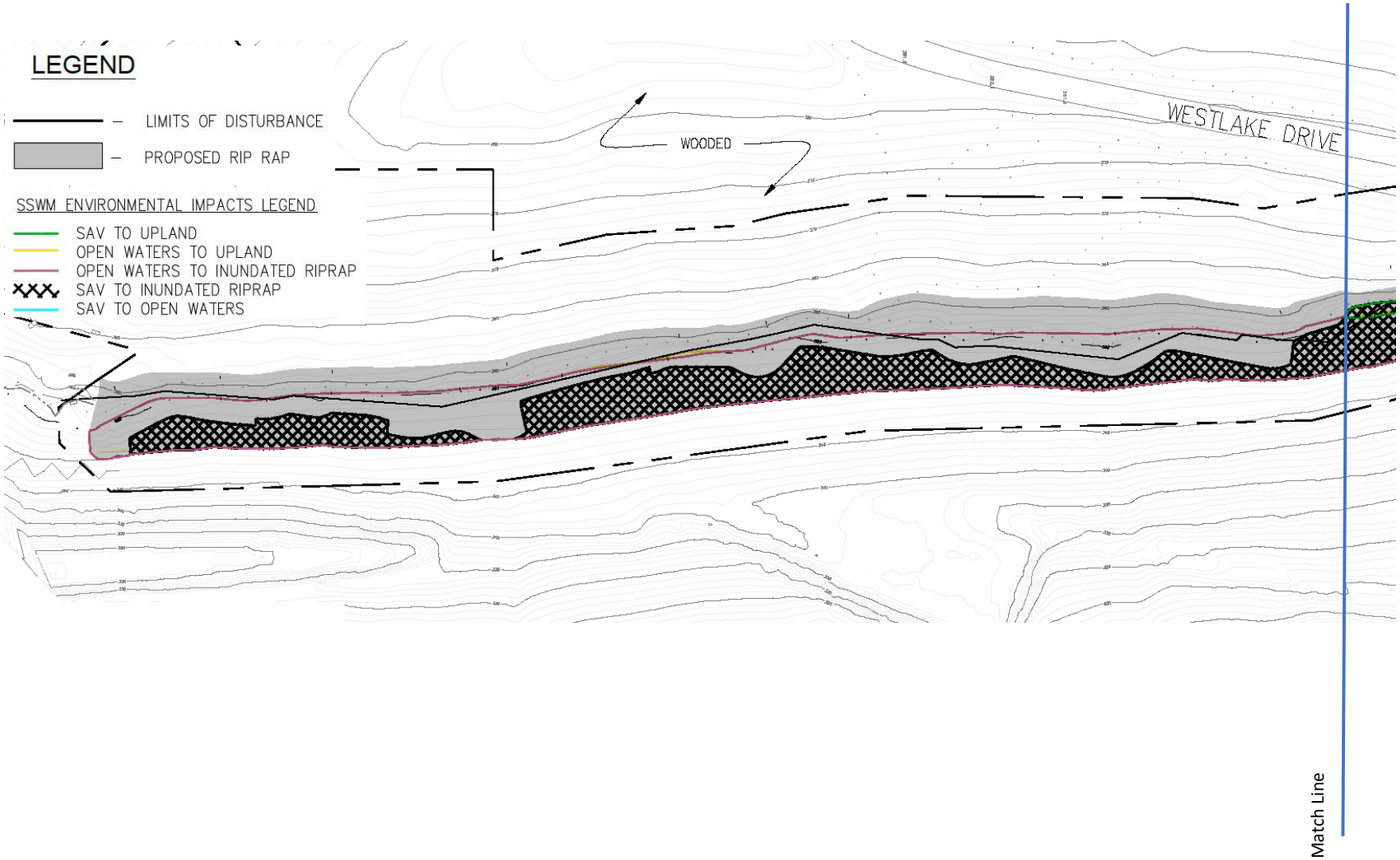


Figure 3.7-8. Wetland and Open Water Impacts – Kensico Campus

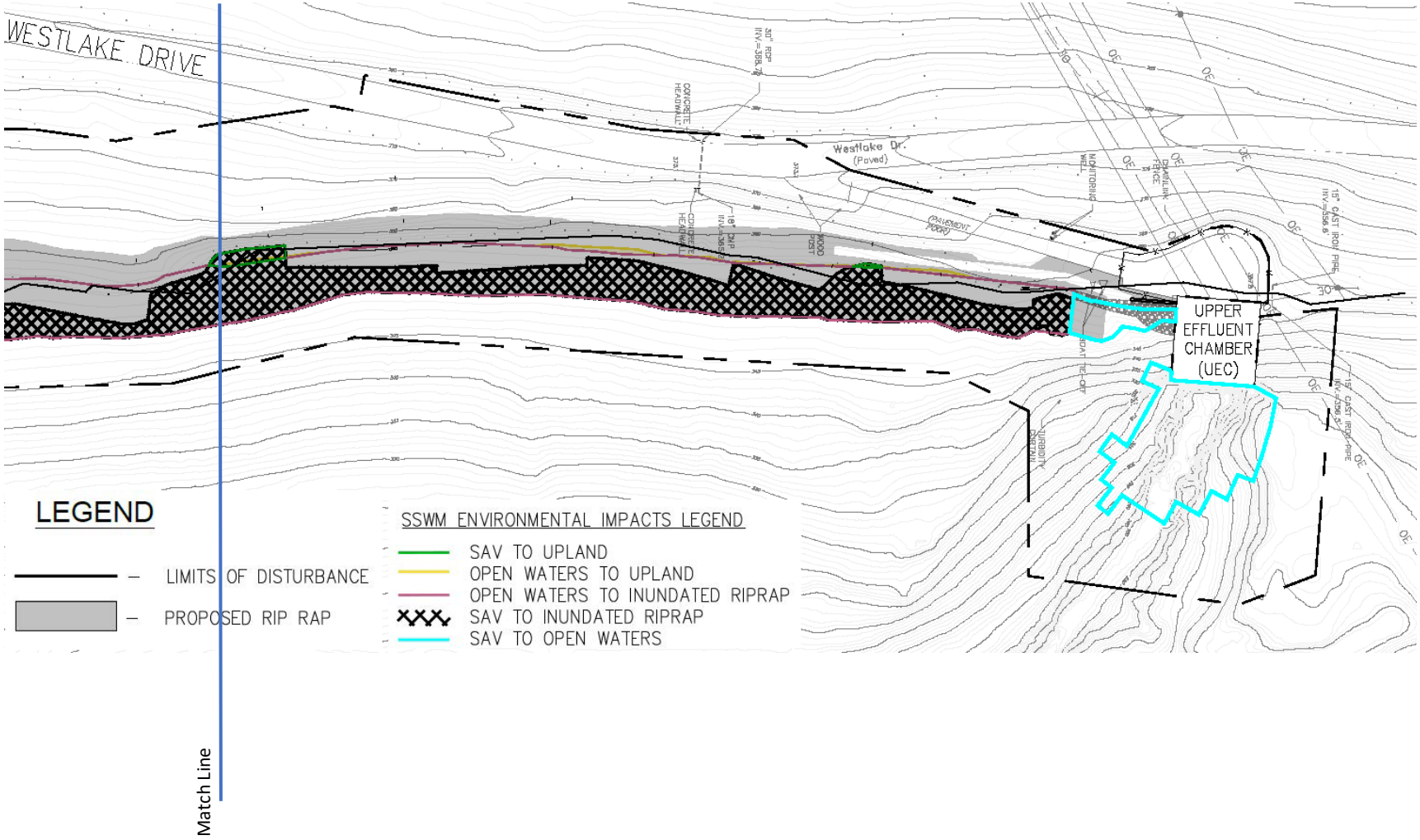
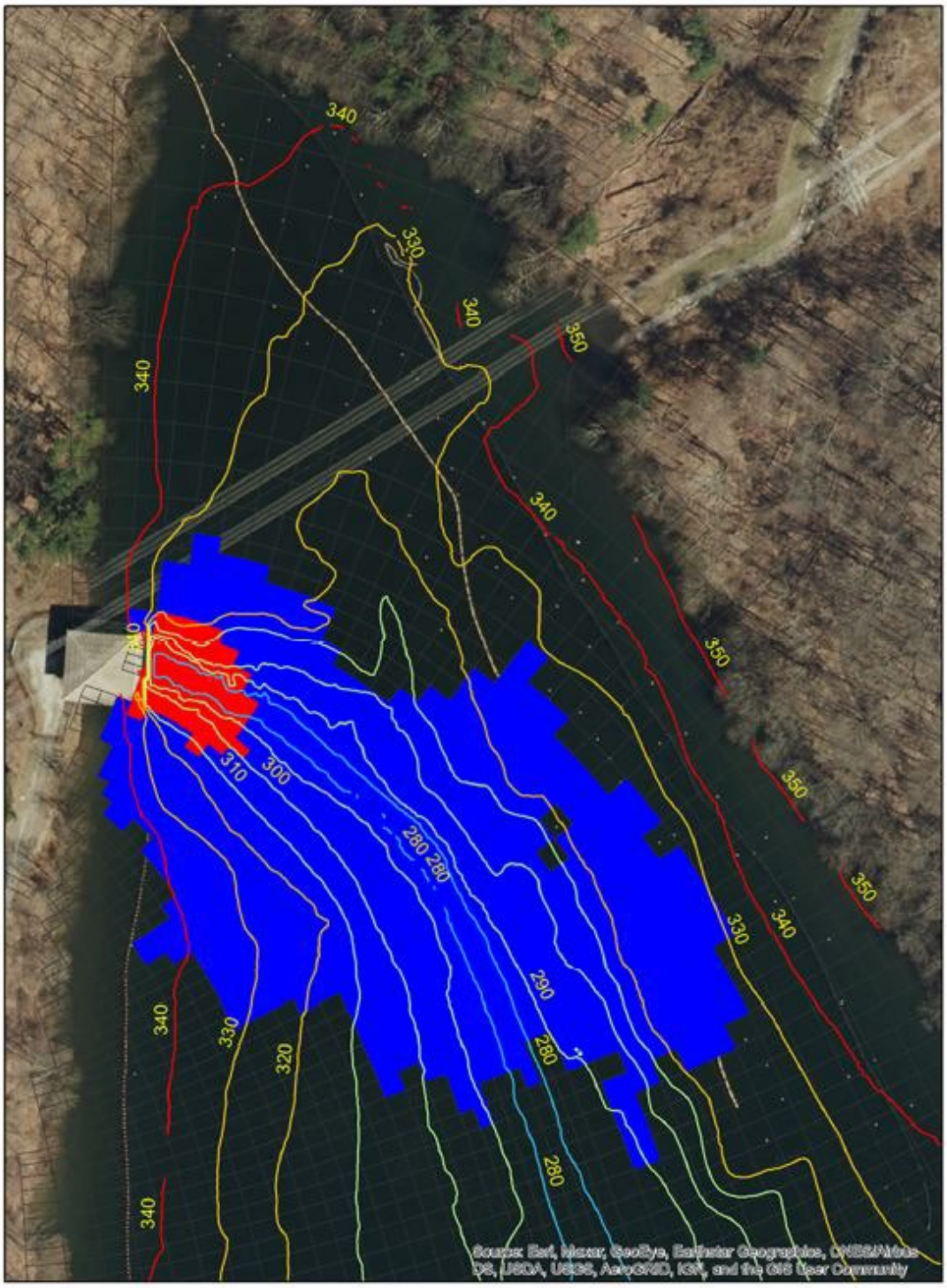


Figure 3.7-9. Wetland and Open Water Impacts – Kensico Campus

Removal of Accumulated Sediment

Removal of accumulated sediment within the UEC inlet channel is required to remove sediment and materials from Kensico Reservoir, to limit potential resuspension of sediments during future operation of the improved UEC, and for a small element of the shoreline stabilization work efforts immediately adjacent to the UEC. The extent of required sediment removal was conservatively estimated through the use of detailed modeling of the area in proximity to the UEC. Detailed hydrodynamic and sediment transport modeling of the potential for sediment resuspension with operation of the improved UEC was completed for a range of potential intake flows including the design flow capacity of 2,645 mgd. As the modeling efforts did not show significant differences in the area, depth, and/or volume of accumulated sediment required across these flows, the removal of accumulated sediments required for an intake flow of 2,645 mgd was used. One time project-related dredging of approximately 1,000 cubic yards of dredged material would be required over an area of approximately 0.2 acres. Two areas are proposed to be dredged (see **Figure 3.7-9**). The first area is adjacent to the existing UEC and includes removal of accumulated sediments from existing riprap south of and adjacent to the UEC in the shoreline stabilization area. The second area is in the existing UEC intake channel adjacent to the UEC. Removal of accumulated sediments in this area would be conducted over a range of depths between two and 90 feet below the water surface (see **Figure 3.7-10**). Sediment removal of the UEC intake channel would remove sediments to the limits of the existing channel which was cut into bedrock.

Diver-assisted dredging would be used for the removal of accumulated sediments from both the intake channel area and existing riprap. Project-related dredging would be performed by professional divers using a submersible hydraulic pumping system. The diving crew would hydraulically dredge sediments within the dredge area through a six-inch diameter intake pipeline. The intake pipeline would be connected to a hydraulic submersible pump equipped with a diesel driven power pack. The removed sediments would then be pumped to an upland area for dewatering. Water removed from these sediments would be treated as required and either returned to Kensico Reservoir or discharged to the municipal sewer consistent with required approvals and discharge requirements (e.g., DEP, NYSDEC, and/or Town of Mount Pleasant). The dewatered sediment would be subsequently transported by truck for off-site reuse or disposal at an approved landfill facility. Removal of accumulated sediments is anticipated to require between 15 and 20 days to complete and would be conducted in accordance with DEP or NYSDEC restrictions related to in-water construction activities and/or protection of water supply quality.



Proposed extent of intake channel area to be dredged (in red).
Area with potential for limited erosion of surficial fine sediments (in blue)
Contour lines indicate elevations in feet relative to NAVD88.

Figure 3.7-10. Proposed Extent of UEC Inlet Channel Removal of Accumulated Sediment

Construction activities would also include the use of best management practices typically used for turbidity control during removal of accumulated sediment, specifically, deployment of a turbidity curtain around the dredge area. In addition, an oil boom would be deployed around the dredge launch platform to protect against a potential spill of fuel or hydraulic oil from the platform. Double containment would also be provided on the dredge launch for all fuels, oils, etc. required by the sediment removal operation. As required, water quality monitoring during sediment removal would also be conducted.

In order to conservatively assess the potential impact of removal of accumulated sediment to wetlands, the 0.2 acres of sediment removal was assumed to be comprised of SAV. An additional 0.2 acres of SAV impact would therefore result from proposed sediment removal and is presented in **Table 3.7-10** above.

Malcolm Brook Turbidity Curtain

As part of the Proposed Action, DEP would also replace approximately 950 linear feet of turbidity curtains that are reaching the limit of their useful life. The existing curtains provide protection from turbidity events associated with Malcolm Brook located at the head of the cove. Two existing turbidity curtains (eastern and western) and one floating boom adjacent to the UEC currently exist within the cove area. The two existing Malcolm Brook turbidity curtains extend south from the mouth of Malcolm Brook. Flow from Malcolm Brook is channeled between the two curtains and is directed away from the UEC to the larger body of Kensico Reservoir. To support the increased intake flows at the UEC, the existing Malcolm Brook turbidity curtains and UEC boom would be removed and replaced. Similar to the existing curtains, the proposed single wall turbidity curtain would be held in place using concrete anchors placed at intervals along its length. The new, single curtain would generally be installed between the locations of the two existing curtains and extend for a length of approximately 1,300 linear feet. See Chapter 1, "Project Description," for the location of the turbidity curtains.

Removal and replacement of the turbidity curtains would not be anticipated to result in significant impact or disturbance to natural resources. The turbidity curtain would be within the 660-foot radius from the current Bald Eagle nest; however, the work is not anticipated to be completed during work period restrictions. In addition, if necessary, DEP would implement appropriate measures that may be required to be protective of this species. A floating work platform within the reservoir would be used to facilitate the removal of the existing curtains and the placement of the new curtain. The new curtain would be assembled in segments at an upland staging area, then hoisted onto the floating platform and transported to the placement location. It is anticipated that once in place, workers would be able to place the curtain within the reservoir and then divers would connect the turbidity segments to one another and subsurface anchors. The extent of disturbance to the reservoir bottom would be limited and of short duration and as a result no significant impact to natural resources within the reservoir is anticipated.

Floodplains

Although the Proposed Action is located within a FEMA-designated Zone A, primarily adjacent to and immediately west of the reservoir (see **Figure 3.7-3**), it would not alter the risk of flooding, nor would it be adversely affected by floodwater. The Proposed Action would not result in the construction of any new structures in the 100-year floodplain. The Proposed Action would not result in significant adverse impact to floodplains, nor would it be impacted by flooding.

The shoreline stabilization would be located within the Zone A designation; however, it is intended to complete previous shoreline stabilization efforts that are being put in place to address historic erosion associated within significant storm events. This element of the KEC Project would be protective of the shoreline areas, reduce potential erosion and improve water quality due to a reduction in sediment and suspended solids associated with erosion. The shoreline stabilization has also been designed to account for potential higher reservoir pool elevations associated with storms, climate change or other events in order to minimize any potential effects to flooding.

In summary, the Proposed Action would not result in significant impacts to floodplains. Proposed shoreline stabilization and required removal of accumulated sediment, however, would result in adverse impacts to approximately 2.33 acres of open water and wetlands (SAV). This would consist of impacts that would be anticipated as part of the Proposed Action and would be considered a significant adverse impact. See Chapter 9, "Mitigation," for mitigation of impacts to approximately 1.34 acres of open water and 0.99 acres of SAV as summarized in **Table 3.7-10**.

Wildlife

Mammals

Kensico Campus is inhabited by a variety of small mammals and deer, as discussed in Section 3.7.3.1, "Kensico Campus." As the Proposed Action would require the clearing of a significant amount of forested habitat, the amount of food and shelter available to species on site would decrease. However, proposed tree reforestation would help offset some of the loss of forest on the Kensico Campus. In addition, the Proposed Action includes the installation of an eight-foot-tall perimeter fence. This fence would help deter larger mammals, such as deer, from inhabiting the Kensico Campus and limiting the effects of herbivory on the newly planted forests. Species requiring forested habitat would likely relocate to one of several forested areas surrounding Kensico Reservoir and Rye Lake to the east. As such, no long term, significant adverse effects are anticipated to mammalian species. Species that utilize edge habitat would increase, and no regional extirpation would be anticipated as a result of the future with the Proposed Action because the forest found within Kensico Campus is common within the regional context.

Avian Species

Kensico Campus is also inhabited by a variety of birds including waterfowl, raptors, and passerines such as finches and wood warblers. As forests in the region are somewhat fragmented, the forested habitat within Kensico Campus likely serves as a stopping point for migratory birds such as raptors and passerines. Tree clearing on site would reduce the amount of foraging and roosting habitat available to migrating birds. However, 5.6 acres of forest would remain undisturbed on Kensico Campus and several other patches of forested habitat are located within the vicinity of Kensico Campus. In addition, approximately 1,880 new trees are proposed on the Kensico Campus. Despite the proposed tree removal, the forested habitat remaining on site, replanting areas, and nearby forested habitat would provide cover and forage opportunities to migrating birds. Migratory species that currently utilize forest habitat would either remain on site or move to nearby similar habitat. Species that utilize edge habitat would increase, and no regional extirpation would be expected occur. As a result, no significant effects would be expected.

In addition, waterbirds (geese, gulls, ducks, cormorants, and swans) are deterred from utilizing the reservoir for foraging, so adverse effects to foraging behavior is not anticipated. As part of DEP's Waterfowl Management Program, which is required as part of the City's Filtration Avoidance Determination and to comply with drinking water quality standards, DEP manages and deters waterbird populations in Kensico Reservoir to minimize fecal coliform bacteria that results from roosting birds during the migratory season. Waterbirds are deterred by the use of pyrotechnics and other techniques including motorboats. Ground nesting waterfowl would be temporarily deterred from nesting during construction. No rookeries were observed during field investigations, so tree removal is not anticipated to affect any nesting colonies along the shoreline of the reservoir. Individual tree nesting species, including but not limited to wood ducks and green heron, would be deterred from nesting during construction. These would, however, not have a significant adverse effects on these species.

Herptiles and Amphibians

The vegetated areas of Kensico Campus contain good reptile and amphibian habitat due to the stratified vegetation layers on site, presence of woody debris and leaf litter, and the nearby water source. The Proposed Action would require the removal of habitat that provides the leaf litter and woody debris available for reptile and amphibian shelter. The loss of vegetation may displace some of the local reptiles and amphibians found on site (e.g., garter snake, green frog); however, no threatened or endangered reptiles or amphibians are anticipated to be displaced. As no vernal habitat is mapped on site, effects to vernal habitat dependent salamanders are not anticipated. No significant adverse effects are anticipated to occur to local reptile and amphibian populations. The remaining vegetated portions of the Kensico Campus would continue to provide habitat to support local reptiles and amphibians. In addition, new on-site tree plantings would also help

offset the loss of reptile and amphibian habitat and provide good cover for on-site species in the future.

Aquatic Resources

The Proposed Action would result in limited in-water activities with the majority of construction occurring upland or within existing waterfront structures such as the UEC. Primary construction activities that would involve direct or indirect effects to aquatic resources would include shoreline stabilization, removal of accumulated sediment within the area adjacent to the UEC, replacement of the existing Malcolm Brook turbidity curtains, and potential runoff due to tree removal, site clearing and regrading.

Shoreline stabilization that would address existing erosion and water quality impacts would involve the placement of temporary sheet piling to isolate landward construction activities and the alteration of open water or SAV habitats as noted in **Table 3.7-10**. Kensico Reservoir is inhabited by a variety of fish and benthic macroinvertebrates. However, the substrate within the footprint of the proposed shoreline stabilization (extending up to 50 feet from the shoreline) is relatively homogenous (silt, sand, and clay with occasional cobbles and gravel and no boulders or bedrock) which limits the potential for a wide diversity of fish and benthic macroinvertebrates within this area. Similarly, studies have shown that lake trout spawning habitat is limited in the proximity of the shoreline of Kensico Campus (Section 3.7.3.1, "Kensico Campus"). While placement of new riprap along the shoreline adjacent to Kensico Campus would potentially displace benthic macroinvertebrates; many of the displaced species, as well as other species, are expected to recolonize the riprap areas within one or more growing seasons. In addition, replacing the homogeneous substrate with cobble sized riprap would potentially improve the availability of suitable spawning habitat for lake trout.

During construction, the use of temporary sheet piling in combination with the placement of turbidity curtains on the waterside of these pilings would minimize the amount of sediment and suspended solids released into the reservoir water column, thereby limiting impacts to fish and macroinvertebrates. Any discharges to the reservoir or to the municipal sewer system would need to meet Town of Mount Pleasant, NYSDEC, and/or DEP requirements, as appropriate. Measures would also be put in place to limit impacts to aquatic resources from construction runoff associated with shoreline stabilization during regrading and tree removals, as well as the larger KEC Project.

Removal of accumulated sediment in an area of approximately 0.2 acres within the general limits of the UEC intake channel would also be required and would potentially affect aquatic resources. Sediment removal would be within a small area and would involve the use of diver-assisted dredging which would limit potential impacts. All dredging would occur within the limits of turbidity curtains and would be conducted outside of applicable and/or required environmental windows, such as warmwater fisheries restrictions. As fish species are mobile, these would be

expected to relocate during proposed sediment removal. Impacts to benthic macroinvertebrates would potentially occur; however, the area of impact is very limited, and recolonization of affected areas would likely occur within one to two seasons. As a result, no significant or long-term impacts due to removal of accumulated sediment are anticipated.

Replacement of the existing Malcolm Brook turbidity curtain would also involve in-water work but would not be expected to result in significant effects to fish and other aquatic species. Removal and placement of turbidity curtains would be from a water-based launch platform with installation completed through the use of divers. As a result, impacts are not anticipated as fish species would temporarily relocate and impacts to reservoir substrate and macroinvertebrates would be expected to be minimal. The placement of the new turbidity curtain would also involve a replacement of several existing booms currently located at this area.

In conclusion, fish are mobile species, and more than sufficient habitat is located within the reservoir. As a result, no long term or significant adverse effects are anticipated to fish species. While affects to benthic macroinvertebrates are expected, the affected areas are limited, recolonization within one to two seasons would be expected and at the conclusion of construction additional opportunities for the recruitment of benthic macroinvertebrates may be possible due to the placement of new substate such as riprap.

Federal/State Threatened and Endangered Species and State Species of Special Concern

Potential habitat for Indiana bat, northern long-eared bat, and monarch butterfly was identified within the Kensico Campus. As described in Section 3.7.3.1, "Kensico Campus," suitable roost trees for bats and old field habitat for monarch butterfly were identified on site. Although the removal of over 2,000 trees may decrease the amount of summer roosting habitat for all bats, including Indiana bat and northern long-eared bat, tree clearing would occur outside of the timing restriction for Indiana bat and northern long-eared bat (i.e., clearing would occur between ~~October~~ November 1 and March 31) to prevent an incidental take of ~~Indiana~~ either bat species. If the timing restriction cannot be adhered to, the potential for adverse impacts to bats may increase and additional studies may be required by USFWS to avoid or demonstrate no potential for impacts.

Tree species with significant numbers of removals proposed (i.e., greater than ten percent of individuals on site) include Norway maple, red maple, and black cherry. Although all trees can develop cracks, cavities, and crevasses suitable for bat roosting habitat as they age, neither Norway maple nor red maple typically contain characteristic features, such as exfoliating bark, that consistently provide roosting habitat for bats, such as shagbark hickory (*Carya ovata*) does. In addition, less than three percent of proposed tree removal within the Kensico Campus are greater than 26 inches in dbh. Although Indiana bats have been known to roost in trees approximately five inches in dbh and higher and northern long-eared bats may roost in trees approximately three inches in dbh or higher, highly suitable roost trees are typically 26 inches in

diameter and greater (USFWS - New Jersey Field Office 2010). Despite the large number of trees to be cleared, the majority of these that would be removed are not the species nor size of roost trees typically selected by Indiana bat and northern long-eared bat. The remaining forested areas, as well as the proposed replanting and presence of mature forested areas off site, would still provide roosting opportunities for local bat populations. With the availability of forested areas within and adjacent to the Kensico Campus, as well as compliance with tree clearing restrictions, significant adverse effects to Indiana bat, or other bats, are not anticipated.

A May 26, 2023 review of the IPaC Northeastern Species Determination Key indicated that elements of the Proposed Action at the Kensico Campus "may affect but is not likely to adversely affect" both northern long-eared and Indiana bats. Based on these findings, the availability of additional forest adjacent to the Kensico Reservoir and compliance with timing restrictions for tree clearing, significant adverse impacts to either bat species are not anticipated. If tree clearing cannot be confined to the appropriate window, additional coordination with USFWS and NYSDEC would be required.

Approximately 2.2 acres of marginally suitable monarch butterfly habitat was observed during the 2020 field investigations. Marginally suitable habitat is defined as areas with one or more characteristics approaching typical conditions, but differing slightly, of monarch butterfly habitat observed in New York State and as described in the literature. Conditions that would define otherwise suitable habitat as marginally suitable habitat for monarch butterfly include open habitats, such as meadows, roadsides, and utility rights-of-way with negligible amounts of milkweed (*Asclepias* spp.) present; open habitats with milkweed, but without food sources (i.e., flowering plants) present; isolated patches of open habitats surrounded by forest with milkweed and food sources present; or closed canopy areas with milkweed and food sources present. The majority of open (i.e., not forested) habitat on site is frequently maintained through mowing. As a result, only small areas with the potential to contain milkweeds and other flowering plants occur on site. While open areas did contain milkweed, they lacked flowering plants to serve as food sources. Food source rich areas, such as the maintained ROW on site that is dominated by flowering plants such as goldenrods, did not contain milkweeds. The Proposed Action would disturb approximately 1.4 acres of the potential monarch butterfly habitat observed. The planting plans proposed as part of the Proposed Action, however, would provide monarch butterfly habitat with the inclusion of milkweed and other nectar producing plants.

The NYSDEC Nature Explorer database identifies Kentucky Warbler as potentially occurring within the boundary of the Kensico Campus. Kentucky Warblers prefer rich, moist, flat or hilly woodlands, especially with stream-bearing ravines and a dense understory for breeding. No suitable breeding habitat is present for Kentucky Warbler on site; therefore, no adverse effects are anticipated. Any Kentucky Warbler that would be observed on site would likely be a migrant species passing through the area.

Bald Eagle, a State threatened species was confirmed as a nesting species in the winter of 2021/2022 in close proximity to the Kensico Campus, although observations conducted in summer 2022 and 2023 indicated the nest was not successful. Osprey were observed flying over the site during the field investigations. Ospreys nest at the tops of dead trees, atop power poles, on man-made nesting platforms, and sometimes on buoys, chimneys, or other structures. No suitable breeding habitat for Osprey was identified on site. Ospreys observed flying over the site are likely migrant species passing through the area or foraging within Kensico Reservoir and would not be affected by the Proposed Action.

Bald Eagles

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits anyone from taking or disturbing Bald Eagles and their nests. According to the USFWS National Bald Eagle Management Guidelines (2007), to disturb a Bald Eagle nest means to agitate or bother a Bald Eagle to a degree that causes that eagle to abandon the nest, suffer injury, or be unable to perform activities necessary to its survival as outlined by the USFWS Northeast Region. Generally, any human activity during the breeding season that would include blasting or other activities that produce extremely loud noise are prohibited within one-half mile of an active Bald Eagle nest.

In relation to the Proposed Action, nesting Bald Eagles generally breed and raise young in their nests between January 1 and September 30. The USFWS has provided a framework for avoiding disturbance at Bald Eagle nesting sites, using distance thresholds for various activities. These buffers include a 330-foot primary buffer, a 660-foot secondary buffer, as well as a one-half mile buffer for blasting or activities that produce extremely load noises. If an activity would be visible or highly audible from a nest, a 330-foot buffer would be maintained during the breeding season (January 1 to September 30). No tree clearing is permitted with the 330-foot buffer at any time or within the 660-ft buffer during the breeding season. General construction activities would be limited to a 660-foot buffer if the activity is within the line of sight of a nest and a 330-foot buffer if the activity is not within the line of sight of a nest. NYSDEC suggests that activities with a greater potential for disturbance, such as loud and percussive noises, should be evaluated up to one mile from nesting sites (NYSDEC 2016).

Several mature trees along the edge of Kensico Reservoir are suitable for Bald Eagle nesting. Although, no known Bald Eagle nests are currently present within the limits of the Kensico Campus, a documented Bald Eagle nest is located approximately 1,000 feet east of the Kensico Campus.

Noise generated from on-site construction activities associated with the Proposed Action was assessed consistent with the methodology described in Section 3.13, “Noise.” As part of the Proposed Action, blasting and other construction activities are anticipated to occur within the January through September timeframe, creating the potential to affect any Bald Eagle in proximity to the Kensico Campus during the nesting season.

Existing ambient noise levels were measured near the Bald Eagle nest in March 2022. Long-term noise measurements (24-hours) were obtained within the 660-foot radius of the Bald Eagle nest. Existing ambient noise levels ranged from 30 to 60 dBA $L_{eq(1)}$, with an average noise level of 52 dBA between 7 AM to 3:30 PM (the first shift of construction) and 49 dBA during 3 to 11:30 PM (second shift of construction hours).

In addition to measured ambient noise levels, on March 18, 2022, noise measurements were also obtained during the use of the pyrotechnics currently used as part of DEP's Waterfowl Management Program. Noise levels were monitored for approximately 20 minutes from within the 660-foot radius and ranged from 43 to 73 dBA. Seven pyrotechnic events were measured during this time with noise levels ranging from 43 to 66 dBA. During the 20-minute noise measurement, six aircraft flyovers associated with the nearby Westchester County Airport were also monitored with noise levels ranging from 55 to 73 dBA.

Noise levels caused by construction activities would vary widely and fluctuate during the construction of the Proposed Action. Quarterly noise profiles were developed for the first shift (7:00 AM to 3:30 PM) and second shift (3:00 to 11:30 PM) of the overall construction period. The noise levels from construction of the Proposed Action at Kensico Campus at the Bald Eagle nest were predicted to range from 62 dBA to 75 dBA during the first shift of construction and from 52 dBA to 68 dBA during the second shift of construction for the maximum noise in terms of Lmax and 51 to 66 dBA during the first shift of construction and 49 to 57 dBA during the second shift of construction in $L_{eq(1)}$.

Bald Eagle responses to human activity generally correlate to their familiarity with these activities. Bald Eagles located in more remote settings are likely to be more sensitive to human noise than those that have more exposure to human activities. The nesting Bald Eagles located east of the Kensico Campus are currently exposed to several human activities that generate noise, such as airplane flyovers activities and pyrotechnics associated with DEP's Waterfowl Management Program. The peak construction noise levels due to the Proposed Action would be comparable to these existing event-based noise levels and would not result in significant noise effects at the Bald Eagle nest.

Construction of the Proposed Action would also require rock blasting at several locations on the Kensico Campus. Blasting events would potentially occur up to three times per day and would be monitored for noise and vibration. Feasible control measures, including but not limited to, full enclosure, covering open blasts with blast mats and/or reducing net explosive weight would be considered and implemented as necessary to eliminate or minimize excessive ground-borne vibration and airborne vibration noise due to air overpressure. Near ground surface blasting at the KEC Shaft 1C, KEC Screen Chamber, and the UEC Shaft would have the largest potential effect at the Bald Eagle nest. Energy released in an explosion creates an air overpressure, commonly called an airblast, in the form of a propagating wave in the air (booming sound)

measured in decibels. Estimated peak air overpressure of 55 to 66 in dB peak (dBP) would occur as a result of the blasting. These estimated air overpressure levels are considered conservative as they assumed the direct transmission of air overpressure between two locations (i.e., a direct line of site with no obstructions) and also did not include protective blast cover during blasts (e.g., blast mat or blast metal covers), in contrast to the Proposed Action which would routinely implement control measures during blasting.

A U.S. Bureau of Mines study, *Structure Response and Damage Produced by Airblast from Surface Coal Mining* (Siskind et al. 1980), correlated airborne vibration noise levels from the use of blasting with the peak sound pressure levels in dBP given the impulsive nature of blast sound (as compared to continuous noise from a typical construction equipment operation which uses $L_{eq(1)}$). The dBP is therefore considered an appropriate noise descriptor for evaluating potential blasting noise effects. A study conducted at Aberdeen Testing Ground examined roosting and nesting Bald Eagle responses to weapons firing (i.e., air blasting) at sound levels up to 126 dBP (Brown et al. 1999). They found no difference in Bald Eagle nest success and productivity between areas with loud sound levels and control areas in the five years during which the study was conducted. Most Bald Eagles showed no activity (i.e., perched motionless) following weapons testing noise and there was no difference in the frequency of eagle activity above and below 110 dBP.

As the maximum peak noise levels at the Bald Eagle nest would be 66 dBP or less, well below 110 dBP, without any reduction due to blast covers/measures. Based upon the lack of response and impacts in Bald Eagles exposed to much higher noise levels (Brown et al. 1999), proposed blasting activities due to the Proposed Action, would not result in significant noise effects to the Bald Eagle nest.

The turbidity curtain replacement at Malcolm Brook would be within the 660-foot radius from the current Bald Eagle nest; however, the work is not anticipated to be completed during work period restrictions. Therefore, the removal and placement of the turbidity curtains would not be anticipated to result in significant effect or disturbance to the Bald Eagle nest.

The status of these nesting Bald Eagles would be closely monitored, and consultation with USFWS and NYSDEC on measures to limit potential impacts associated with construction activities related to the Proposed Action may be required. Development of an action plan that identifies key construction activities, the expected timing of their occurrences, measures that may need to be implemented in order to minimize potential impacts inclusive of reasonable seasonal restrictions or limitations, and ongoing monitoring and documentation of Bald Eagle activity at this nest would be incorporated into any permit(s). As necessary or required, acquisition of an incidental take permit would be pursued in close consultation with NYSDEC and/or USFWS.

3.7.5.2 KEC Eastview Site

Terrestrial Communities

During construction of the Proposed Action, four natural terrestrial vegetative communities (Successional Shrubland, Successional Old Field, Maple-Beech Mesic Forest, and Successional Southern Hardwood), three cultural vegetative communities (Urban Structures/Mowed Lawn with Trees/Roads, Successional Old Field – Construction/Road Maintenance, and Unpaved Road/Pathway), one palustrine wetland vegetative community (Forested Floodplain Wetland), and open water (Mine Brook) area would be affected within the limits of proposed disturbance on the KEC Eastview Site.

None of the terrestrial communities that would be affected by the Proposed Action are rare or unique, and additional similar areas are found in the vicinity of the KEC Eastview Site. The Proposed Action would require temporary clearing of approximately 13 acres of Successional Old Field – Construction/Road Maintenance, approximately six acres of Successional Old Field and Urban Structures/Mowed Lawn with Trees/Roads, and approximately three acres of Unpaved Road/Pathway as detailed in **Table 3.7-11** and illustrated on **Figure 3.7-11**. The Proposed Action would also require permanent clearing of approximately one-quarter acre of Maple-Beech Mesic Forest and a minimal area of Successional Southern Hardwood.

Successional Shrubland, Successional Old Field, Maple-Beech Mesic Forest, and Successional Southern Hardwood are found throughout the State and considered secure or apparently secure, as well as globally secure or apparently secure globally, with Successional Southern Hardwood being found primarily in the southern half of New York State. Successional Old Field – Construction/Road Maintenance and Unpaved Road/Pathway are unranked and distributed throughout the State. No anticipated disturbance would affect any vegetative community described as critically imperiled globally, or very few remaining in the State by NYSNHP.

Table 3.7-11. Terrestrial Community Effects - KEC Eastview

Community	Approximate Area (Acres)
Urban Structures/Mowed Lawn with Trees/Roads	~~5.7~~ 7
Successional Old Field - Construction/Road Maintenance	13.4
Successional Old Field	6.5
Maple-Beech Mesic Forest	0.3
Successional Southern Hardwood	0.01
Unpaved Road/Pathway	2.5
Successional Shrubland	0.001

Just over 100 trees would be removed from the KEC Eastview Site (see **Figure 3.7-12**). Most of the trees to be removed consist of eastern cottonwood (*Populus deltoides)*, black locust (*Robinia pseudoacacia*), and Norway maple and would not constitute the removal of any forested areas. Invasive species such as Norway maple produce excessive shade due to a dense canopy, degrading the native understory. Although considered naturalized, black locust is not native to New York State and is a fast growing, prolific species that can reproduce both via seed and vegetatively though underground rhizomes. When left unmanaged, black locust can form monocultures, disrupt native communities through nitrogen fixation (native plants adapted to low nitrogen conditions are outcompeted by weedy species that capitalize on the increase in nitrogen) and suppress native understory growth through the production of toxic substances known as allelopathy (Stannard 2020, Natural Resources Conservation Service (NRCS)). The removal of some invasive species would, therefore, potentially reduce the seed source to the remaining nearby forested areas and improve the quality of the forested areas. The Proposed Action would also include the installation of a temporary conveyor system that would connect the construction activities at the uptake shaft (KEC Shaft 2C) and ECC with the temporary stockpile location to be located in the northwest corner of the KEC Eastview Site. This would involve clearing a path that would include the removal of ~~less than 15~~ approximately 20 trees.

In addition, the Town of Mount Pleasant regulates the removal of trees in accordance with Chapter 201: Tree Preservation Ordinance of the Town of Mount Pleasant. The Proposed Action would provide replanting of trees that meet or exceed the Town's requirements. Proper soil and sediment stabilization and control measures/BMPs would be put in place to prevent sediment from entering Mine Brook and stormwater conveyance systems during construction to the greatest extent possible.

Figure 3.7-11. Terrestrial and Wetland Vegetative Community Affected Areas – KEC Eastview Site

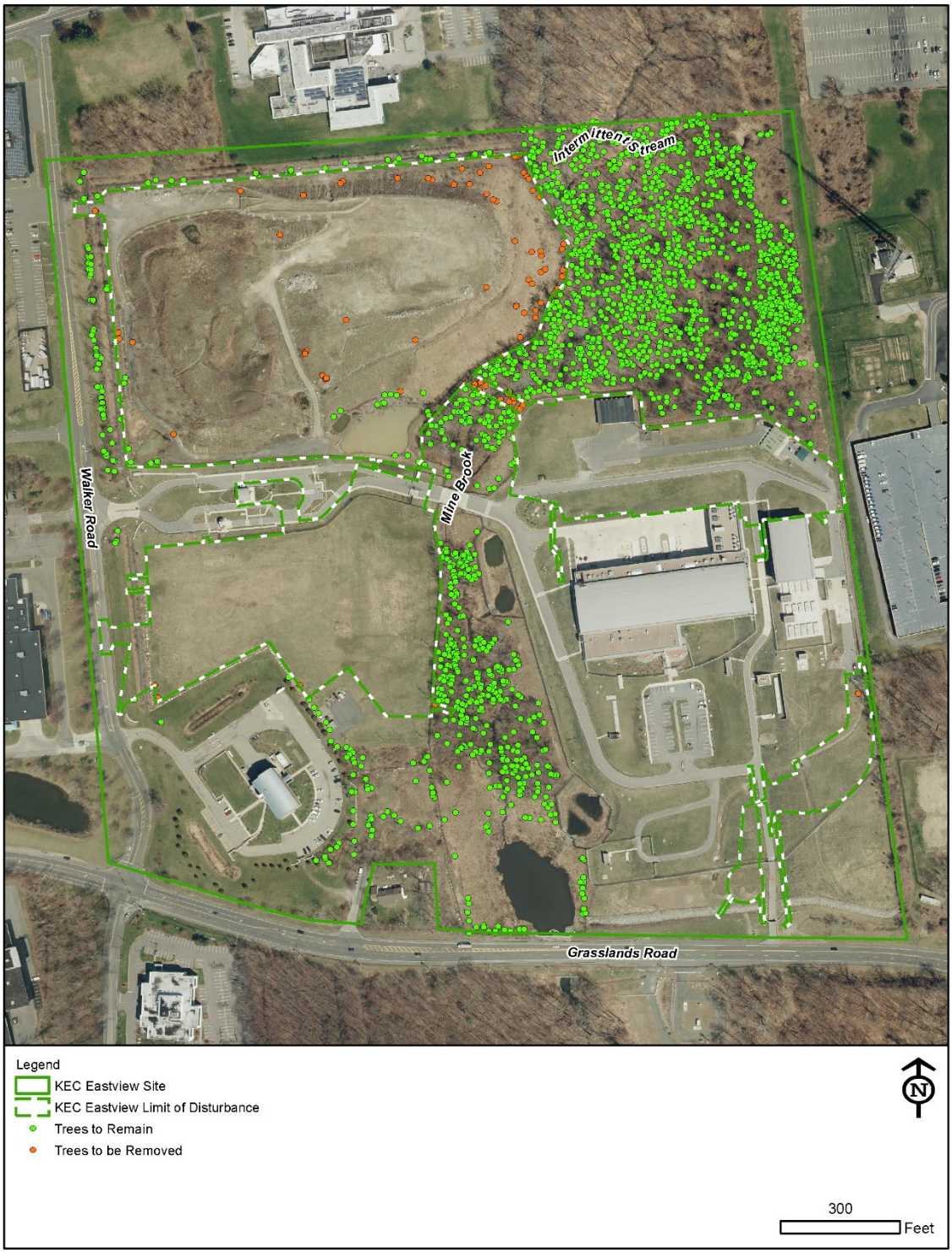


Figure 3.7-12. Tree Impacts – KEC Eastview Site

Wetlands, Open Water, and Floodplains

Wetlands and Open Water

Minimal direct impacts to on-site wetlands, Mine Brook, and their buffers would occur due to the construction of the Proposed Action. Direct activity would be largely limited to the placement of a temporary material conveyor system that would extend from the uptake shaft (KEC Shaft 2C) and the ECC to the material stockpile area located in the northwest portion of the KEC Eastview Site, the construction of a temporary stormwater sediment basin and outfall to Mine Brook (south of the existing police booth and along the west side of the brook), and additional temporary outfalls (near the conveyor and the north of the bridge over Mine Brook) associated with construction. The conveyor would extend over a portion of the on-site Floodplain Forest Wetland and Mine Brook as shown on **Figure 3.7-11**. Limited ground disturbance (approximately 1,250 square feet) is proposed within the Floodplain Forest Wetland due to placement of the conveyor as only one tree would be removed within this location. A small portion of the 50-foot wetland buffer, approximately ~~5,530~~ 5,760 square feet, is also included within the limit of disturbance; however, except as noted below, the rest of forested wetland buffers on site would not be affected by the Proposed Action. The temporary stormwater sediment basin south of the police booth would include grading activities in a small portion of the wetland, approximately 5,500 square feet, and the wetland buffer, approximately 27,930 square feet. After the KEC Project is complete, the conveyor, temporary outfalls, and sediment basin areas would be restored to existing conditions and therefore, no permanent wetland impacts are anticipated.

As discussed previously, Mine Brook is a cold-water stream with perennial flow, has an associated forested riparian buffer that provides shading over the stream and as a result no SAV is present. However, to minimize the potential for shading/shadow impacts to Mine Brook and the Floodplain Forest Wetland, the conveyor would be limited to a height/width ratio of no less than 0.7. At the proposed 20-foot height above Mine Brook and a width less than 10 feet, no shading/shadow impacts to wetlands or open water are anticipated. Additional protective measures (e.g., screens, netting, filter fabric, high sides) to prevent the loss of conveyor-transported materials from entering Mine Brook, on-site wetlands, or buffer areas would also be put in place.

Stormwater associated with overall construction would be actively managed with stormwater management features (e.g., basins, swales, etc.) and best management practices. A Stormwater Pollution Prevention Plan (SWPPP), developed consistent with NYSDEC and Town of Mount Pleasant requirements, would also be put in place. Any and all discharge of stormwater to Mine Brook, on-site wetlands, or their buffers would be in accordance with applicable permits and regulatory requirements. Similarly, discharges associated with shaft and tunnel construction and start-up activities would be treated and monitored to meet applicable permit requirements prior

to release to Mine Brook. No impacts to water quality within on-site wetlands or Mine Brook are anticipated.

In addition to direct impacts, potential indirect impact to wetlands and open water were also evaluated. Construction of the KEC Shaft 2C and the ECC would also require dewatering operations during construction for a period of approximately seven years. The dewatering operations have the potential to lower shallow groundwater ("drawdown") and impact the hydroperiod of delineated wetlands and open water both north and west of the planned excavations (see **Figure 3.7-13**). Groundwater modeling was therefore conducted to assess the potential for permanent impacts to delineated wetlands and open water, including Mine Brook, from potential drawdown. In addition, a water budget was prepared for each delineated wetland that included the surface water, groundwater, and other inflow and outflow components to fully understand and determine potential impacts.

Potential permanent impacts were defined as locations within the delineated wetlands and open water where groundwater is currently estimated to be within one foot of the ground surface for at least 14 consecutive days during the growing season, but due to proposed dewatering the simulated groundwater level would not meet the one-foot threshold for at least 14 consecutive days during the growing season for more than 5 out of 10 years. This metric was assumed to be representative of conditions for suitable wetland hydrology and was based on the USACE's technical standard for wetland hydrology which indicates that the root zone (within one foot of ground surface) must be seasonally saturated or inundated for a minimum of 14 consecutive days during the growing season, during a normal climatic year (5 out of 10 years), to provide suitable conditions for establishment of wetland vegetation and anaerobic soil conditions (USACE 2005). For the KEC Eastview Site, the normal growing season is March 31 to November 11 (50 percent chance of the growing season occurring between the indicated dates with a temperature threshold of 28°F), for a total of 225 days as determined from NRCS Wetlands Tables.

Based on the groundwater model simulations, potential permanent impact areas were identified and include delineated wetland and open water areas with the potential to experience an altered hydroperiod as a result of drawdown for at least five consecutive years that would have the potential to alter the size and character of the delineated wetland. The groundwater model simulation estimated that there would be up to 3,200 square feet (0.082 acre) of potential permanent impacts to the delineated wetlands and open water (**Table 3.7-12**). This includes 0.003 acres of potential impacts to off-site wetlands. In general, the potential permanent impacts that were estimated occur as small, isolated areas along the wetland and open water edges and do not represent a wholesale persistent lowering of the water table beneath large areas of the delineated wetlands and open water.

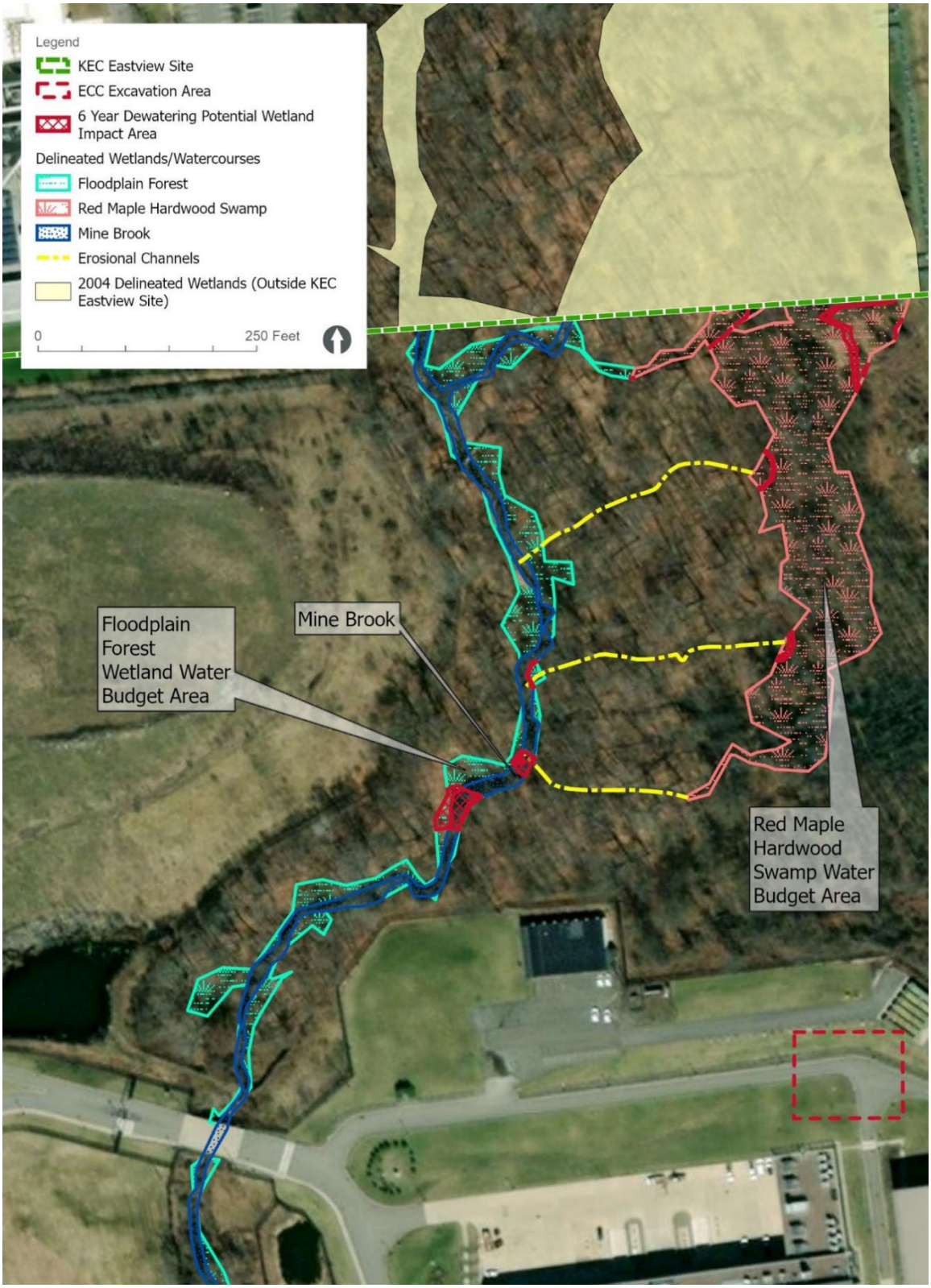


Figure 3.7-13. Areas of Potential Wetland Impact Associated with Dewatering

Table 3.7-12. Summary of Potential Impacts by Wetland Area

Floodplain Forest Wetland (Acre)	Open Water (Mine Brook) (Acre)	Red Maple Hardwood Swamp Wetland (Acre)	Off-site Wetlands (Acre)	Total Potential Impact (Acre)
0.02	0.03	0.03	0.003	**0.082**

Using the results of the groundwater model simulations described above, distinct wetland areas and Mine Brook (open water) were identified as potential permanent impact areas from the lowering of groundwater due to dewatering operations for at least five consecutive years. As the groundwater model did not include surface water inflow and outflow, there is the potential that the identified permanent wetland impact areas may receive additional hydrologic inputs that would mitigate potential impacts from dewatering, and these areas may not be permanently impacted. In order to assess the potential wetland impacts after considering surface water inflows, a water budget was prepared for each wetland, as described below, that included the surface water, groundwater, and other inflow and outflow components (see **Figure 3.7-14**).

Red Maple Hardwood Swamp

Based on the water budget analysis, there is no difference in the water level predicted between the existing condition and the proposed dewatering condition. The results show that the wetland would meet the wetland hydrology technical standard for the wet and normal years. The wetland would not meet the wetland hydrology technical standard for the dry year scenario; however, this would occur naturally in a dry year without dewatering (i.e., the future without the Proposed Action). A review of the last 30 years of precipitation data for Westchester County Airport indicates that there is a low probability that five consecutive dry years would occur during the construction dewatering period, as a maximum of three consecutive dry years did occur from 1993 to 1995, and five consecutive dry years has not occurred in the last 30 years. Based on the results of the water budget analysis, no permanent effect to the Red Maple Hardwood Swamp is expected from dewatering activities.

Floodplain Forest Wetland

The results of the water budget analysis show that the Floodplain Forest Wetland would meet the wetland hydrology technical standard for the wet, normal, and dry years during the proposed dewatering condition. The greatest difference between the simulated water level for the existing condition and dewatering condition is for the dry year. The simulated stream overbank contribution to the wetland would be enough to sustain wetland hydrology throughout the growing season, and it is expected that the area would meet the wetland hydrology criterion, even with potential lower groundwater inflow associated with dewatering. Based on the results of the water budget, no permanent effect to the delineated Floodplain Forest Wetland is expected from dewatering activities.

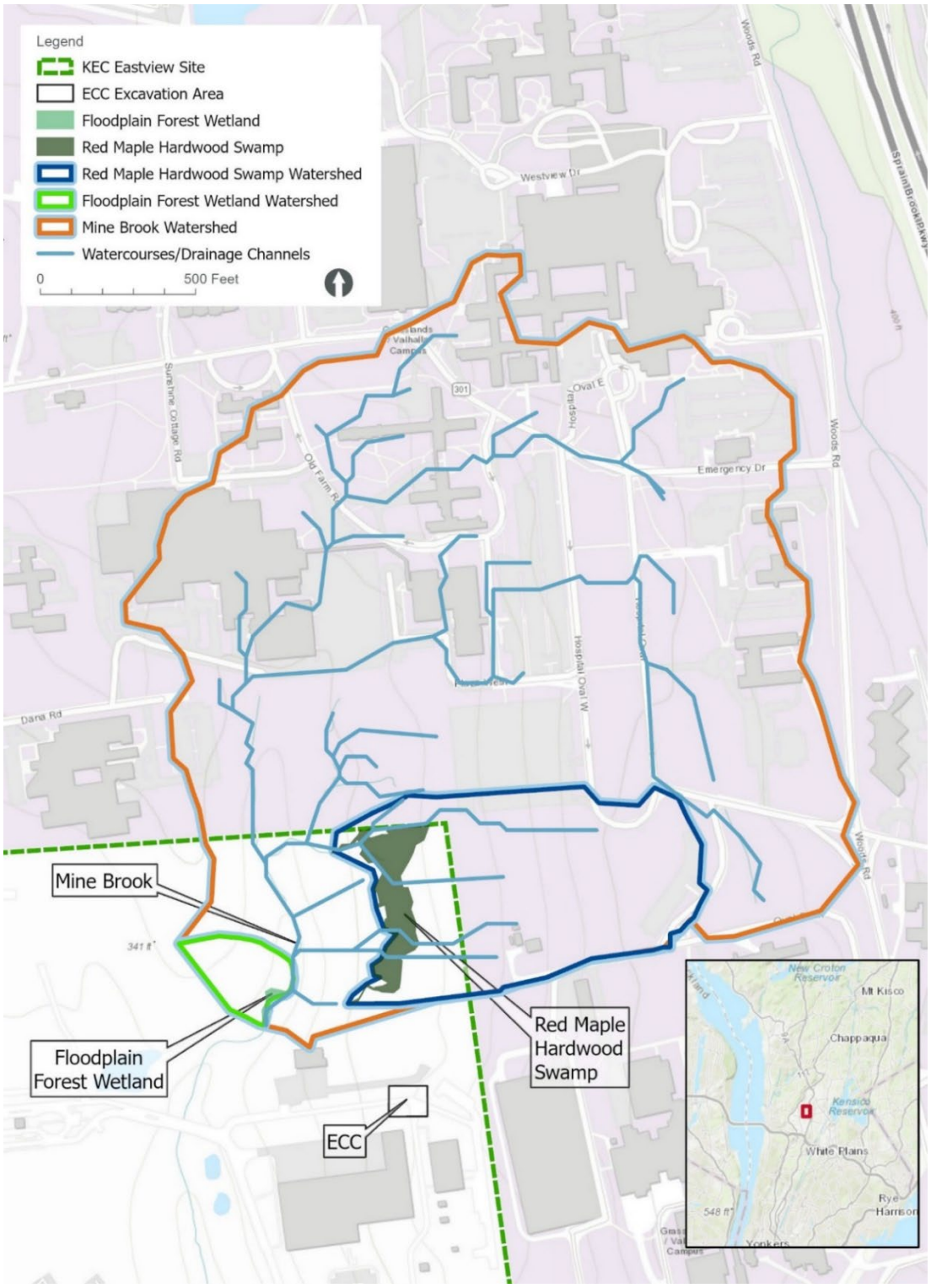


Figure 3.7-14. Delineated Watercourses and Watersheds Used for the Water Budget Analysis

Mine Brook

HEC-RAS modeling was used to further assess the potential impacts of dewatering to Mine Brook. HEC-RAS is software developed by the USACE Hydrologic Engineering Center that allows the user to perform one-dimensional and two-dimensional steady and unsteady flow calculations. The HEC-RAS modeling results indicate that for existing conditions there would be very shallow water depths (2 inches or less) with a median baseflow (the portion of streamflow that is sustained between storm precipitation runoff events, primarily from groundwater flowing into the stream) value of 0.9 cubic feet per second (i.e., 50 percent of the flows are greater than or less than this flow). While the groundwater modeling did identify small, isolated segments of Mine Brook that could be impacted from lower groundwater elevation from dewatering, streamflow in these areas would be expected to be supplemented with surface water flow and unimpacted groundwater discharge from the approximately 1,100-foot upstream length of Mine Brook and the associated drainage area. The HEC-RAS model results and terrain model indicate that flow connectivity would be expected from upstream to downstream of the potential open water impact area (i.e., there are no natural depressional areas or blockages that would result in a loss of stream flow and flow connectivity).

The surface water analysis and groundwater modeling show that there is sufficient groundwater discharge and baseflow that would support and maintain the flow connectivity of Mine Brook. No impact to the flow in Mine Brook is expected from the proposed dewatering activities.

In summary, effects of the Proposed Action to wetlands and open water would be limited. No impacts due to anticipated construction dewatering would occur. Minor effects to wetlands, open water, or their buffer areas would be associated with the placement of a temporary conveyor that would span Mine Brook. This would result in the removal of one tree and temporary ground disturbance associated with the placement and removal of the temporary conveyor.

Floodplains

There are no FEMA mapped floodplains within the KEC Eastview Site.

Wildlife

As discussed in Section 3.7.3.2, “KEC Eastview Site,” the KEC Eastview Site is inhabited by a number of mammals, birds, reptiles, amphibians, fish, and benthic macroinvertebrates. However, due to the nature of the proposed activities at the KEC Eastview Site, significant adverse impacts to wildlife within the KEC Eastview Site are not anticipated. The majority of forested habitat is to remain on site, thus leaving breeding and foraging habitat for mammals, birds, reptiles, and amphibians intact. Furthermore, since significant tree removal is not proposed, Mine Brook would not be exposed to additional sunlight and the potential for temperature increases within

the stream that could potentially affect fish and benthic macroinvertebrates. Mine Brook and on-site wetlands would retain the majority of their riparian zones and vegetated buffers.

Federal/State Threatened and Endangered Species and State Species of Special Concern

Potential habitat for monarch butterfly and northern long-eared bat was identified within the KEC Eastview Site boundary by IPaC and was described in Section 3.7.3.2, "KEC Eastview Site." Potentially suitable northern long-eared bat roost trees were observed during the 2020 field investigations. Approximately 11.4 acres of suitable monarch butterfly habitat was observed during the 2020 field investigations within the Successional Shrubland and Successional Old Field vegetative communities in the southern portion of the KEC Eastview Site and the Successional Old Field in the northeast corner of the site. These areas provide the necessary habitat for the monarch butterfly's host plant, milkweed. Other nectar producing plants, goldenrod in particular, are located within the Successional Shrubland and Successional Old Field vegetative communities with enhancements being possible in both areas. The Proposed Action would disturb approximately 6.1 acres of potential monarch butterfly habitat, although the planting plans proposed as part of the Proposed Action would provide monarch butterfly habitat with the inclusion of milkweed and other nectar producing plants. If required, tree clearing would occur outside of the timing restriction for northern long-eared bat (i.e., clearing would occur between November 1 and March 31) to prevent incidental take. Northern long-eared bats may roost in trees approximately three inches in dbh or greater, however; the highly suitable existing roost trees of 26 inches or greater in dbh would remain. The remaining forested area on the KEC Eastview Site, as well as the existing presence of mature forest off site, would still provide roosting opportunities for local bat populations.

In addition, a May 26, 2023 review of the IPaC Northeastern Species Determination Key indicated that the components of the Proposed Action at the KEC Eastview Site "may affect but is not likely to adversely affect" northern long-eared bat. Based on these findings and the availability of additional forested areas in the northwestern portion of the KEC Eastview Site and south of Route 100C, significant adverse impacts to the northern long-eared bat are not anticipated. If the timing restriction cannot be adhered to, the potential for adverse impacts to bats may increase and additional studies may be required by USFWS to avoid or demonstrate no potential for impacts.

The NYSDEC Nature Explorer database also identifies Kentucky Warbler as potentially occurring within the boundary of KEC Eastview Site. Kentucky Warblers prefer rich, moist, flat or hilly woodlands, especially with stream-bearing ravines and a dense understory for breeding. Optimal breeding habitat for Kentucky Warbler is not present on site; therefore, no adverse impacts are anticipated. If Kentucky Warbler chose to nest within the marginal habitat located on site, no adverse impacts would be anticipated as the forested riparian area surrounding Mine

Brook would not involve tree clearing due to the Proposed Action. Kentucky Warblers observed on site would likely be migrant species passing through the area.

No threatened or endangered raptors were identified by State or federal agencies as potentially occurring on site; however, Bald Eagle, Osprey, and Red-shouldered Hawk were heard calling and/or observed flying over the site during the field investigation. Ospreys nest at the tops of dead trees, atop power poles, on man-made nesting platforms, and sometimes on buoys, chimneys, or other structures. No suitable breeding habitat for Osprey was identified on site. Red-shouldered Hawks are known to nest in deciduous and mixed forests, with tall trees and relatively open understories. They often nest along rivers and swamps. When nesting, Red-shouldered Hawks avoid small, fragmented woodlots; Red-shouldered Hawks require large contiguous wooded tracts of 250 to 620 acres to breed. As the forested area within the KEC Eastview Site is under 25 acres, breeding Red-shouldered Hawks are not likely to be found on site. Since no suitable breeding habitat for Osprey or Red-shouldered Hawk was observed on site, no adverse impacts to these species are anticipated. Individuals of each species found on site would likely be migrant species passing through the area or foraging and would not be impacted by the Proposed Action, especially since large amounts of tree clearing are not proposed.

No Bald Eagle nests were noted on the KEC Eastview Site. Bald Eagles are known to nest in mature trees next to large bodies of water which does not exist at the KEC Eastview Site. Therefore, no suitable breeding habitat for Bald Eagle was identified on site and potential effects to these are not anticipated.

3.7.6 CONCLUSION

The Proposed Action would not result in significant adverse impacts to natural resources except as noted below. Likewise, no significant adverse impacts to federal/State threatened and endangered species and State species of special concern would be expected. As part of the Proposed Action, applicable permits and approvals would be acquired to address potential presence of Bald Eagles, located east of the Kensico Campus. This would include the acquisition of an incidental take permit from NYSDEC. As part of this, DEP would work collaboratively with NYSDEC and USFWS to develop a mutually agreed upon and appropriate management plan. This plan would be implemented over the duration of the construction of the Proposed Action to eliminate and/or minimize any potential effects on the Bald Eagles, similar to successful Bald Eagle management plans developed collaboratively for other DEP projects.

As noted above, the Proposed Action would result in significant adverse impacts to terrestrial communities, specifically forested areas (i.e., those areas consisting of areas spanning more than 1.2 acres with trees higher than 16 feet), and wetlands at the Kensico Campus. As a result, the Proposed Action would include mitigation of wetland impacts as elaborated in Chapter 9, "Mitigation." In addition, DEP recognizes the importance of forested areas as an element in an overall initiative to support and protect clean drinking water within Kensico Reservoir and other

watersheds; therefore, the Proposed Action also includes mitigation to address the significant adverse impacts associated with the removal of forested areas, as discussed in Chapter 9, "Mitigation."

3.8 WATER RESOURCES

3.8.1 INTRODUCTION

As described in Chapter 1, "Project Description," the Proposed Action would involve the construction of new shafts, a deep rock tunnel, and the rehabilitation of existing structures and/or new construction to support these structures. In addition, extensive regrading of areas within the Kensico Campus, and to a lesser degree at the KEC Eastview Site, would also have the potential to affect stormwater quality during construction. Provided in this section is a general discussion of regional geology and water resources in proximity to the Proposed Action. Construction of the Proposed Action would potentially have impacts to water resources due to an increase in the quantity of flows to existing water resources above current conditions and/or the discharge of potential pollutants in these flows. A discussion of the analyses of surface water and stormwater, as appropriate, conducted to assess the potential impacts to water resources resulting from the construction of the Proposed Action is provided. As no long-term potential impacts to groundwater resources as a result of the proposed construction were anticipated, no detailed assessment of this is presented. See Section 3.7, "Natural Resources," for additional discussion.

3.8.2 METHODOLOGY

Surface waters and groundwater were initially identified using field information and a review of local and State data sources and mapping. This included the characteristics of these resources such as existing water quality, classifications, and uses. In addition, the hydrological characteristics of selected water resources such as Clove Brook, Davis Brook, Mine Brook, and the Saw Mill River, which had the greatest potential to be affected by the construction of the Proposed Action, were summarized including but not limited to hydrology, flows, and general characteristics of these existing surface waters. This involved the use of existing data and published floodplain studies by FEMA, USACE, and other agencies, as well as the use of standard modeling techniques to assist in defining existing or baseline conditions of these waterbodies as discussed below.

Surface water was then examined by considering the potential changes in water quantity and quality that could result from the proposed construction. This would include stormwater associated with construction activities such as excavation and grading and wastewaters associated with specific construction activities including, but not limited to, groundwater infiltration and construction waters containing potential pollutants associated with shaft and tunnel construction, and longer term, larger scale excavation and construction (e.g., KEC Screen

Chamber and ECC). In addition, an increase in impervious surfaces associated with construction layout, staging, and design of the Proposed Action would also occur due to proposed construction and/or the completion of elements of the Proposed Action as construction advances (e.g., the relocated Westlake Drive and new parking area adjacent to this). These and other construction activities could result in developmental conditions that could increase both stormwater flow rates (i.e., velocity) and stormwater pollutant concentrations during rain events, which could potentially degrade on- and off-site surface water.

The existing primary source of pollutants is atmospheric deposition. Additional sources include litter, animal droppings, and other debris. When these pollutants are deposited onto impervious surfaces, they can make their way to, or "run off," into surface water during rainfall events. Using empirical data from national studies, pollutant loadings, in pounds per acre per year, can be estimated for any location depending on the land use cover type (pervious versus impervious condition), the annual rainfall, and drainage area size. During active construction, other pollutants such as sediment, oil and grease, and fertilizers (e.g., phosphorus and nitrogen), could become a potential source of contamination and potentially enter surface water via stormwater runoff without proper management.

Modeling of on-site stormwater was therefore used to analyze potential stormwater impacts due to construction and improvements at the Kensico Campus and KEC Eastview Site, as construction efforts would include changes in stormwater runoff, dewatering, and other construction-related discharges that would increase flows to on-site and surrounding waterbodies (Clove Brook and Mine Brook). Detailed modeling of the Clove Brook and Mine Brook drainage areas was conducted with integrated one-dimensional (1D) and two-dimensional (2D) computer modeling using a combination of the XPSWMM program and the Autodesk Storm and Sanitary Analysis (SSA) module for both the existing and proposed conditions to determine if peak discharges from the construction of the Proposed Action at the Kensico Campus and KEC Eastview Site could be handled by the receiving streams. XPSWMM is a modeling program specific for stormwater analyses and is used to estimate the surface water on-site runoff, while the SSA module allows for the calculation of subsurface hydrology (stormwater collection systems). These models run both hydrology and hydraulics (H&H) simulations simultaneously, with rainfall directly distributed uniformly on 2D cells. The off-site stormwater that flows into the 2D modeling area were estimated through 1D hydrology modeling.

The stormwater modeling was conducted for both the 100-year and 500-year storm events based on the NYSDEC requirements to identify any post-development water quantity and water quality adverse effects as outlined in NYSDEC Stormwater Management Design Manual. These storm events are routinely used to present a reasonable worst-case analysis of stormwater conditions in order to address any post-development water quantity and water quality adverse effects. In addition, the NRCS TR-55 Manual for urban hydrology for small watersheds along with the NYSDEC Stormwater Management Design Manual were also used for the analysis. TR-55 is a

widely used tool for modeling hydrology of small watersheds or urban areas and can be used to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes requirements. The H&H analysis is used to assess the ability of a proposed project to meet the NYSDEC Stormwater Management Design Manual requirements for stormwater management under the Extreme Flood Control Criteria (Qf) and to assist in the identification of measures that need to be incorporated as part of a proposed project to achieve compliance.

In addition to the assessment of potential impacts due to the Proposed Action related to increased stormwater flows, a discussion of potential pollutants due to the construction of the Proposed Action is provided. This includes a discussion of potential pollutant sources, pollutants of concern, and the measures or other requirements that would be implemented and/or complied with as part of the Proposed Action.

3.8.3 EXISTING CONDITIONS

3.8.3.1 Regional and Site-Specific Geology Resources

Regional Geology

Based on a review of USGS New York geologic map data[26], the KEC Project is located in the Manhattan Prong of the New England Uplands physiographic province that extends from New England through Westchester to the southern tip of Manhattan and includes a small area of easternmost New Jersey. The Manhattan Prong in the region is characterized by metamorphic and igneous rock types that were extensively folded and faulted as a result of complex geologic processes that began more than 1.3 billion years ago. Low, rounded, elongated ridges underlain by schist or gneiss are separated by valleys subsequently underlain by marble or brittle faults.

The KEC Project is located in the distinct Manhattan Formation within the Manhattan Prong of the Ordovician Age, consisting of metamorphic rock types dominated by amphibolite, gneiss, schist, and pelitic schist.

The western portion of the overall Kensico Campus, KEC Tunnel, and KEC Eastview Site study area, near and including the KEC Eastview Site is underlain by Inwood Marble within the Manhattan Formation of the Early Cambrian to Lower Ordovician Age. The Inwood Marble is typically white to bluish-gray and is a fine- to coarse-textured major dolomitic and lesser calcitic marble with minor calc-schist, granulite, and quartzite with siliceous interlayers that contain mica and quartz. The Inwood Marble does not often crop out abundantly and is typically found as eroded bands between Manhattan Formation and Fordham Gneiss. Inwood Marble is also present in the vicinity of Kensico Dam Plaza and much of the eastern portion of Kensico Reservoir.

[26] https://mrdata.usgs.gov/geology/state/state.php?state=NY.

The Proposed Acton is also bisected by an unnamed fault running northwest to southeast; this fault runs parallel to and west of the Sprain Brook Parkway.

The eastern portion of the Kensico Campus and KEC Eastview Site study area, near and including Kensico Campus, is underlain by Fordham Gneiss of the Precambrian to Middle Proterozoic Age. Fordham Gneiss is the oldest underpinning member of the Manhattan Formation and consists of ortho- and paragneiss-granitoid rocks, metavolcanic and metasedimentary rocks. Minerals present in the Fordham Gneiss include garnet, biotite, quartz, plagioclase, amphibolite, hornblende, and feldspar lenses; these minerals are present in the major lithologic constituents present in Fordham Gneiss and divided into six units. Minor lithologic constituents include granulite, quartzite, and amphibolite.

A review of the Surficial Geology Map of New York indicates glacial till lies atop all bedrock in the study area. Pleistocene glaciation modified the area's topography through abrasion and deposition. Glacial till is composed of unsorted deposits of variable clast contents ranging from small clay sized particles to larger rocks and boulders. Till is relatively impermeable (loamy matrix); however, there is the potential for land instability on steep slopes and a wide range of thickness ranging from 1 to 50 meters.

The majority of the soils in the area are loams – a mixture of sand, silt, and clay. According to the NRCS, United States Department of Agriculture (USDA) Web Soil Survey[27], 15 soil series are present on the Kensico Campus and KEC Eastview Site. Provided below is a summary of the primary soil types within the Kensico Campus and KEC Eastview Site.

Soil series present at or in the immediate vicinity of the Kensico Campus (see **Figure 3.8-1**) include:

- Charlton Fine Sandy Loam, 3 to 8 percent slopes (ChB) - The Charlton series consists of well drained fine and gravelly fine sandy loams formed in ridges, ground moraines, and hills from coarse-loamy melt-out till derived from granite, gneiss, and/or schist.
- Chatfield-Charlton Complex, 15 to 35 percent slopes, very rocky (CsD) - The Chatfield-Charlton series consists of well drained, very stony soils formed in ridges and hills from coarse-loamy meltout till derived from granite, gneiss, and/or schist. A typical profile includes slightly decomposed plant material, fine sandy loam, gravelly fine sandy loam, and bedrock.
- Paxton Fine Sandy Loam, 3 to 8 percent slopes (PnB) - The Paxton fine sandy loam series consists of well drained soils formed in ground moraines, drumlins and hills from

[27] http://websoilsurvey.nrcs.usda.gov/app/.

coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile includes fine sandy loam and gravelly fine sandy loam.

- Paxton Fine Sandy Loam, 8 to 15 percent slopes (PnC) - The Paxton fine sandy loam series consists of well drained soils formed in ground moraines, drumlins and hills from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile includes fine sandy loam and gravelly fine sandy loam.
- Udorthents, Smoothed (Ub) - The Udorthents complex consists of moderately well drained soils. A typical profile consists of gravelly and very gravelly loam.
- Urban Land (Uf) - Urban land is located within the Kensico Campus study area.

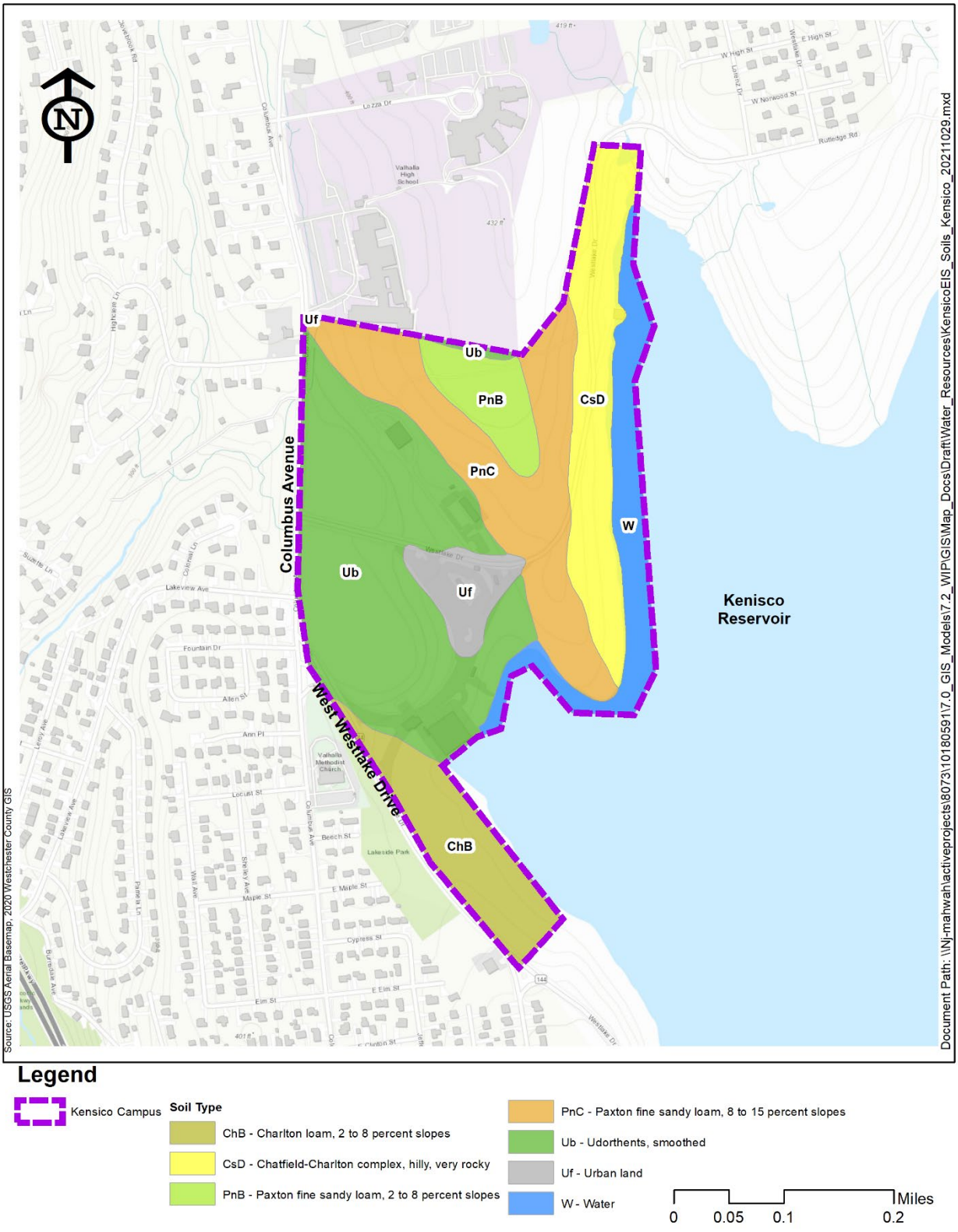


Figure 3.8-1. Kensico Campus - Soils

The soil series at the KEC Eastview Site (see **Figure 3.8-2**) include:

- Paxton Fine Sandy Loam, 3 to 8 percent slopes (PnB) soils as discussed above.
- Paxton Fine Sandy Loam, 8 to 15 percent slopes (PnC) soils as discussed above.
- Ridgebury Complex, 0 to 3 percent slopes (RdA) - The Ridgebury complex consists of poorly drained loams formed in drumlins, depressions, ground moraines, hills, and drainageways derived from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile includes moderately decomposed plant material, loam, gravelly fine sandy loam, and gravelly loam. These soils are classified as hydric.
- Ridgebury Complex, 3 to 8 percent slopes (RdB) - This complex consists of poorly drained loams formed in drumlins, depressions, ground moraines, hills, and drainageways derived from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile includes moderately decomposed plant material, loam, gravelly fine sandy loam, and gravelly loam. These soils are classified as hydric.
- Sun Loam (Sh) - Sun loam, a hydric soil series, consists of very poorly drained soils formed in depressions derived from loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas. A typical profile consists of loam and gravelly fine sandy loam.
- Woodbridge Loam, 0 to 3 percent slopes (WdA) - The Woodbridge loam complex is a hydric soil and consists of moderately well drained soils formed in ground moraines, hills, and drumlins derived from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile consists of loam and gravelly loam.
- Woodbridge Loam, 3 to 8 percent slopes (WdB) - The Woodbridge loam complex consists of moderately well drained soils formed in ground moraines, hills, and drumlins derived from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. A typical profile consists of loam and gravelly loam.
- Udorthents, smoothed (Ub) - The Udorthents complex consists of soils as discussed above.

Groundwater

The groundwater system beneath the Kensico Campus and KEC Eastview Site study area consists of bedrock formations overlain by varying thicknesses of overburden deposits. The overburden deposits generally consist of glacial till that contains a poorly sorted mixture of clay, silt, sand, and boulders that were all deposited beneath glacier ice. Groundwater is present in pore spaces within the overburden and within the fractured network within the bedrock below.

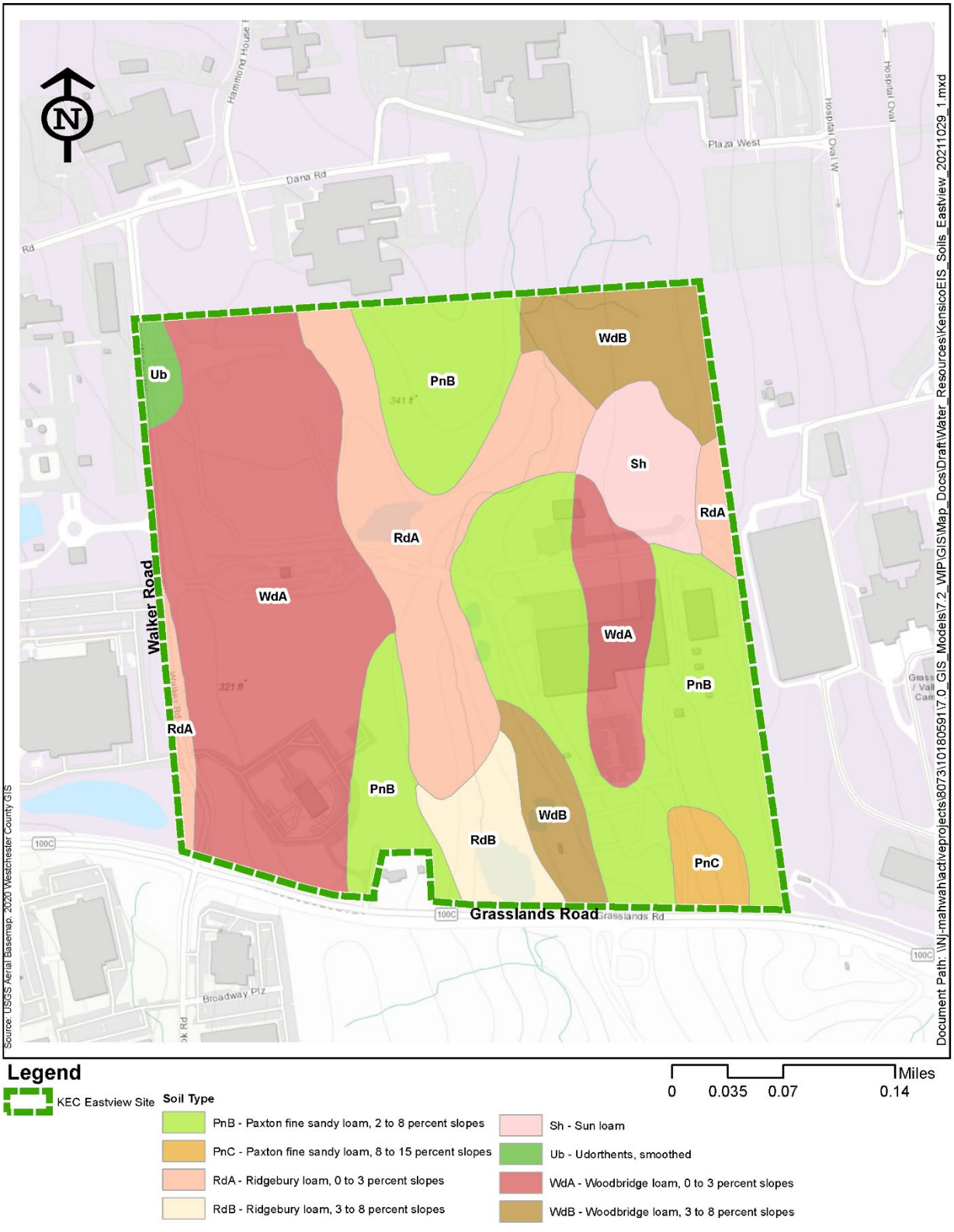


Figure 3.8-2. KEC Eastview Site - Soils

Local groundwater depth and flow direction is assumed to vary over the length of the Kensico Campus and KEC Eastview Site study area according to local topography. The eastern portion of the Kensico Campus and KEC Eastview Site study area, including the Kensico Campus, is part of the Bronx River watershed, which is itself part of the larger Atlantic Ocean/Long Island Sound watershed with the general flow of groundwater to the southeast toward the Long Island Sound. The portion of the KEC Project study area west of the Sprain Brook Parkway, including the KEC Eastview Site, is part of the Pocantico and Saw Mill River watershed in the greater Lower Hudson River watershed where the general flow of groundwater is to the Hudson River west and southwest of the study area. Groundwater depth measurements along the deep rock tunnel alignment show groundwater vary from over 1 foot below ground surface (bgs) to approximately 50 feet bgs.

3.8.3.2 Surface Waters

Kensico Campus

No surface waters are located within the limits of the Kensico Campus. The three nearest waterbodies include Kensico Reservoir, immediately adjacent and east of the Kensico Campus, Clove Brook located west of Columbus Avenue and the Kensico Campus, and Malcolm Brook located immediately northeast of the UEC. Existing topography within the Kensico Campus results in stormwater that drains to either Kensico Reservoir or Clove Brook with the majority of the campus draining to Clove Brook as shown on **Figure 3.8-3**. Malcolm Brook does not receive any current flow from the Kensico Campus.

The Kensico Campus currently includes several areas of impervious cover due to structures, access and interior roads (i.e., Aerator Road and Westlake Drive) and parking areas with the rest of the Kensico Campus consisting of landscaped/lawned areas including two larger open areas immediately east of Columbus Avenue within the former footprints of the Catskill and Delaware aerators. The northeastern portion of the Kensico Campus, as well as areas immediately along the reservoir shoreline, are currently undeveloped and vegetated with trees and brush with the exception of the UEC and the existing Westlake Drive that runs parallel to Kensico Reservoir. Flows generated from the eastern portion of the Kensico Campus drain to Kensico Reservoir, while the western portion drains to the west (see **Figure 3.8-3**), across Columbus Avenue, through two existing roadway crossing culverts and discharges to Clove Brook through a third culvert (see **Figure 3.8-4**). No discharges associated with sanitary wastewaters or other process/facility wastewaters associated with existing on-site DEP operations go to surface waters. These all currently discharge to the municipal sewer system.

The NYSDEC classifies Kensico Reservoir as a Class AA waterbody. Best usages of Class AA waters are as a source of water supply for drinking, culinary, or food processing purposes; primary and secondary contact recreation; and fishing. These waters shall be suitable for fish,

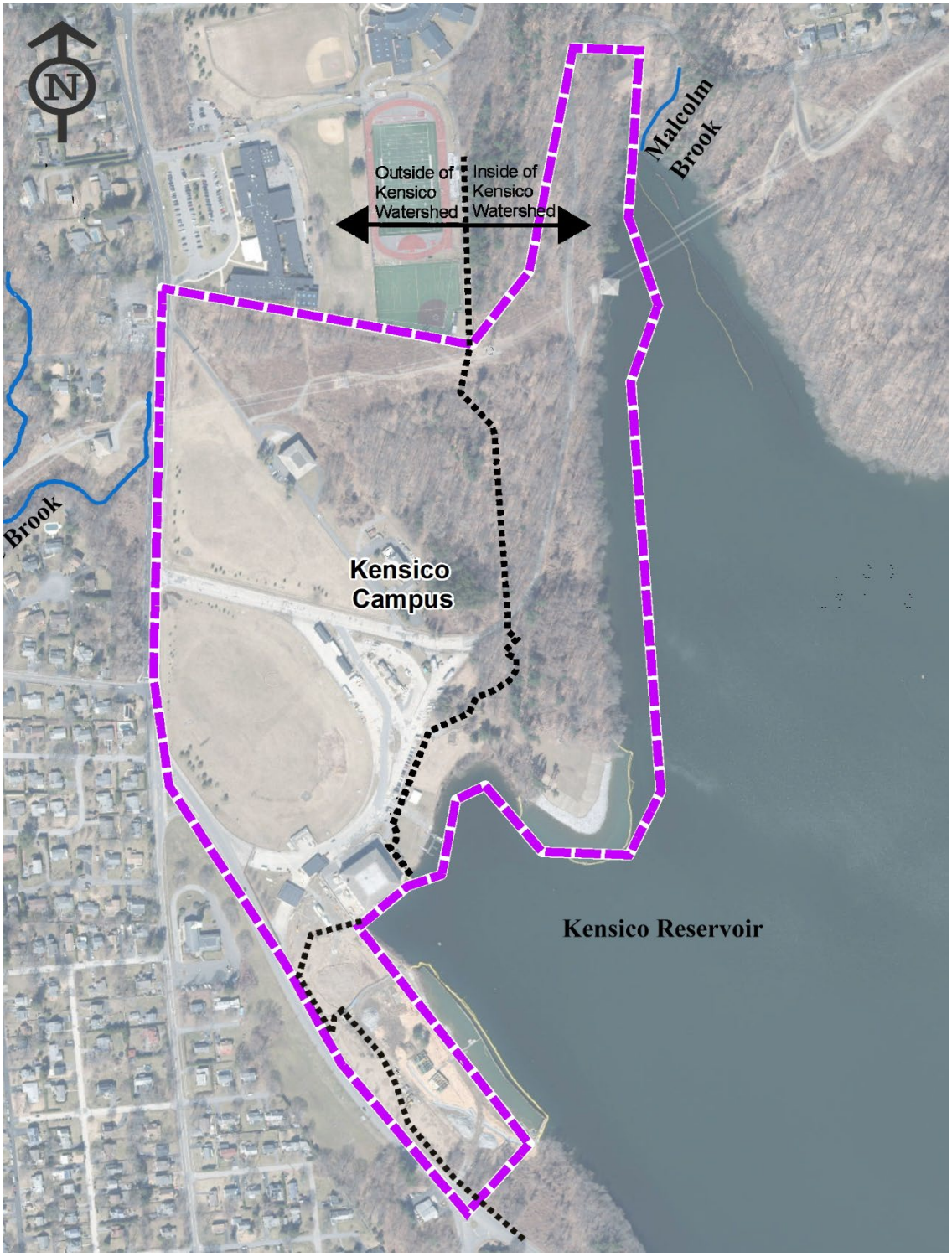


Figure 3.8-3. Surface Waters – Kensico Campus

Figure 3.8-4. Existing Discharge Locations to Clove Brook

shellfish, and wildlife propagation and survival. Clove Brook is classified by the NYSDEC as C(TS) which includes waters supporting fisheries, suitable for non-contact recreation, and suitable for trout spawning. Clove Brook, a tributary of Davis Brook (also classified as C(TS)), is located within one-quarter mile of the Kensico Campus (see **Figure 3.8-5**). Davis Brook ultimately discharges into the Bronx River near the Kensico Dam, approximately 0.4 miles downstream of the Clove Brook and Davis Brook confluence.

The off-site flows that discharge to Clove Brook at this location include the flow in ditches along Columbus Avenue and stormwater runoff generated in the local area on the west side of Columbus Avenue. The flow hydrographs for the ditches along Columbus Avenue north (upstream) of the Kensico Campus were estimated using SSA 1D hydrology modeling, which is used as an inflow to the XPSWMM model for the northwest corner of the Kensico Campus. The area on the west side of Columbus Avenue is included in the XPSWMM model.

Figure 3.8-6 shows the water depths from the XPSWMM model under the 100-year and 500-year storm event, respectively. **Figure 3.8-7** shows the 100-year and 500-year upstream inflow and flow hydrographs discharging to Clove Brook.

KEC Eastview Site

There is currently one stream that receives stormwater runoff from the KEC Eastview Site, Mine Brook. Mine Brook is classified by the NYSDEC as Class C. The best usage of Class C waters is fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival. The water quality shall be suitable for primary and secondary contact recreation. Mine Brook is a tributary of the Saw Mill River and traverses the KEC Eastview Site from north to south (see **Figure 3.8-8**).

The KEC Eastview Site is currently a combination of impervious and pervious areas. Runoff generated from the roads, parking areas, and roofs are drained as overland flow into adjacent grassed/graveled areas. Excess runoff is collected by the yard inlets of the existing storm drain systems and discharged into separate ponds. These ponds then discharge into Mine Brook. Flow in Mine Brook north of the KEC Eastview Site was estimated using SSA 1D hydrology modeling and was used as a flow input for the XPSWMM model. Mine Brook discharges to a large pond and wetland area on the north side of Grasslands Road on the KEC Eastview Site. The water in the pond then overtops a half-circle shaped flow control weir before entering a culvert that crosses beneath Grasslands Road to the south. The flow control weir and the culvert geometric and elevation data used in the model were based on as-built information. **Figure 3.8-9** shows the water depth from the XPSWMM model under the 100-year and 500-year storm event, respectively. **Figure 3.8-10** shows the 100-year and 500-year upstream inflow and flow hydrographs discharging through the culvert at Grasslands Road.

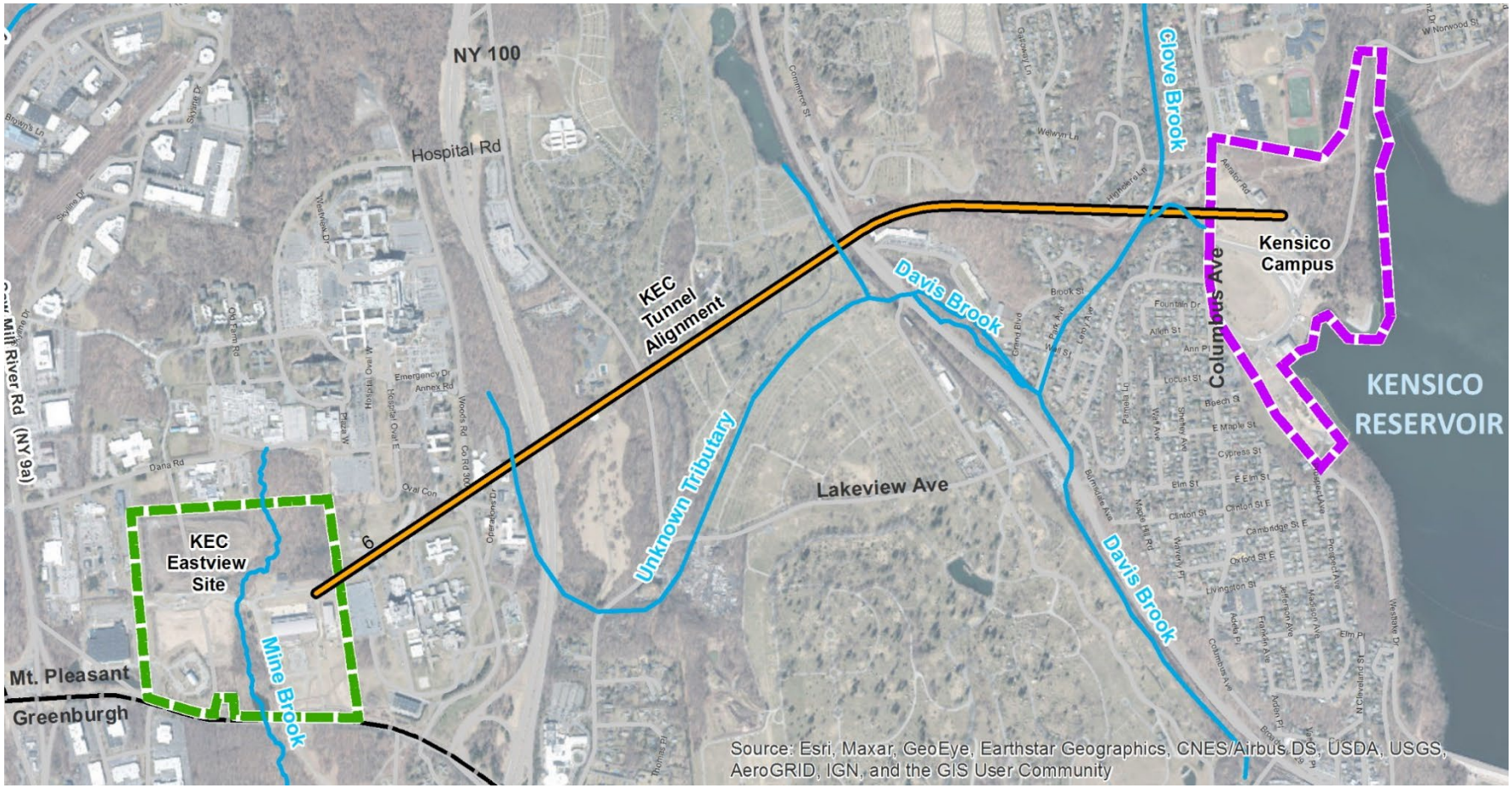


Figure 3.8-5. KEC Tunnel Alignment and Receiving Streams

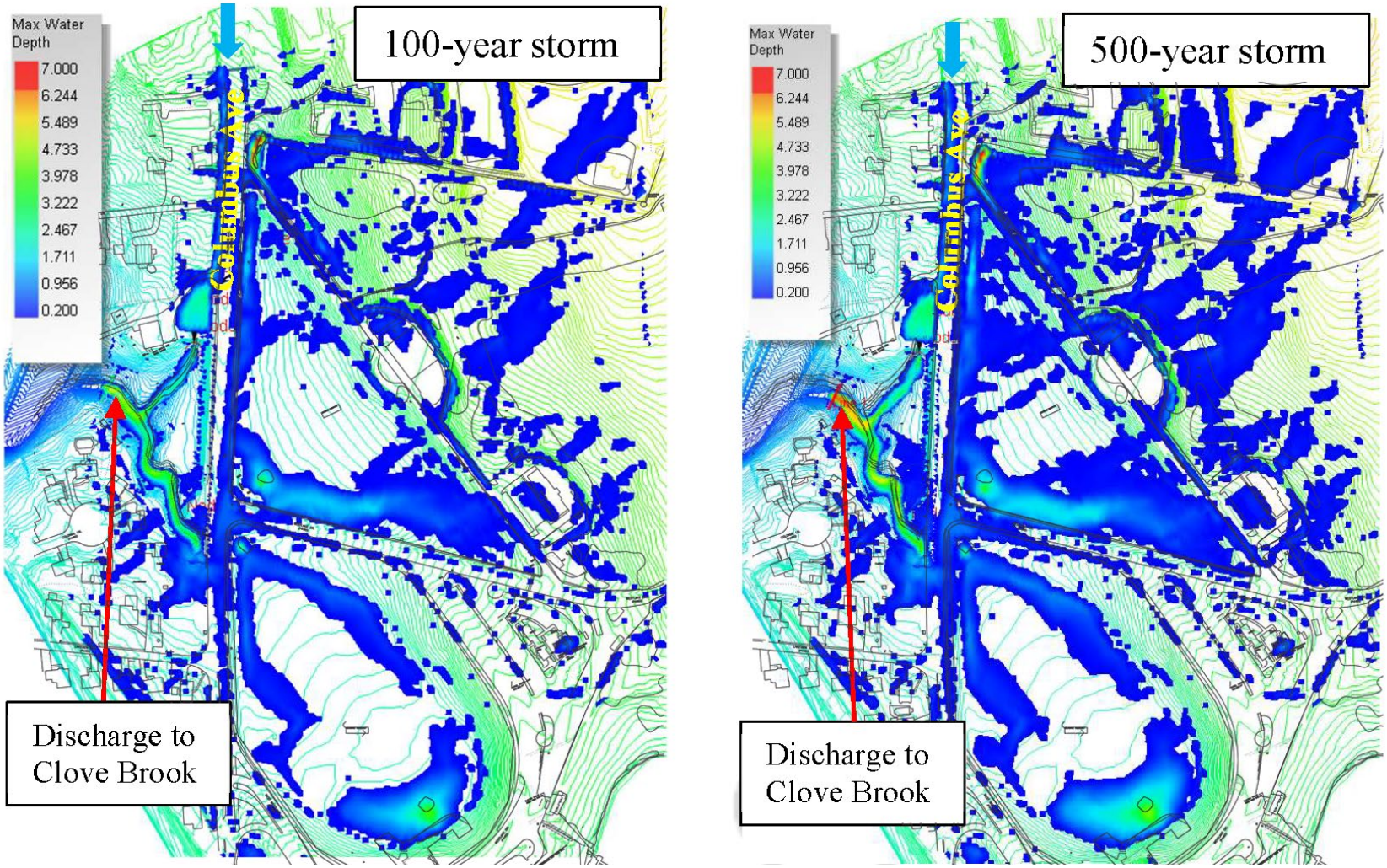


Figure 3.8-6. Pre-Development, 100-Year and 500-Year Flow Depth - Kensico Campus

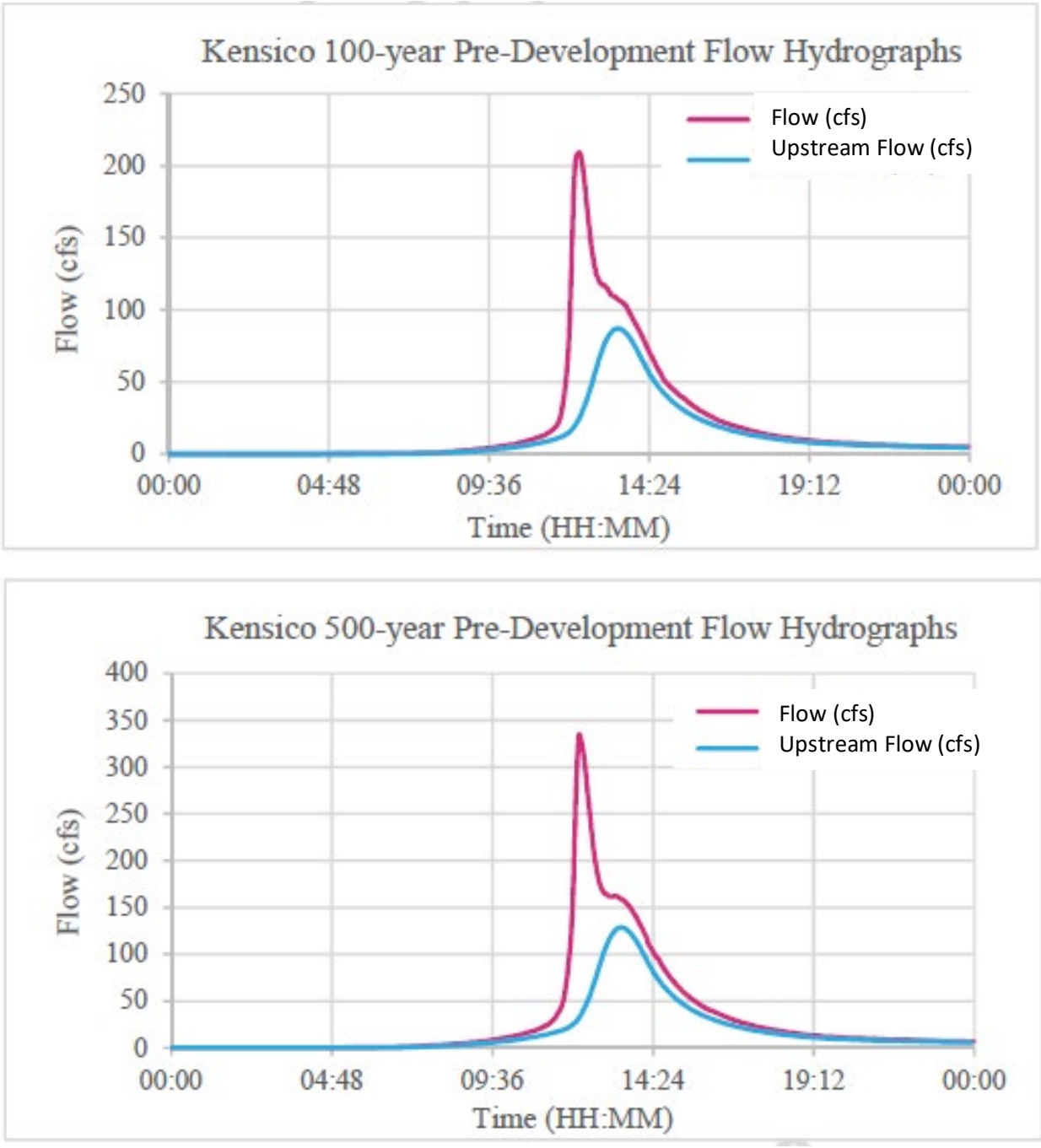


Figure 3.8-7. Pre-Development, 100-Year and 500-Year Flow Hydrographs – Kensico Campus

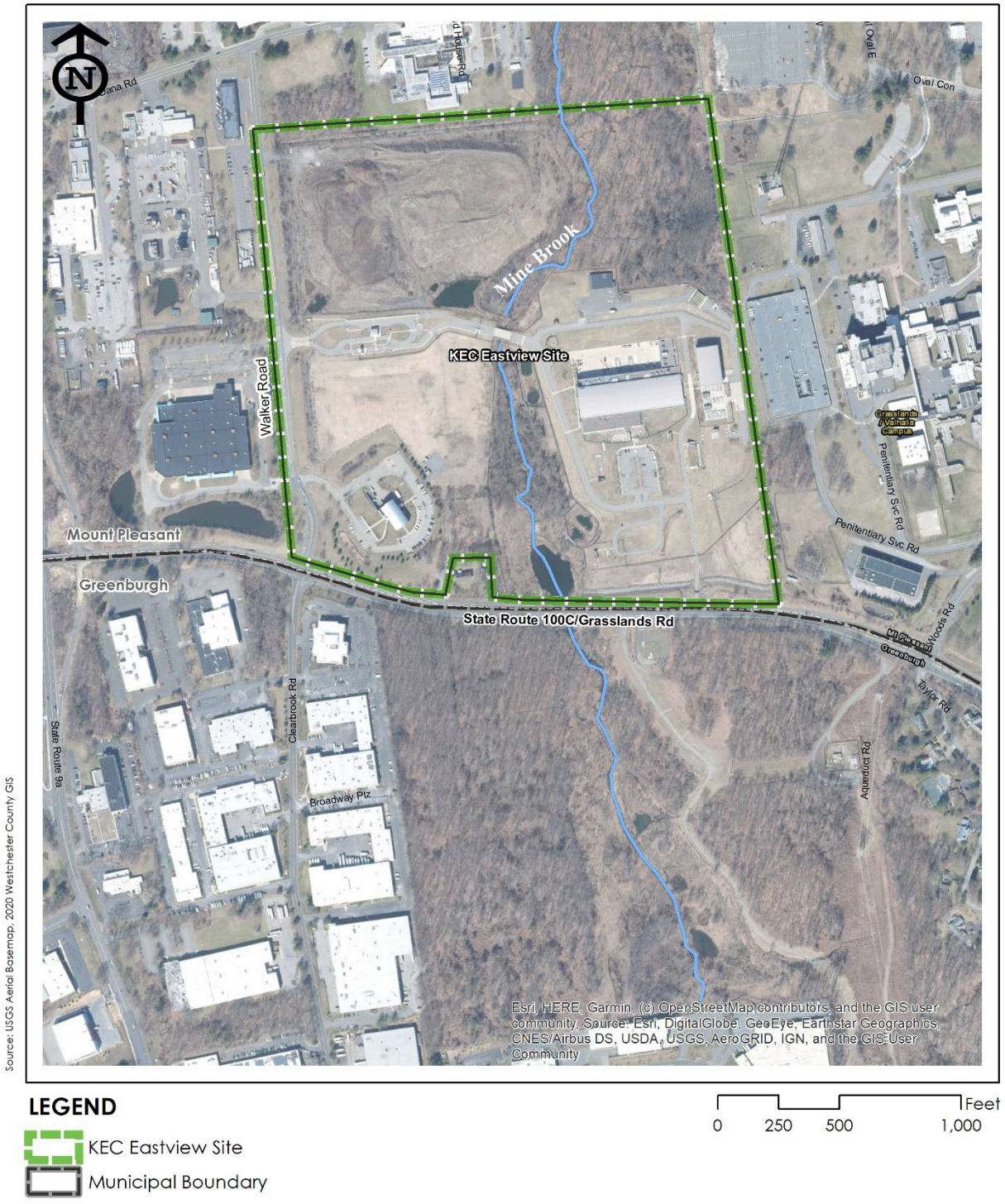
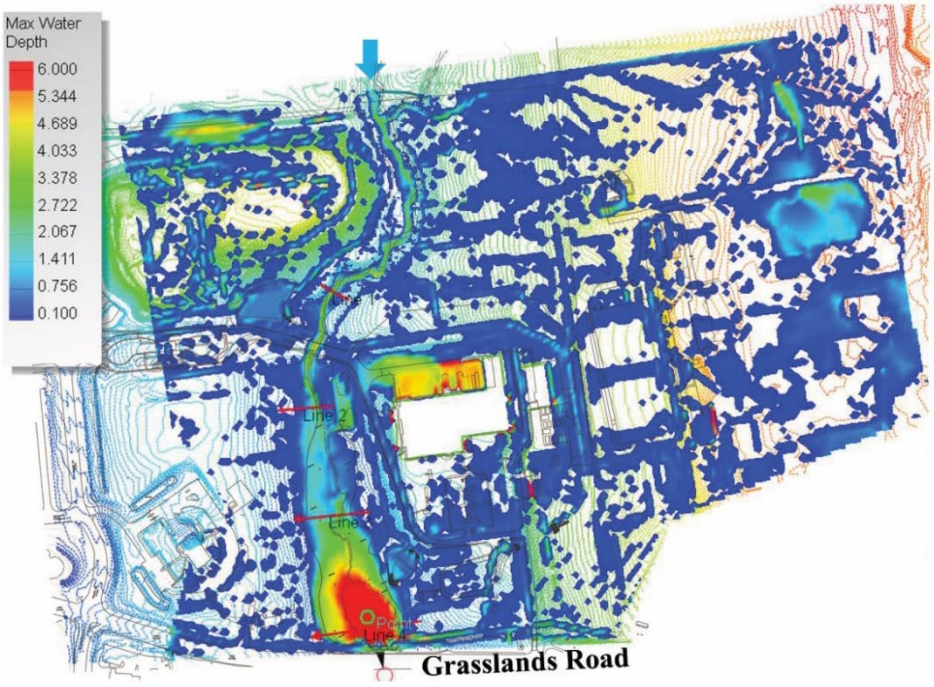
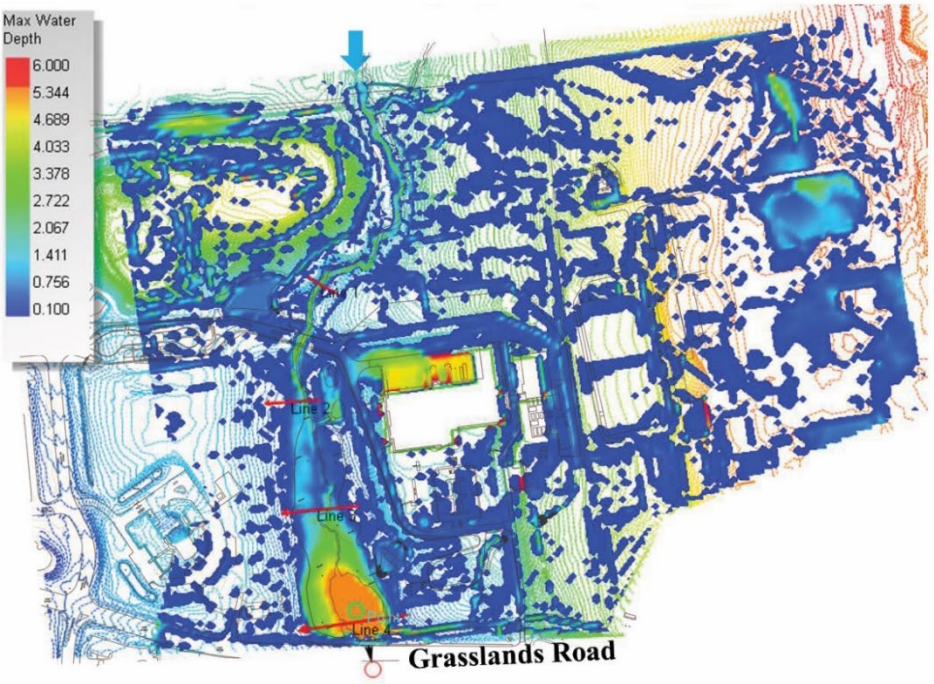


Figure 3.8-8. Surface Waters – KEC Eastview Site

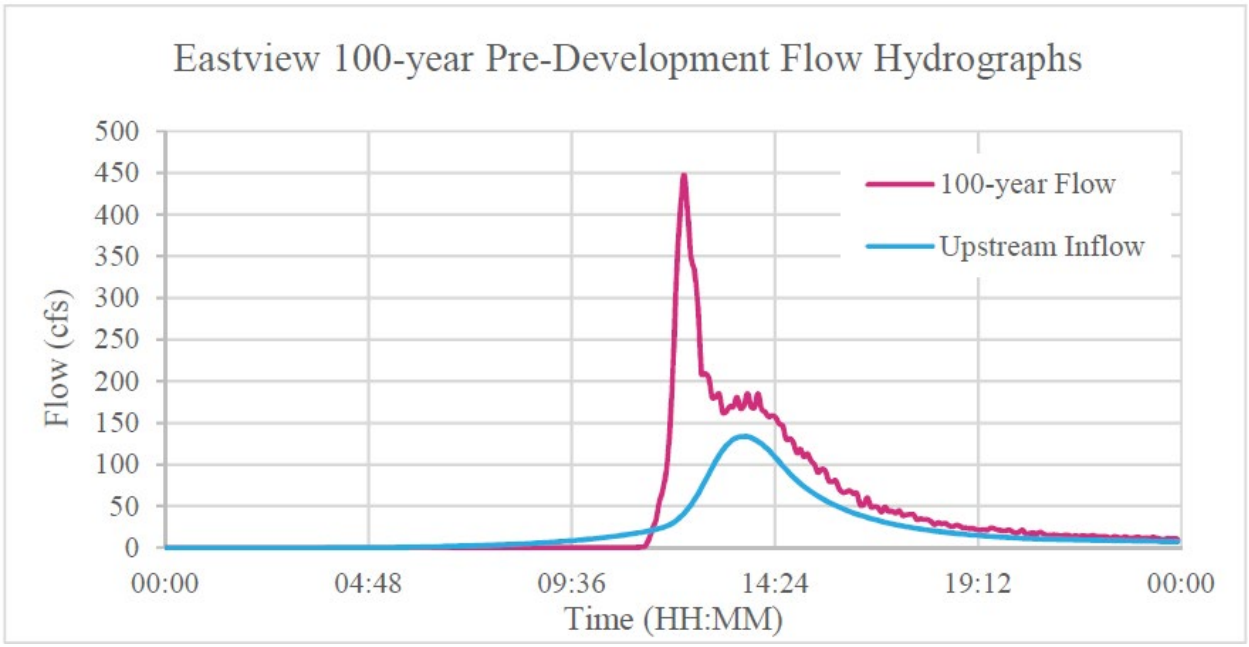


100-Year Flow Depth



500-Year Flow Depth

Figure 3.8-9. Pre-Development, 100-Year and 500-Year Flow Depths (Feet) – KEC Eastview Site



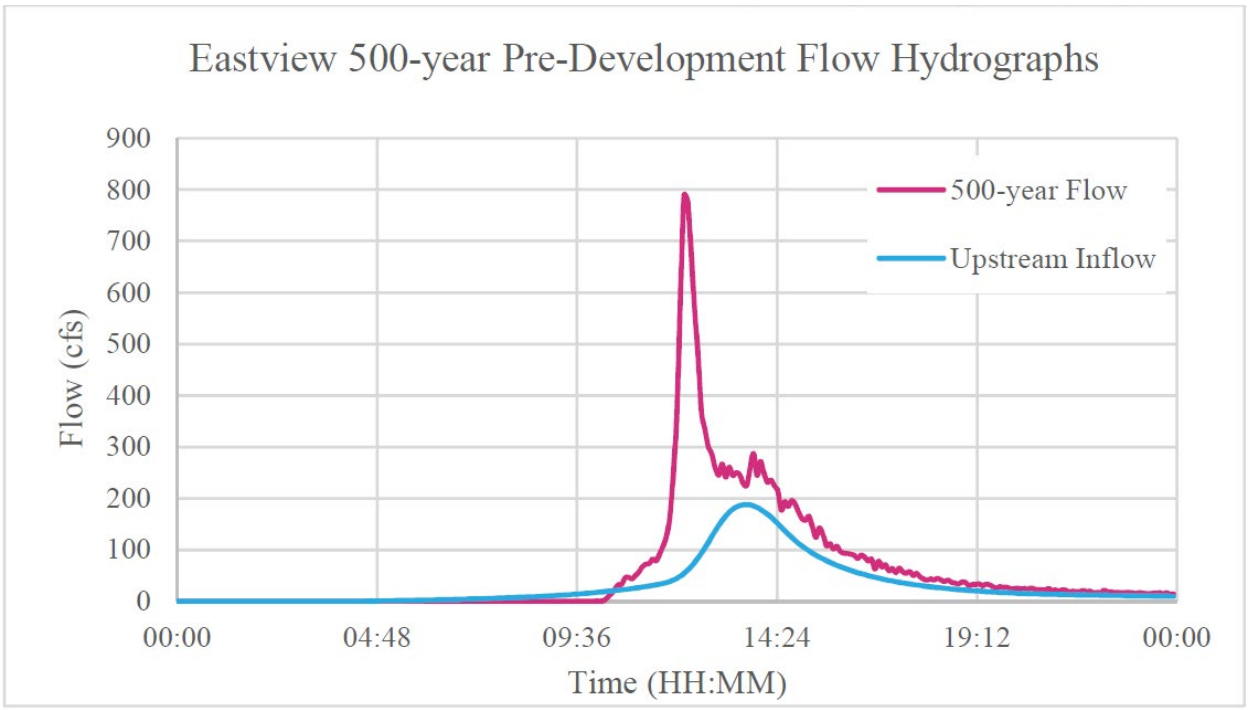


Figure 3.8-10. Pre-Development, 100-Year and 500-Year Flow Hydrographs at Mine Brook – KEC Eastview Site

In addition, the CDUV Facility was constructed with a system of underdrain pipes for the conveyance of groundwater infiltration away from the structure. These underdrains ultimately discharge to Mine Brook from an existing outfall (Outfall #2 under an existing State Pollutant Discharge Elimination System (SPDES) permit; SPDES No. NY0275051). The permit established total suspended solids (TSS) limits of 30 mg/L monthly average and 50 mg/L daily maximum at this outfall. Outfall #2 is located along Mine Brook on the south side of Grasslands Road (see **Figure 3.8-11**). The passive underdrain system has continued to flow at approximately 25 gpm to Mine Brook.

In addition, the former CDUV excavated materials storage area is located in the northwest portion of the KEC Eastview Site. Stormwater associated with this location is currently managed through multiple grassed swales, sediment basins, and stormwater ponds, located north of the access driveway. The westernmost stormwater ponds discharge to a surface swale along Walker Road. The eastern stormwater pond discharges to Mine Brook.

No discharges associated with sanitary wastewaters or other process/facility wastewaters that may be associated with existing on-site DEP operations at the KEC Eastview Site go to Mine Brook. These all currently discharge to the municipal sewer system.

The peak discharge to Mine Brook through the culvert at Grasslands Road is calculated at 448 cfs and 789 cfs for the 100-year and 500-year storm events, respectively. The discharge volume is 78.9 acre-feet (ac-ft) for the 100-year 24-hour storm and 123.1 ac-ft for the 500-year 24-hour storm.

3.8.4 FUTURE WITHOUT THE PROPOSED ACTION

Several DEP projects would be implemented in the future without the Proposed Action. At the Kensico Campus, these include the Waterfowl Management Program Building, the Kensico Regional Headquarters, and various minor projects at DEL Shaft 18. The Waterfowl Management Program Building includes the construction of a new larger, dedicated building for this program. The Kensico Regional Headquarters project would repurpose the former Kensico Laboratory building and largely includes interior work. There are several post-construction stormwater management practices including stormwater ponds/wetlands that would be implemented in support of these projects, which would address the NYSDEC stormwater quality and quantity requirements.

At the KEC Eastview Site, DEP plans to install new cleanout access locations and modify an existing manhole associated with the underdrain piping at the CDUV Facility and may potentially install a solar carport canopy and rooftop solar on the CDUV Facility. The CDUV Facility's underdrains, constructed in 2012, are susceptible to clogging due to

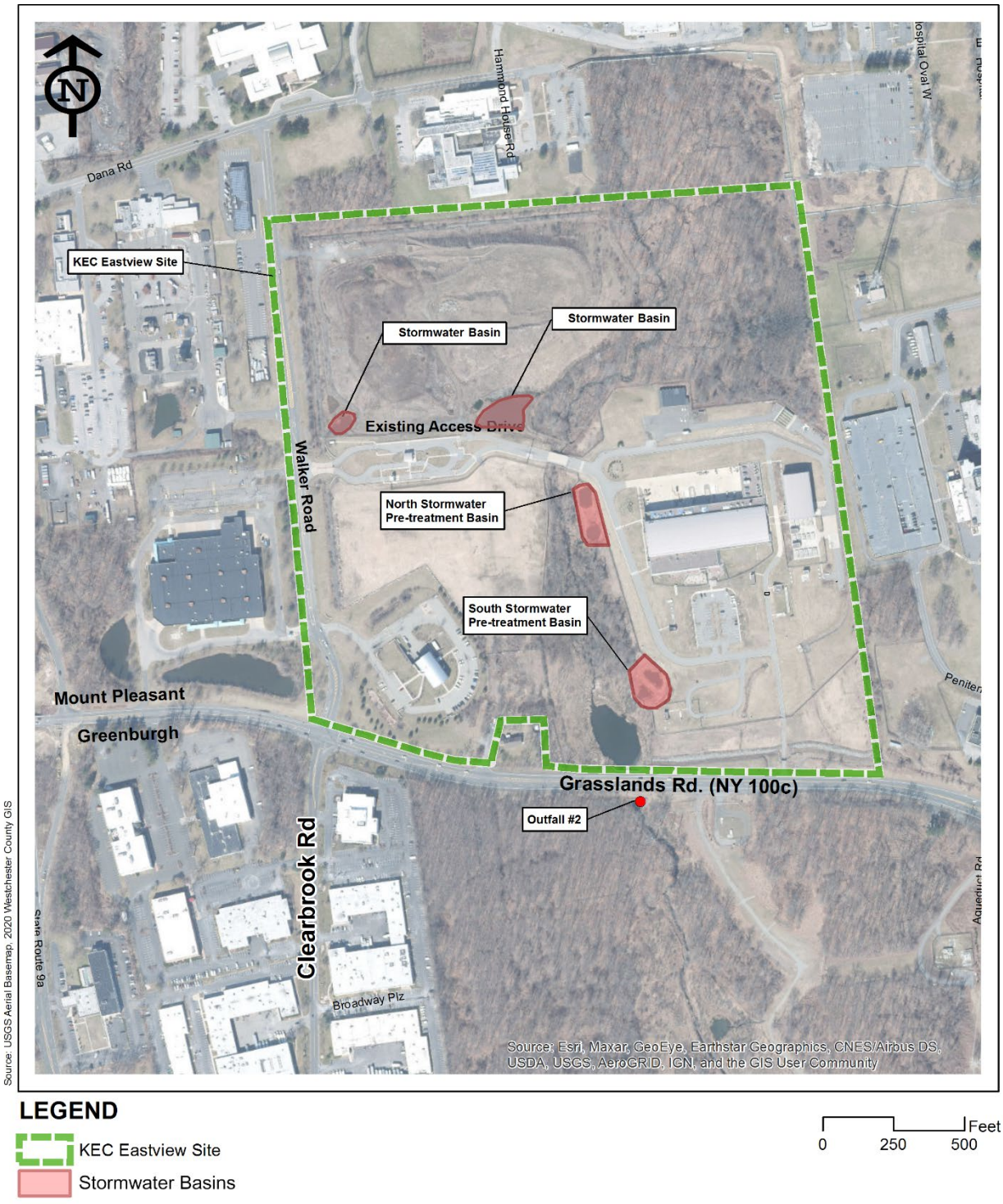


Figure 3.8-11. Location of Existing Outfall #2 – KEC Eastview Site

naturally-occurring precipitates from groundwater. The Manhole Cleanouts for Foundation Drain System project would provide new cleanout access locations to monitor and maintain the existing foundation underdrain piping system and modify an existing manhole to redirect drainage flows to Outfall #2 to Mine Brook. These projects would not result in substantive changes to existing hydrology, surface water or groundwater conditions at the KEC Eastview Site or local stormwater conveyances.

Other non-DEP projects including the Landmark at Eastview North Campus, Landmark at Eastview South Campus Parcel D, and Regeneron Greenburgh Expansion are all located approximately one-half mile west of the KEC Eastview Site. None of these projects are located within the watershed that contributes to Mine Brook or the KEC Eastview Site and, therefore, would not change existing hydrology, surface water or groundwater resources, and local stormwater conveyances at the KEC Eastview Site.

3.8.5 FUTURE WITH THE PROPOSED ACTION

3.8.5.1 Kensico Campus

Pre- and Post-Development and Construction Stormwater Flows

As described in Chapter 1, "Project Description," the Proposed Action would involve the construction of a new KEC Screen Chamber, electrical building, and police booth. A newly constructed road would shift public access from the existing Westlake Drive to the north. There would be parking facilities associated with the relocated Westlake Drive, the KEC Screen Chamber, UEC, and the police booth. The former aerator basins area would be filled and regraded with excavated materials from the KEC Screen Chamber, KEC Shaft 1C, and connection tunnels construction and then landscaped. In addition, stabilization of the shoreline adjacent to Kensico Reservoir would also be put in place to limit future erosion. At the conclusion of construction activities, the majority of the Kensico Campus would largely encompass pervious areas as it does today.

The combined H&H model (XPSWMM) used for the initial assessment of the proposed condition includes the proposed grading, storm drains, detention basins, and site improvements. Based upon the modeling results, the proposed detention basins at the Kensico Campus would likely reduce peak flows and stormwater volumes discharged to Clove Brook from current conditions during proposed construction and after completion of the Proposed Action. **Figure 3.8-12** shows the water depths for the conditions with the Proposed Action. **Figure 3.8-13** presents post-development hydrographs for the 100-year and 500-year storm events that illustrate that post-development peak flows in comparison to pre-development conditions would be less.

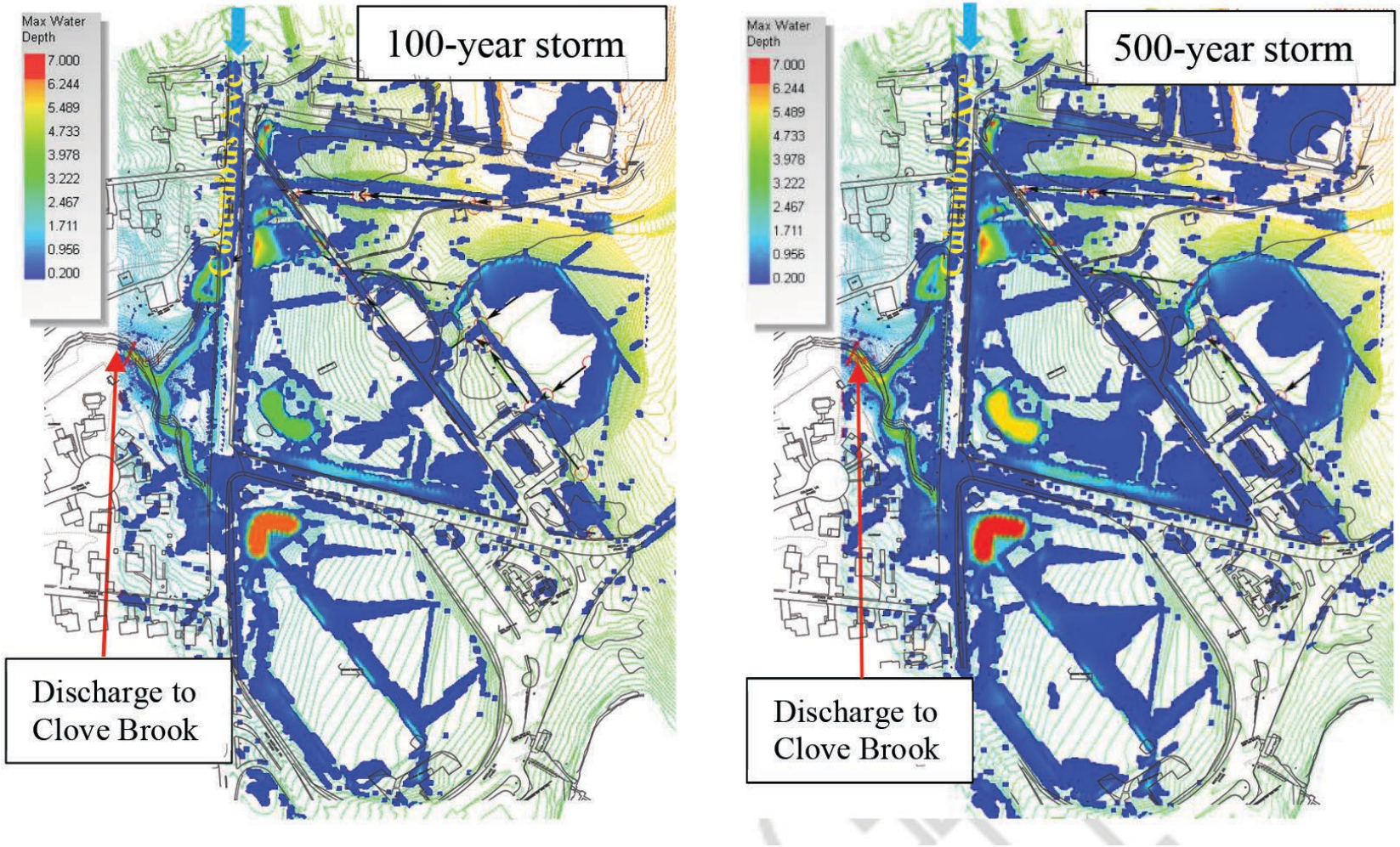
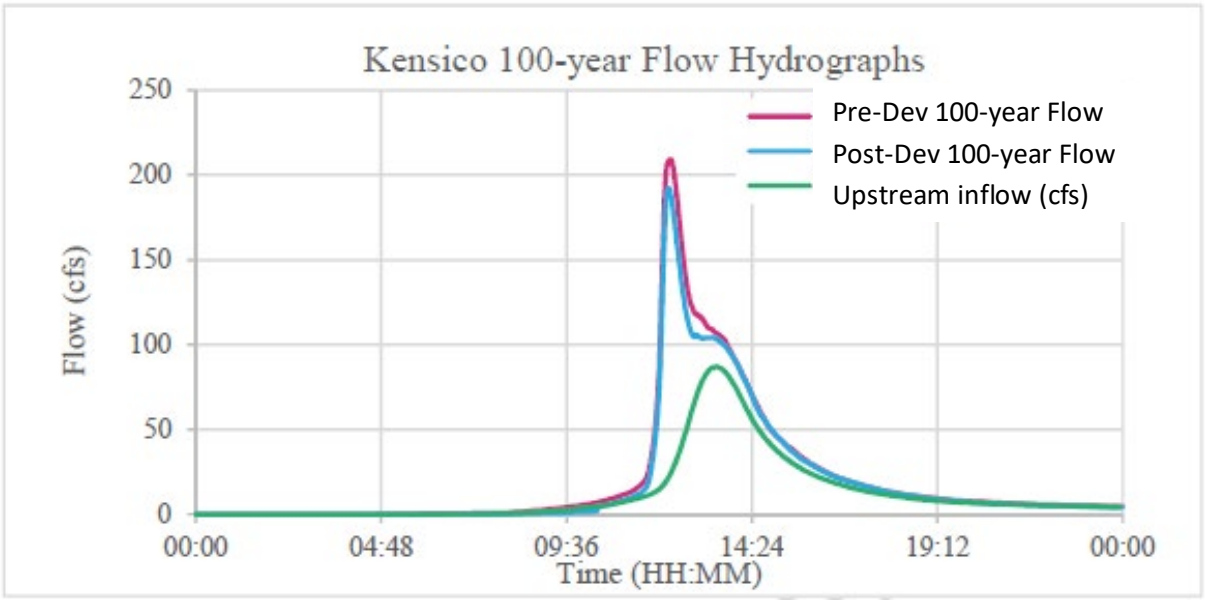


Figure 3.8-12. Post-Development, 100-Year and 500-Year Flow Depth (Feet) – Kensico Campus



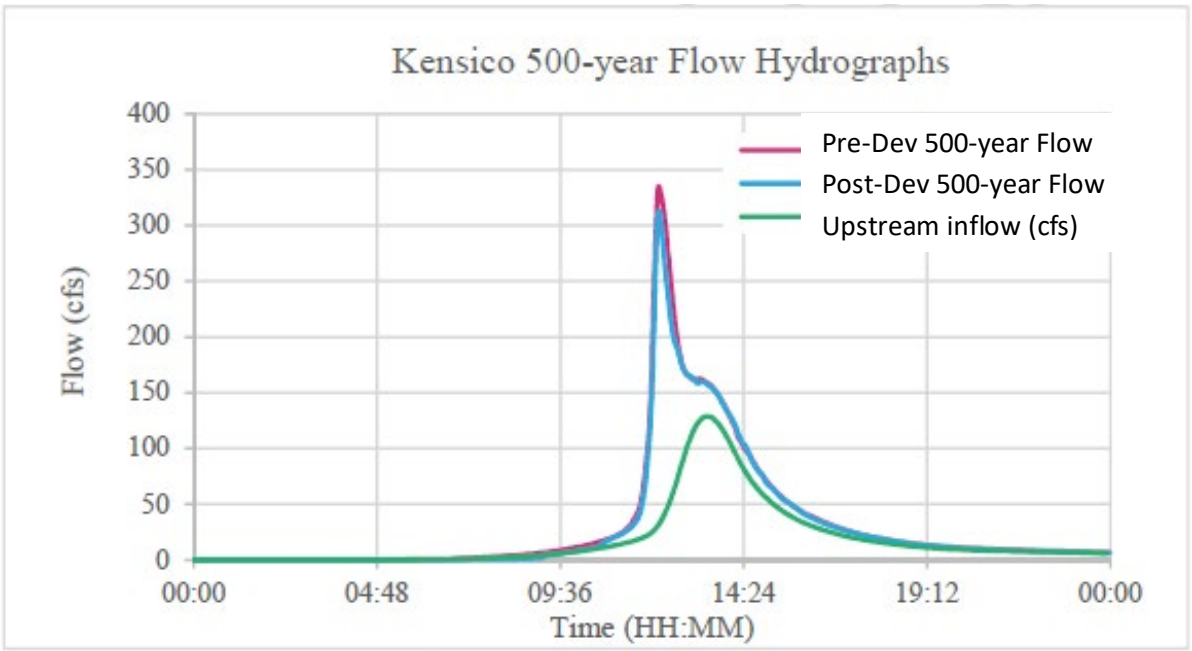


Figure 3.8-13. Post-Development, 100-Year and 500-Year Flow Hydrographs – Kensico Campus

Based on the model results, the proposed detention pond sizing is adequate to manage the stormwater for the post-development condition to have peak flows and discharge volumes that would not exceed those under the pre-development condition, for both the 100-year and 500-year storm events (see **Table 3.8-1**). No significant adverse impacts associated with stormwater peak flows during construction or post-development is anticipated to occur and Clove Brook would be able to handle these flows similar to or better than existing conditions. As shown in **Table 3.8-1**, peak flows and volumes under the 100-year and 500-year storm events would decrease from existing conditions which would represent a potential improvement over current flow and volume conditions.

Table 3.8-1. Comparison of Calculated Peak Flows and 24-Hour Volumes in Clove Brook

Condition	100-Year Storm Event		500-Year Storm Event	
	Peak Flow (cfs)	Volume (ac-ft)	Peak Flow (cfs)	Volume (ac-ft)
Existing	209	40.6	335	61.9
Proposed	192	37.1	313	58.3
Net Change	-17	-3.5	-22	-3.6

Based on the studies conducted in support of the Proposed Action, including an assessment of existing and future stream capacity within Clove Brook in combination with an analysis conducted as part of the initial development of a SWPPP for the Kensico Campus, the anticipated peak flows associated with the management of construction and/or post-construction stormwater volumes would be less than the calculated peak flows for the existing condition for the 100-year and 500-year storm events as noted in **Table 3.8-1**. Currently projected construction and/or post-construction flows associated with stormwater runoff from the Kensico Campus to Clove Brook are anticipated to be lower than the pre-construction peak discharge. In addition, as part of the proposed construction, additional discharges due to construction wastewaters, infiltration, and/or dewatering flows would also occur. These are currently anticipated to up to 2 cfs and would also discharge to Clove Brook after receiving appropriate treatment, as applicable. The addition of these flows in conjunction with stormwater flows noted above would also be less than the calculated peak flows (100-year and 500-year storms) and therefore would not result in an adverse effect to the flows within Clove Brook. This would indicate that no adverse effect to the capacity within Clove Brook is anticipated due to the proposed construction.

In-Water Construction Activities

In addition to the management of stormwater flows, construction activities at the Kensico Campus would also include shoreline stabilization, replacement of existing turbidity curtains, and removal of accumulated sediments at the UEC intake channel within Kensico Reservoir that have the potential to affect water quality. As discussed in Chapter 1, "Project Description," approximately 1,600 linear feet of stabilization would occur along the western shore of Kensico

Reservoir, extending from the UEC to the north to the location of previously completed shoreline stabilization in proximity to DEL Shaft 18. Currently proposed shoreline stabilization would include construction in the wet or dry, or a combination of both. To protect water quality and provide a secure work area disconnected from the larger reservoir, all shoreline stabilization work would be performed behind a temporary steel sheeting wall, cofferdam, or other protective barrier and multi-layer temporary construction turbidity curtains. Shoreline stabilization below the waterline would be performed utilizing machine-placed riprap. Shoreline stabilization above the water line would be performed utilizing hand-placed riprap. If dewatering is required, any proposed discharges to the municipal sewer system and/or Kensico Reservoir would be conducted in accordance with applicable regulations and requirements including measures that may be required by DEP (e.g., turbidity curtains, monitoring) to be protective of water quality. No impact to water resources is therefore expected.

DEP has also historically used a series of turbidity curtains in proximity to Malcolm Brook to provide protection of water quality at the UEC and DEL Shaft 18. Episodes of storm-related turbidity have been associated with releases from Malcolm Brook. As the current curtains are nearing the limit of their useful life, the Proposed Action would involve the replacement of these with a new curtain as described in Section 3.7, "Natural Resources." In order to limit potential effects to water resources during the replacement of these curtains, placement would involve the use of a floating work platform where the pre-assembled new curtain would be transported to the location and placed within the reservoir and divers would connect the segments and subsurface anchors. Little or no effects are expected to occur as a result of the activities associated with the replacement of these curtains and after placement the new curtain would provide increased protection of water quality at the UEC and DEL Shaft 18 site.

Removal of accumulated sediments in a limited area of Kensico Reservoir, generally within the intake channel of the UEC, would be required and is discussed in more detail in Section 3.7, "Natural Resources." This would involve the removal of approximately 1,000 cy within an area of approximately 0.2 acres. Removal of accumulated sediments is required to remove material that has accumulated since the use of the UEC ceased and to remove sediment that could be resuspended in the future when the UEC may operate at higher intake flows. Removal of accumulated sediments can result in the temporary resuspension of sediments presenting a short-term and localized effect to reservoir water quality. As part of the proposed construction, measures would be put in place to limit these effects. This would include diver-assisted dredging (e.g., micro-dredging), the use of turbidity curtains, or other measures to reduce the potential effect of resuspended sediments. In addition, removal of accumulated sediments would require the acquisition of permits from the NYSDEC and USACE which would include project specific compliance conditions. With the implementation of the measures discussed above and the need to comply with the conditions and requirements of applicable permits, the proposed removal of accumulated sediments would not result in adverse impacts to water resources.

3.8.5.2 KEC Eastview Site

Pre- and Post-Development and Construction Stormwater Flows

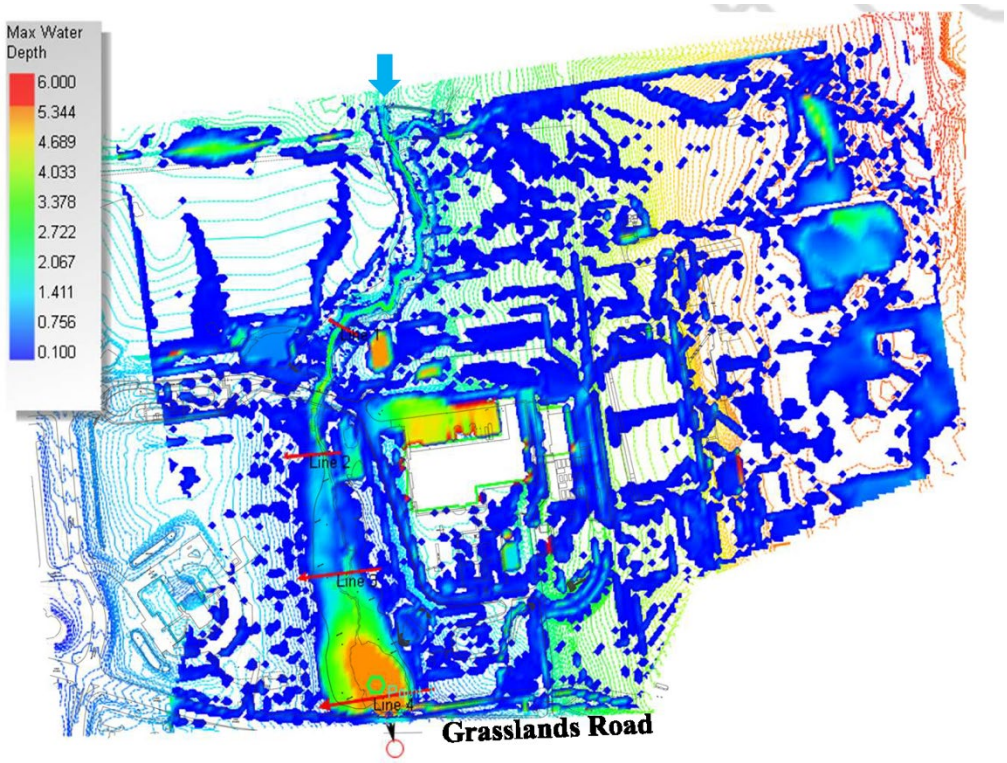
The KEC Eastview Site would be redeveloped including construction of the new ECC, a new access road, and temporary construction staging and laydown areas including an excavated materials storage area in the northwest portion of the site. A portion of the existing storm drains would be removed and replaced with new storm drains in accordance with proposed site layout changes to provide appropriate collection of stormwater runoff across the KEC Eastview Site. The new storm drain system would connect at the locations of existing manhole structures. Similar to the modeling of the pre-development conditions, only the major culverts and the flow control weirs were included in the XPSWMM model.

The proposed grading was incorporated into the hydraulic model for the post-development condition, which would have two new storage ponds. One would be northwest of the ECC near Mine Brook. The other would be at the southeast corner of the KEC Eastview Site. **Figure 3.8-14** shows the water depths from the hydraulic model under the post-development condition. **Figure 3.8-15** presents the 100-year and 500-year flow hydrographs, respectively, that would discharge through the culvert at Grasslands Road under the post-project condition compared to the hydrographs for the pre-development condition.

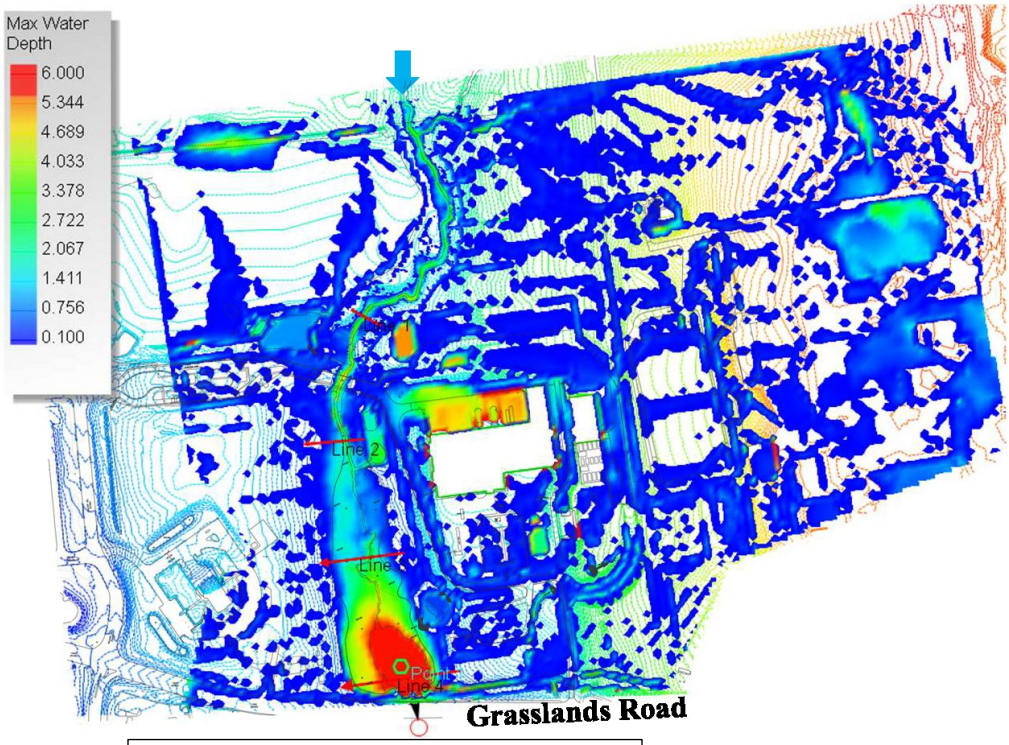
The modeling results show that the post-development stormwater management measures would reduce the peak discharges to the Mine Brook under both the 100-year and 500-year storm events (see **Table 3.8-2)**. It also shows that the proposed stormwater storage ponds would reduce the 24-hour stormwater volumes discharged to Mine Brook. The results illustrate that the new on-site stormwater storage ponds would control the 100-year storm event with peak flows released from the Proposed Action at the KEC Eastview Site not to exceed those under the pre-development conditions. For the 500-year storm event, the on-site stormwater storage ponds can also effectively control the peak flows so as not to exceed the pre-development condition.

Table 3.8-2. Comparison of Peak Flow and 24-Hour Volume in Mine Brook

Condition	100-Year Storm Event		500-Year Storm Event	
	Peak Flow (cfs)	Volume (ac-ft)	Peak Flow (cfs)	Volume (ac-ft)
Existing	448	79	789	123
Proposed	422	78	784	121
Net Change	-26	-1	-5	-2

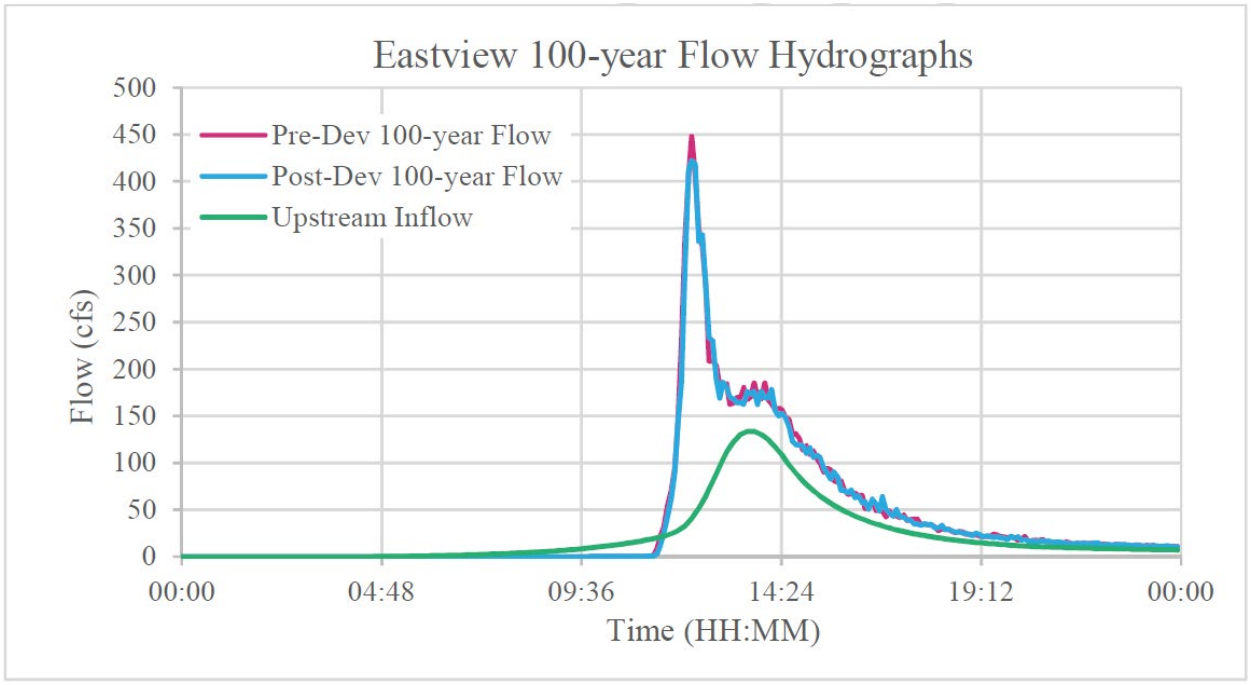


100-Year Flow Depths



500-Year Flow Depths

Figure 3.8-14. Post-Development, 100-Year and 500-Year Flow Depths (Feet) - KEC Eastview Site



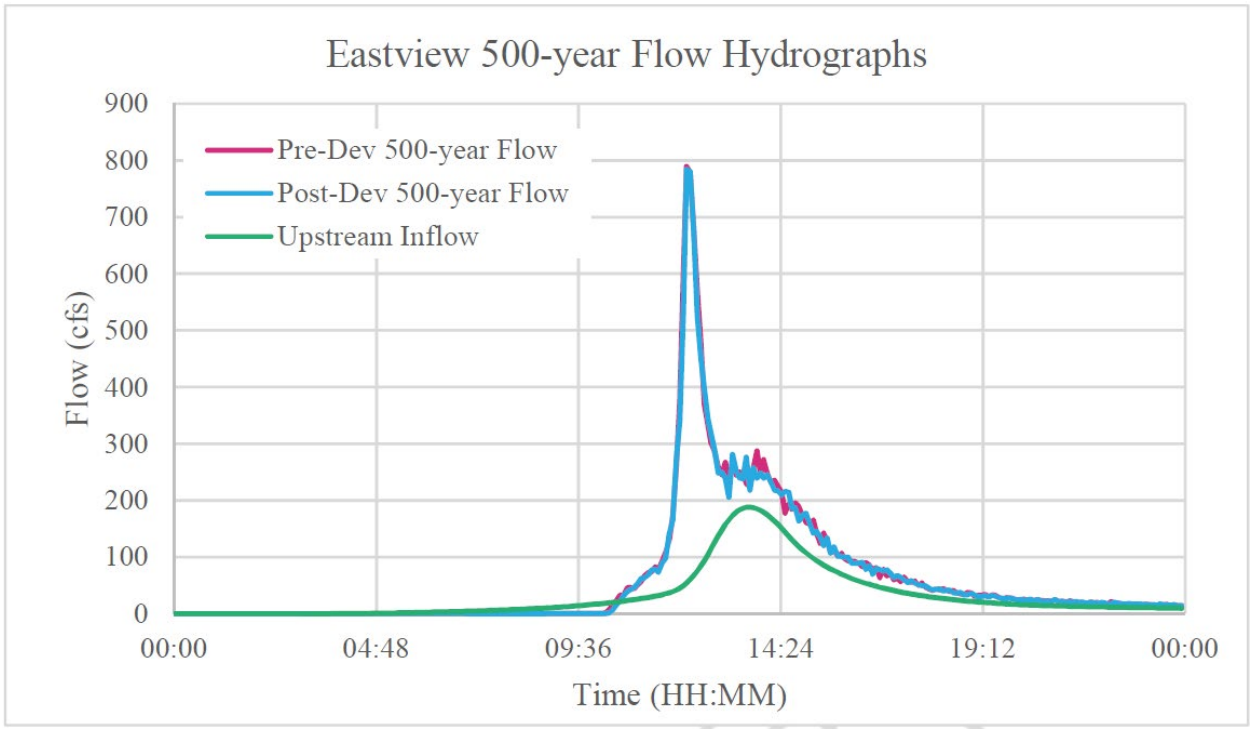


Figure 3.8-15. Post-Development, 100-Year and 500-Year Hydrographs at Mine Brook – KEC Eastview Site

During the shaft and tunnel construction phases of the Proposed Action, dewatering of the shaft and tunnel work areas would be required. During shaft construction, the maximum construction dewatering flow would be approximately 200 gpm (0.5 cfs) and would discharge to Mine Brook. During tunnel construction, the maximum estimated tunnel dewatering rate would be approximately 60 gpm (0.03 cfs). During final utility connection from the ECC to the CDUV, the maximum tunnel dewatering rate would be approximately 160 gpm.

Based on the studies conducted in support of the Proposed Action including an assessment of existing and future stream capacity within Mine Brook in combination with an analysis conducted as part of the initial development of a SWPPP for the KEC Eastview Site, the anticipated peak flows associated with the management of construction and/or post-construction stormwater volumes would be less than the calculated peak flows for the existing condition for the 100-year and 500-year storm events as noted in **Table 3.8-2**. Currently projected construction and/or post-construction flows associated with stormwater runoff from the KEC Eastview Site to Mine Brook in conjunction with the anticipated discharges due to construction wastewaters, infiltration, and/or dewatering flows, are anticipated to be below pre-development peak flows. As part of the proposed construction, discharges due to construction wastewaters, infiltration, and/or dewatering flows are anticipated to be on the order of 1 cfs and would discharge to Mine Brook after receiving appropriate treatment, as applicable. The addition of these flows in conjunction with stormwater flows noted above would then also be less than the calculated peak flows (100-year and 500-year storms) and, therefore, would not result in an adverse effect to the flows within Mine Brook. This would indicate that no adverse effect to capacity within Mine Brook is anticipated due to the construction of the Proposed Action.

3.8.5.3 Construction Stormwater and Dewatering

In addition to the management of stormwater quantity as discussed above, construction activities could introduce pollutants into stormwater runoff, as well as from construction dewatering. Typical pollutants of concern include sediment and TSS. These would need to be addressed prior to any release of construction stormwater to Kensico Reservoir or Clove Brook at the Kensico Campus or Mine Brook at the KEC Eastview Site. All construction activities would be conducted in accordance with applicable local, State, and federal requirements for the control of stormwater runoff and erosion at the Kensico Campus and KEC Eastview Site. Coverage under the NYSDEC Statewide General Permit for Stormwater Discharges Associated with Construction Activities (GP-0-20-001) would be required and separate SWPPPs would be prepared for the Kensico Campus and KEC Eastview Site in order to be protective of water quality. For both the Kensico Campus and KEC Eastview Site, the construction activity would be phased to limit the amount of disturbance at any one time. These SWPPPs set forth requirements for the management of stormwater runoff quantity and quality. The SWPPPs would address the procedures that would be implemented to limit potential stormwater contamination from construction activities, the storage of petroleum-based materials and other chemicals, and

additional protective measures that would be implemented for the protection of water resources. The SWPPPs would also address measures and/or the timing for the implementation of these to address potential effects upon stormwater runoff and/or Kensico Reservoir during the clearing and grubbing of large portions of the Kensico Campus. Trees on the Kensico Campus would be cleared early in the construction work (i.e., around January 2024 and in 2025), during the winter months (~~October~~ November 1 - March 31). At this time, trees would be felled and removed without the removal of the tree roots and stumps and soil disturbance. The tree roots and stumps would serve to preserve soil structure, limiting erosion. Overall site clearing and grubbing, at both the Kensico Campus and KEC Eastview Site, during subsequent construction would be phased and limited, as per NYSDEC SPDES GP-0-20-001 requirements. If soil disturbances would be greater than this, additional outreach to involved agencies and/or measures would be put in place to eliminate and/or minimize potential impacts to stormwater runoff or water quality. ~~If needed, a waiver would be acquired should any phase exceed five acres.~~ The SWPPPs would need to comply with the requirements of the statewide general permit, as well as the requirements of the Town of Mount Pleasant under its MS4 authority. In addition, those portions of the Kensico Campus that would discharge stormwater runoff to Kensico Reservoir would also need to meet DEP's stringent watershed regulations. However, due to the construction of the Proposed Action there would be a small portion of new impervious area that drains to Kensico Reservoir that would increase the pre- to post-development discharge rate to Kensico Reservoir, however based on the size of Kensico Reservoir and the general site constraints, approval of the SWPPP is anticipated to be issued. ~~A waiver has been granted by DEP in accordance with the statewide general permit for this increased discharge rate as the East of Hudson watershed is exempt from NYSDEC stormwater quantity requirements.~~

Both SWPPPs would utilize soil and erosion controls such as silt fences, sedimentation basins, storm drain protection, and concrete/truck washouts to address erosion concerns during construction. Approval under these programs and requirements and implementation of the measures discussed in the SWPPPs would be required prior to and over the duration of proposed construction. As these requirements are protective of water resources and the environment, no effect due to changes in flows or potential pollutants associated with construction stormwater would occur.

3.8.5.4 Construction Wastewaters

In addition to construction stormwater, certain activities associated with construction of the Proposed Action would potentially introduce additional pollutants beyond those typically associated with routine construction stormwater. These would include the following:

- Construction wastewaters would primarily be associated with the KEC Shaft 1C, UEC Shaft and connecting tunnel construction and excavations associated with the KEC Screen Chamber at Kensico Campus; and shaft, tunnel, and ECC construction and excavations and removal of excavated material from the KEC Tunnel at the

KEC Eastview Site. These activities may include pollutants such as TSS, oil and grease, and pH.

- Infiltration of groundwater associated with subgrade excavation, tunneling, and other construction.
- Dewatering of the removal of accumulated sediments from Kensico Reservoir may result in discharges containing pollutants such as TSS.
- Dewatering associated with shoreline stabilization activities (in the wet/dry construction) may result in TSS.
- Commissioning of the KEC Project would require the disinfection of water conveyances prior to operation of the Proposed Action. This may result in the discharge of pollutants associated with these activities (e.g., residual chlorine).

As part of the Proposed Action, all required permits and approvals would be acquired. Potential discharges associated with the Proposed Action may be released to surface waters and/or the local sewer system, as applicable and appropriate. For discharges to surface waters, any work with the potential to release pollutants would be covered under an appropriate permit (see Section 3.14.4 for discussion of potential discharges to municipal sewer system). For instance, construction-related stormwater discharges would be covered under the general permit (GP-0-20-001) as well as local stormwater permits, releases of water from the UEC, limited removal of accumulated sediments and the shoreline stabilization work areas would be covered, as applicable, under the NYSDEC Protection of Waters permit program, and separate individual SPDES permits would be required for each site for other construction wastewaters requiring treatment prior to discharge. These permits, as applicable, would be in place prior to any proposed releases. Acquisition of the appropriate discharge-related permits would involve the identification of potential activities that may result in pollutants; potential pollutants of concern; the estimated flows, pollutant concentrations and discharge durations; and any treatment (e.g., settling, filtration, flocculant use, pH control, and/or dechlorination) that may be required. All potential releases to surface waters would be conducted in compliance with any and all applicable regulations, permits, and approvals, and thereby be protective of human health and the environment including water resources. No adverse impacts are anticipated.

Based on the analyses completed and the measures that would be put in place as part of the construction of the Proposed Action at the Kensico Campus and KEC Eastview Site, no significant adverse effects upon water resources are anticipated.

3.9 HAZARDOUS MATERIALS

3.9.1 INTRODUCTION

The hazardous materials section discusses the potential for the presence of hazardous materials in the Kensico Campus and KEC Eastview Site study areas, the potential for exposure to hazardous materials during construction, and the specific measures that would be used to protect public health, worker safety, and the environment. A hazardous material is generally defined as a substance that poses a threat to human health or the environment.

This section evaluates the potential effects during construction of the Proposed Action related to hazardous materials. In general, a one-half mile study area was assessed for the Kensico Campus and KEC Eastview Site, as well as the deep rock tunnel alignment. The Kensico Campus and KEC Eastview Site currently operate as part of DEP's water supply system and would continue to operate as such once construction of the Proposed Action is completed. Petroleum and chemical bulk storage related to ongoing and future operations at these sites during and after construction would remain comparable to existing conditions.

3.9.2 METHODOLOGY

The Proposed Action would entail construction of new aboveground and subsurface facilities, modifications and improvement to existing buildings and infrastructure, surface and subsurface disturbances of soils and underlying bedrock at both the Kensico Campus and KEC Eastview Site, as well as along the deep rock tunnel alignment itself. These activities were evaluated to determine whether they could increase pathways to human or environmental exposure to hazardous materials within the surrounding study areas and if those exposures would result in potential public health or environmental effects. If adverse effects are identified, the *CEQR Technical Manual* requires that the effects be disclosed and mitigated or avoided to the greatest extent practicable.

To establish the existing and future conditions, a hazardous materials assessment was performed, in accordance with the *CEQR Technical Manual* and the American Society for Testing and Materials (ASTM) E1527-00 guidelines, at the Kensico Campus, KEC Eastview Site, and along the deep rock tunnel alignment. In addition, a review of available records and studies conducted in support of the proposed construction and design of the Proposed Action, as well as selective historic information, where readily available, was also conducted. Finally, a desktop analysis of Environmental Data Resources, Inc. (EDR) proprietary records that include numerous federal and State environmental databases, as noted below, was also performed.

The potential for hazardous material impacts was analyzed using the following federal, State, and proprietary environmental databases, resources, and records, in accordance with ASTM E1527-21 guidelines:

- Federal Databases and Records
  - National Priority List (NPL) database
  - NPL LIENS: Federal Superfund Liens
  - Delisted NPL database
  - Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database
  - CERCLIS - No Further Remedial Action Planned (NFRAP) database
  - Resource Conservation and Recovery Act Corrective Action Sites (RCRA-CORRACTS)
  - RCRA Information System (RCRIS) - Treatment, Storage and Disposal (TSD) database
  - RCRA Generator (RCRAGN) database
  - RCRA Non-Generator/No Longer Regulated (RCRA NonGen/NLR) database
  - Emergency Response Notification System (ERNS)
  - Federal Institutional Controls/Engineering Controls (EC/IC) Registries (Federal and State Lists)
  - Facility Index System (FINDS) database
- New York State Databases and Records
  - National Priority List (NPL) database for New York State
  - State Hazardous Waste Site (SHWS)/Hazardous Substance Waste Disposal Sites (HSWDS) databases
  - Inactive Hazardous Waste Disposal Sites (IHWDS) database
  - Status of Vapor Intrusion Evaluations at Legacy Sites
  - Solid Waste Facilities/Landfills (SWF/LF) database
  - Hazardous Waste Manifest System
  - Leaking Underground Storage Tank (LUST)/Leaking Storage Tank (LTANK) database
  - Spills database
  - Underground Storage Tank (UST) and Aboveground Storage Tank (AST) database
  - Chemical Bulk Storage (CBS) - (AST/UST) databases
  - Historic/Landmark lists locations on the National Register of Historic Places
  - Voluntary Cleanup Program database
  - Brownfields Sites database
  - State Pollutant Discharge Elimination System (SPDES) permit records

  - Polychlorinated biphenyl (PCB) Activity Database (PADS)
- Environmental Data Resources (EDR) Proprietary Records
  - Manufactured Gas Plants (MGP)
  - Dry Cleaners and Historic Cleaners databases
  - Historic Auto Stations

3.9.3 EXISTING CONDITIONS

To effectively manage materials generated during construction of the Proposed Action, an effort was made to identify possible sources of contamination at the Kensico Campus, the KEC Eastview Site, and within the study area for the proposed tunnel alignment. In addition, as part of design of the Proposed Action, the identification of potential existing hazardous materials (e.g., lead paint, asbestos containing materials) that may or may not be present within existing structures that are part of the Proposed Action (e.g., UEC) were also identified, as applicable.

To assist in defining existing conditions, Phase I Environmental Site Assessments (ESAs) were conducted at the Kensico Campus and KEC Eastview Site in August 2020 and along the tunnel alignment in April 2021. Sites identified as Recognized Environmental Conditions (RECs) as part of these assessments are shown in **Table 3.9-1**. A REC is identified as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. RECs listed in **Table 3.9-1** have the potential for a release of hazardous substances or petroleum products within the study areas prior to, during, or after construction of the Proposed Action.

Table 3.9-1. Recognized Environmental Conditions (RECs) within the KEC Project Study Area

REC[(1)]	Address	Justification to Include	Potential Impact on Proposed Construction
Shaft 19	10 Walker Rd. Valhalla, NY	Multiple spill incidents were reported at this site. Located at an equal/higher elevation than the proposed KEC Eastview Site.	All spills relatively small and closed. REC therefore unlikely to affect or be affected by proposed construction.
Construction Site	10 Walker Rd. Valhalla, NY	Multiple spill incidents were reported at this site. Located at an equal/higher elevation than the KEC Eastview Site.	All spills relatively small and closed. REC therefore unlikely to affect or be affected by proposed construction.

Table 3.9-1. Recognized Environmental Conditions (RECs) within the KEC Project Study Area

REC[(1)]	Address	Justification to Include	Potential Impact on Proposed Construction
DEP Catskill Delaware UV Facility	10 Walker Rd. Valhalla, NY	A RCRA Large Quantity Generator with no violations. Located at an equal/higher elevation than the KEC Eastview Site.	No violations. REC therefore unlikely to affect or be affected by proposed construction.
DEP Facility	10 Walker Rd. Valhalla, NY	Multiple spill incidents were reported at this site. Located at an equal/higher elevation than the KEC Eastview Site.	All spills relatively small and closed. REC therefore unlikely to affect or be affected by proposed construction.
Westchester County Laboratories & Research	10 Dana Rd. Valhalla, NY	A RCRA Small Quantity Generator with violations. Located at an equal/higher elevation than the KEC Eastview Site.	All violations were permit and compliance violations, with no record of spills. Unlikely to affect proposed construction.
Grassy Slope to Woods	2 Dana Rd. Valhalla, NY	Three to eight sampled wells on site indicated elevated contamination levels. Cleanup is pending; a spill closed date was not reported. Located at an equal/higher elevation than the KEC Eastview Site.	100-gallon petroleum spill. Unlikely to affect construction at tunnel depth but may affect soils in surficial activities or excavations at KEC Eastview Site.
Westchester County Police Firing Range	2 Dana Rd. Valhalla, NY	A RCRA Large Quantity Generator with no violations. Located at an equal/higher elevation than the KEC Eastview Site.	No violations listed. Unlikely to affect proposed construction.
Institute for Cancer Prevention	1 Dana Rd Valhalla, NY	A RCRA Small Quantity Generator with violations. Located at an equal/higher elevation than the KEC Eastview Site.	Violations were listed, but all were compliance violations, not spills. Unlikely to affect proposed construction.
Valhalla Household Materials Recovery Facility - H	15 Woods Rd.	A RCRA Large Quantity Generator with an existing SPDES permit with no violations. Located at an equal/higher elevation than the KEC Eastview Site.	No violations listed. Unlikely to affect proposed construction.

Table 3.9-1. Recognized Environmental Conditions (RECs) within the KEC Project Study Area

REC[1]	Address	Justification to Include	Potential Impact on Proposed Construction
Westchester County Valhalla Household Materials Recovery Facility (HMRF)	Grasslands Campus HMRF	This site actively handles household hazardous waste. Located at an equal/higher elevation than the KEC Eastview Site.	No violations listed. Unlikely to affect proposed construction.
Cabin Restaurant	1172 Knollwood Rd. White Plains, NY	A leaking tank incident was reported on this site. Located at an equal/higher elevation than the KEC Eastview Site.	Leaking tank was remediated. Subsequent groundwater sampling showed no petroleum; soil sampling showed petroleum under standard. Spill was closed in 2008. Effects due to the REC are unlikely.
Shaft 18 Water Supply	Columbus Ave. Valhalla, NY	Multiple spill incidents were reported at this site, which is a RCRA Small Quantity Generator. Located at an equal/higher elevation than the Kensico Campus.	All spills were closed. Effects due to the REC are unlikely.
Valhalla High School	300 Columbus Ave. Valhalla, NY	Multiple spill incidents were reported at this site. A leak incident did not reflect as closed. Located at an equal/higher elevation than the Kensico Campus.	Leak incident was closed in April 2020 and was due to a faulty valve, with no release to the environment. All other spills were closed. Unlikely to affect proposed construction.
Shaft 18[2]	20 Westlake Dr. Valhalla, NY	Multiple spill incidents were reported at this site, including an ongoing mercury contamination issue and a leaking storage tank. Located at an equal/higher elevation than the Kensico Campus.	The leaking storage tank has been removed, a subsequent test in 2007 indicated results were below guidance values. Additional DEP review of the ongoing mercury contamination issue indicated that this location is not within the limits nor would be affected by the Proposed Action. REC therefore unlikely to affect or be affected by proposed construction.

Table 3.9-1. Recognized Environmental Conditions (RECs) within the KEC Project Study Area

REC[(1)]	Address	Justification to Include	Potential Impact on Proposed Construction
Kensico Fluoride Plant	18 Westlake Dr. Valhalla, NY	Multiple spill incidents were reported at this site. Located at an equal/higher elevation than the Kensico Campus.	All spills were closed. Effects due to the REC are unlikely.
Charles Stotz, Inc.	110 Columbus Ave. Valhalla, NY	Multiple leaking tank incidents were reported on this site. Located at an equal/higher elevation than the Kensico Campus.	Downgradient of proposed construction. Unlikely to affect proposed construction.
Charles Stotz, Inc. - TTF	110 Columbus Ave. Valhalla, NY	A tank test failure and tank removal incident at this site does not have a close date. Located at an equal/higher elevation than the Kensico Campus.	Downgradient of proposed construction. Unlikely to affect proposed construction.
Farrand Controls Division	99 Wall St. Valhalla, NY	NY State Superfund site with contamination of halogenated VOCs in groundwater, soil, and soil vapor. Violations were reported at the site, and the site was given a State hazardous waste site Classification Code of 2 that confirms the disposal of hazardous waste at the site and the presence of such waste presents a significant threat to the public health or environment (NYSDEC Site Code 360046).	Downgradient of proposed construction. Unlikely to affect proposed construction.

Notes:
(1) REC identification/names are presented as identified by EDR and are not necessarily representative of the actual location.
(2) REC name was revised to reflect the actual location.

In addition to the Phase I ESAs completed for the Proposed Action, soil, groundwater, and sediment sampling and analyses were also conducted on a limited basis. In November and December 2020, four soil borings (B-1 to B-4) were completed within the limits of the Kensico Campus along the eastern shoreline of the Kensico Reservoir, and three soil borings (B-5 to B-7) and two surface sediment borings (SS-1 and SS-2) were completed within Kensico Reservoir.

Grab samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). Composite samples were analyzed for TCL semi-volatile organic compounds (SVOC), TCL pesticides, herbicides, polychlorinated biphenyls (PCB), Target Analyte List (TAL) metals, hexavalent chromium, cyanide, and total petroleum hydrocarbons (TPH), both diesel range organics (DRO) and gasoline range organics (GRO). Sediment composite samples were also analyzed for grain size, total organic carbon (TOC), and dioxins.

Soil Cleanup Objectives (SCOs) are established NYSDEC-criteria under 6 NYCRR Part 375-6, originally promulgated in 2006, that provide a baseline measure to assess varying levels of contamination in the soils based upon the potential future use of a site (e.g., industrial, commercial, residential). Results discussed within this section, to provide a conservative comparison of potential soil contamination, were initially compared to the Unrestricted Use SCO which is the most conservative SCO. Results of the sampling discussed above indicated the presence of acetone, phenol, copper, and nickel in eight borings across six locations which exceeded the most conservative SCO for Unrestricted Use. The detected concentrations of nickel and copper, while exceeding the SCO for Unrestricted Use, were both below the SCO thresholds for Protection of Groundwater and Residential Use, which would still be compatible with the proposed use of the site as part of the Proposed Action. Sampling results which exceeded the SCOs are summarized in **Table 3.9-2**.

Table 3.9-2. Summary of Soil Results Exceeding SCOs for Unrestricted Use, Protection of Groundwater, and Residential Use (mg/kg)

Analyte:		Acetone(1)	Phenol(1)	Copper	Nickel
6 NYCRR §375-6.8(a) Criteria Unrestricted Use Threshold		0.05	0.33	50	30
6 NYCRR Part §375-6.8(b) Criteria Protection of Groundwater Threshold		0.05	0.33	1,720	130
6 NYCRR Part §375-6.8(b) Criteria Residential Use Threshold		100	100	270	140
Boring ID	**Depth (ft bgs)**				
B-1	8-10	--	0.35	--	--
B-2	6-8	--	0.39		31.8
B-5	0-8	--	0.53	--	--
	13-15	--	0.39	--	--
B-6	0-2	0.0858	--	--	--
B-7	0-2	0.0635	--	--	--
SS-1	0-2	0.0618	--	--	--
	0-7	--	--	129	--

Notes:
(1) Acetone and phenol are frequently encountered as laboratory contaminants. As a result, the presence of these parameters may not represent actual soil contamination.
(2) Samples collected in November and December 2020.

In addition to shoreline and reservoir sampling, 61 grab soil samples, 21 composite soil samples, and seven groundwater samples were collected from five locations along the tunnel alignment, at the Kensico Campus, and at the KEC Eastview Site in May, June, November, and December of 2021, and in March and June of 2022. Forty-three of the grab soil samples were analyzed for TCL VOCs, while the remaining eighteen grab samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, TAL metals, and cyanide. The grab soil samples were analyzed at varying depths ranging from 0 to 40 feet below ground surface (bgs). The 21 composite soil samples were analyzed for TCL SVOCs, TCL pesticides, PCBs, TAL metals, and cyanide. An exceedance of 6 NYCRR Part 375-6.8(a) Criteria for Unrestricted Use for 4,4'-DDE was detected in one boring, as shown in **Table 3.9-3**.

Table 3.9-3. Summary of Soil Results Exceeding 6 NYCRR Part 375-6.8(a) SCOs for Unrestricted Use

Sample ID	Category	Analyte	6 NYCRR Part 375-6.8(a) Unrestricted Use Threshold (mg/kg)	Detected Results (mg/kg)
CDUV-112921-CEB8-0-6	Pesticides	4,4'-DDE	0.0033	0.00623

Note:
(1) Samples collected in May, June, November, and December 2021 and in March and June 2022.

Six groundwater samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, PCBs, TAL metals, cyanide, perfluorooctanoic acid (PFOA), and perfluorooctanesulfonic acid (PFOS) and were taken at depths between 17 and 30 feet bgs. The seventh groundwater sample (KEM-GW-1) was analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides, total and dissolved metals, hexavalent chromium, nitrate, nitrite, fluoride, chloride, sulfide, cyanide, ammonia, total phenols, total dissolved solids, total organic carbon, chemical oxygen demand, carbonaceous biochemical oxygen demand, biochemical oxygen demand, methylene blue active substances (MBAS), PFOA, and PFOS, and was taken at a depth of approximately 60 feet bgs.

Sampling of existing groundwater presented in **Table 3.9-4** indicated exceedances of NYSDEC TOGS 1.1.1 Groundwater Water Quality Standards and Guidance Values (Class GA Waters) for several VOC, SVOC, and metals in seven samples across the five groundwater sampling locations. As noted in the summary table, iron was detected in sample KENS-062822-SB18-GW and was noted to exceed the NYSDEC TOGS 1.1.1 at a level of 4,770 mg/l in an unfiltered sample. However, for the corresponding filtered sample, iron was detected at 19.5 mg/l, suggesting that the high iron concentration in the unfiltered sample was a result of elevated suspended solids and not due to the presence of elevated iron concentration in the groundwater.

In addition, results of two groundwater samples collected from a single location on the northeast corner of Westlake Drive and Columbus Avenue at Kensico Campus (Sample ID Nos. KENS-121621-KEB6A-GW and KENS-121621-KEB6A-GW-DUP) indicated the presence of numerous metals that exceeded TOGS 1.1.1 Groundwater Water Quality Standards and Guidance Values (Class GA Waters). The results from these samples, however, are inconsistent with other data. Other groundwater samples either showed no metals that exceeded TOGS 1.1.1 values or noted only iron and/or manganese exceedances. The samples collected in proximity to the intersection of Westlake Drive and Columbus Avenue, in contrast, identified 16 individual metals that exceeded TOGS 1.1.1 criteria. Likewise, iron and manganese concentrations at this location were between one and three orders of magnitude higher than other groundwater samples. For these reasons, the groundwater results from these two samples appear to be anomalous. ~~DEP will conduct further groundwater testing at this location to determine if exceedances do exist. If this additional sampling confirms these exceedances, a plan would be developed to address the issue during construction.~~

Table 3.9-4. Comparison of Groundwater Results with NYSDEC TOGS 1.1.1 Water Quality Standards and Guidance Values (Class GA Waters)

Sample ID	Category	Analyte	New York TOGS 1.1.1 Water Quality Standards and Guidance Values (µg/L)	Detected Results (µg/L)	
				Sample	Duplicate
KEM-GW-1	Metals	Iron	300	440	---
		Manganese	300	810	---
KENS-121621-KEB6A-GW and KENS-121621-KEB6A-GW-DUP	SVOCs	Benzo(a)anthracene	0.002	0.07	0.08
		Benzo(a)pyrene	0	0.06	0.06
		Benzo(b)fluoranthene	0.002	0.09	0.09
		Benzo(k)fluoranthene	0.002	0.03	0.03
		Chrysene	0.002	0.06	0.07
		Indeno(1,2,3-cd), pyrene	0.002	0.06	0.06
	Metals (Total)	Arsenic	25	81.84	59.14
		Barium	1,000	22,870	13,430
		Beryllium	3	35.63	30.22
		Cadmium	5	17.92	13.94
		Chromium	50	1,258	1,057
		Copper	200	1,568	1,365

Table 3.9-4. Comparison of Groundwater Results with NYSDEC TOGS 1.1.1 Water Quality Standards and Guidance Values (Class GA Waters)

Sample ID	Category	Analyte	New York TOGS 1.1.1 Water Quality Standards and Guidance Values (µg/L)	Detected Results (µg/L)	
				Sample	Duplicate
		Iron	300	468,000	400,000
		Lead	25	1110	882.4
		Magnesium	35,000	754,000	506,000
		Manganese	300	81,890	60,150
		Mercury	0.7	4.07	2.55
		Nickel	100	1,256	1,093
		Selenium	10	218	166
		Sodium	20,000	48,800	42,300
		Thallium	0.5	5.83	5.61
		Zinc	2,000	2,537	2,323
KTA-062421-GW and KTA-062421-DUP	VOCs	Chloroform	7	44	45
	SVOCs	Benzo(b)fluoranthene	0.002	---	0.01
		Benzo(k)fluoranthene	0.002	---	0.01
		Indeno(1,2,3-cd), pyrene	0.002	---	0.02
	Metals	Iron	300	21,600	15,700
KENS-062822-SB18-GW	Metals	Iron	300	4,770	19.5*
KTA-030322-B54-GW	VOCs	Chloroform	7	37	---
	Metals	Iron	300	5630	---

*Although noted as a duplicate, this is a filtered result for sample KENS-062822-SB18-GW.
** Samples collected in May, June, November, and December 2021 and in March and June 2022.

DEP completed additional sampling in February 2023 with a primary focus on assessing the potential for elevated metals concentrations, see **Table 3.9-5**. Investigations included three borings with temporary groundwater sampling points to further evaluate the elevated metals concentrations previously detected in the earlier groundwater sample (KENS-121621-KEB6A-GW) collected from the KEB-6A location in December 2021.

Similar to previous samples, soil analytical results from the February 2023 sampling were compared against the 6 NYCRR Part 375-6 SCOs and also to 6 NYCRR Part 360.13 special requirements for pre-determined beneficial use of fill material. Pursuant to 6 NYCRR Part 375-6 and 6 NYCRR Part 360.13, soil analytical results were compared against the SCOs for Unrestricted Use, Protection of Groundwater, and Residential Use criteria threshold levels.

Results of the February 2023 sampling showed metals below the Unrestricted Use SCOs except for chromium. Chromium analysis included total and hexavalent chromium. All samples analyzed for hexavalent chromium were shown to have non-detect levels for that parameter. There is no specific NYSDEC SCO for total chromium; therefore, total chromium samples were compared to the more conservative hexavalent chromium SCO. All soil samples collected in February 2023 and analyzed for total chromium exceeded the more conservative hexavalent SCO of 1 mg/kg (Unrestricted Use). However, if compared to the trivalent chromium SCO only two samples (B-01-10-20-20230223 and B-02-0-10-20230223) would exceed the Unrestricted Use standard of 30 mg/kg.

SVOC analyses showed all SVOC levels detected in soils were below the SCOs except for sample B-01-0-10-20230223. SVOC analysis of sample B-01-0-10-20230223 detected concentrations of benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and chrysene that exceeded the unrestricted use SCO of 1 mg/kg with concentrations of 15 mg/kg, 13 mg/kg, 15mg/kg and 14 mg/kg, respectively. Additionally, analysis of sample B-01-0-10-202320223 detected concentrations of benzo[k]fluoranthene at 6 mg/kg above the unrestricted use SCO of 0.8 mg/kg, dibenzo[a,h]anthracene at 1.8 mg/kg above the unrestricted use SCO of 0.33 mg/kg, and indeno[1,2,3-cd]pyrene at 6.2 mg/kg above the unrestricted use SCO of 0.5 mg/kg.

Due to exceedances of SVOCs in the B-1 0-10 ft interval, if not reused on-site, soils from this location will require disposal at a NYSDEC or other State-permitted facility, an individual beneficial use determination (BUD) or disposal at a similarly permitted facility.

Groundwater analytical results were compared against the NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. Aluminum, barium, chromium, iron, lead, magnesium, manganese, nickel, selenium, and sodium exceeded the standards and guidance values in unfiltered samples. In the filtered samples, exceedances were limited to sodium and manganese in samples MW-02-20230223 F and MW-03-20230224 F, respectively.

All SVOCs in groundwater were reported as non-detect.

Concentrations of contaminants detected in unfiltered and filtered groundwater samples collected in February 2023 sampling were significantly lower across all samples than the levels detected in the earlier December 2021 groundwater sample (KENS-121621-KEB6A-GW). Contaminants of concern such as mercury, arsenic, and lead were non-detect or detected at levels orders of

magnitude below previously reported results. Additionally, in the February 2023 sampling metals exceedances in the filtered samples were limited to sodium and manganese in samples MW-02-20230223 F and MW-03-20230224 F, respectively. A comparison on the February 2023 filtered and unfiltered results shows that most of the metals exceeding the standards and guidance values were effectively field filtered so that the concentrations in the filtered samples met the standards and guidance values. This indicates that the elevated metals in the unfiltered samples are likely indicative of the high turbidity and suspended solids in the unfiltered samples collected and not a result of dissolved phase metals contamination.

Table 3.9-5. Comparison of Additional Groundwater Results (February 2023) with NYSDEC TOGS 1.1.1 Water Quality Standards and Guidance Values (Class GA Waters)

Sample ID	Category	Analyte	New York TOGS 1.1.1 Water Quality Standards and Guidance Values (µg/L)	Detected Results (µg/L)
MW-01-20230224 U (unfiltered)	Metals	Aluminum	2,000	7,500
		Iron	300	10,000
		Manganese	300	460
MW-02-20230223 U (unfiltered)	Metals	Aluminum	2,000	20,000
		Barium	1,000	1,700
		Iron	300	6,400
		Magnesium	35,000	160,000
		Manganese	300	4,900
		Selenium	10	14
		Sodium	20,000	28,000
MW-02-20230223 F (Filtered)	Metals	Sodium	20,000	24,000
DUP-02-GW-20230223 U (unfiltered)	Metals	Aluminum	2,000	18,000
		Iron	300	28,000
		Manganese	300	1,100
MW-03-20230223 U (unfiltered)	Metals	Aluminum	2,000	78,000
		Chromium (total)	50	230
		Iron	300	120,000
		Lead	25	69
		Magnesium	35,000	53,000
		Manganese	300	3,100
		Nickel	100	130
		Selenium	10	11
MW-03-20230224 F (filtered)	Metals	Manganese	300	930

3.9.4 FUTURE WITHOUT THE PROPOSED ACTION

Several DEP projects would be implemented in the future without the Proposed Action, primarily at the Kensico Campus. These include the Waterfowl Management Program Building, the Kensico Regional Headquarters, and various minor projects at DEL Shaft 18. At the KEC Eastview Site, projects include the installation of new cleanout access locations and modifications to an existing manhole at the CDUV Facility and a potential solar project to install carport canopies over an existing parking lot and rooftop panels. None of these projects would result in any significant changes related to the presence or potential exposure to hazardous materials from current conditions in the future without the Proposed Action.

Likewise, several additional non-DEP projects are also expected to be advanced in the future without the Proposed Action. Significant projects would include the Landmark at Eastview North Campus Redevelopment, Landmark at Eastview South Campus Parcel D, and Regeneron Greenburgh Expansion that would be used for office and research development. These projects are located approximately one-half-mile west/southwest of the KEC Eastview Site. The location of the proposed projects was not identified as a significant REC as part of the 2020 and 2021 Phase I ESAs completed for the Proposed Action. In addition, it is not expected that any of these projects would result in any impacts to the presence or potential exposure associated with hazardous materials beyond current conditions at the KEC Eastview Site.

In the future without the Proposed Action, no significant changes to hazardous materials are anticipated at the Kensico Campus, KEC Eastview Site, or tunnel alignment and conditions would be expected to remain largely the same as existing conditions.

3.9.5 FUTURE WITH THE PROPOSED ACTION

As discussed in Chapter 1, "Project Description," construction of the Proposed Action would involve the improvement and modification of existing structures and surface and subsurface disturbances at the Kensico Campus and KEC Eastview Site. At the Kensico Campus, the Proposed Action would include the modification of the existing UEC, which has known lead and asbestos contamination issues. Construction of the new KEC Screen Chamber, connection tunnels, KEC Shaft 1C, and UEC Shaft would all involve considerable excavation and soil and rock removal, as well as construction and demolition debris associated with an increase in the capacity of the existing Dike Grade Tunnel. Likewise, shoreline stabilization efforts would involve additional soil excavation and removal and the accumulated sediments of approximately 1,000 cubic yards of Kensico Reservoir sediments from the intake channel and riprap near the UEC.

At the KEC Eastview Site, considerable excavation associated with the construction of the KEC Shaft 2C and ECC would be required, and material removed from the new, approximately two-mile long rock tunnel would be managed at the KEC Eastview Site.

A review of the RECs noted in **Table 3.9-1** as well as the Phase I ESAs completed in 2020 and 2021 was conducted to identify those RECs that have the potential to affect proposed construction. The one such REC is identified in **Table 3.9-6.** However, the REC identified is considered unlikely to affect proposed construction because of the distance from the Proposed Action and/or its location downgradient of any proposed construction.

Table 3.9-6. REC Requiring Additional Review

REC	Address	Justification
Grassy Slope to Woods	2 Dana Rd. Valhalla, NY	Three to eight sampled wells on site indicated elevated contamination levels. Cleanup is pending; a spill closed date was not reported. Located at an equal/higher elevation than the KEC Eastview Site. See below.

The Grassy Slope to Woods REC is located west of Walker Road and the KEC Eastview Site and would be approximately 0.4 miles west of KEC Shaft 2C and the location of excavation associated with the new ECC. Based upon groundwater flow directions and the parcels identified during groundwater modeling conducted in 2004 and 2021, groundwater from this REC would not be anticipated to flow towards the KEC Eastview Site. While this REC is not anticipated to have the potential to affect the proposed construction, best practices and protective measures to be implemented as part of the Proposed Action to manage potential impacts associated with hazardous materials.

Methods to Manage Potential Impacts Due to Hazardous Materials

To address potential impacts due to hazardous materials that may be encountered during construction, the Proposed Action would include several measures to manage and address these. The following measures would be implemented to minimize such impacts:

- Prior to the initiation of construction activities, a site-specific Health and Safety Plan (HASP) would be prepared. The HASP would be consistent with applicable Occupational Safety & Health Administration (OSHA), DEP, and other requirements to address worker, community, and environmental safety. The HASP would be developed to address those hazards that are known or expected to occur as part of the Proposed Action and would be appropriately modified if additional hazardous materials were encountered.
- A survey of asbestos-containing materials and lead paint was conducted for structures (e.g., UEC) that would be affected by construction activities. Any asbestos-containing materials or lead paint that would be disturbed by construction activities would be removed and disposed of prior to construction in accordance with applicable laws, regulations, and requirements.

- Any additional interior building abatement (older electrical equipment such as light fixtures, switches, caulking that could contain mercury, PCBs, or other regulated materials), as required, would also be identified prior to construction, and removed and disposed of consistent with applicable laws, regulations, and requirements.
- A soil management plan would be prepared prior to the beginning of construction activities, that would provide the proposed plan for the management of excavated materials at the project sites and any applicable procedures that would be instituted to address both non-contaminated soil and rock, as well as the potential to encounter soils and rock which may be contaminated. The soil management plan would outline procedures for handling, stockpiling, testing, transportation, and disposal of excavated materials, including the potential management of contaminated materials or previously unknown tanks, if encountered.
- To the extent practical, excavated soils and rock would be reused on site or beneficially used consistent with applicable laws, regulations, and requirements. Any excavated materials requiring off-site disposal would be handled and disposed of consistent with all applicable laws and regulations. Testing of these materials, as required, would be conducted in accordance with and at a frequency consistent with applicable federal, State, local and/or receiving facility laws, regulations, and requirements. If previously unknown contamination is encountered, applicable laws, and regulations would be followed to ensure proper handling and removal of contaminated soil or groundwater including additional sampling if necessary.
- Dewatering would occur during construction activities and potential construction wastewaters would also need to be addressed as part of the Proposed Action. All potential discharges associated with proposed construction would be in compliance with legal and regulatory requirements, as applicable. Permits (e.g., SPDES) for those discharges which are regulated would be acquired for these activities and treatment of these waters would occur prior to discharge if required.
- Dust control and other protective measures, where needed, would be put in place for all activities. Proper ventilation of the shafts, deep rock tunnel, and connector tunnels would be maintained for the duration of construction. In addition, active dust control measures would be employed at all construction areas.
- Use of petroleum-based products and other chemicals (e.g., concrete additives, etc.) would be required as part of construction activities. All use, storage, and management of these materials would be in compliance with applicable legal and regulatory requirements, including petroleum and chemical bulk storage requirements, spill reporting requirements, and spill prevention, control, and countermeasures requirements, as applicable.

With the implementation of these measures in combination with the results of the Phase I ESAs, limited soil, groundwater and sediment sampling, and prior investigation of hazardous materials associated with existing structures, no significant adverse impacts due to hazardous materials would be anticipated as a result of the construction of the Proposed Action.

3.10 TRAFFIC AND TRANSPORTATION

3.10.1 INTRODUCTION

This section evaluates the potential for the Proposed Action to result in significant adverse impacts on the transportation system, including an evaluation of the potential impacts to traffic, transit, pedestrians, roadway safety, and parking. The analysis focuses on potential traffic and transportation impacts due to and during the construction of the Proposed Action. The potential traffic and transportation impacts once construction of the Proposed Action is completed and the proposed facilities are operational are discussed in Chapter 2, "Analytical Framework."

The analyses summarized in this section are based on the projected volume of construction worker and truck trips during the peak quarter of construction activities at both construction sites; the Kensico Campus and the KEC Eastview Site. The existing transportation conditions are described in this section reflecting "normalized" conditions without the influence of the COVID-19 pandemic on traffic. As a result of the pandemic, traffic volumes at many locations were lower than pre-pandemic levels due to work from home, remote learning, and other factors; therefore, new traffic volume counts were adjusted to reflect pre-pandemic and anticipated post-pandemic levels. The future transportation conditions are analyzed without and with the Proposed Action for the peak construction year and potentially significant adverse traffic impacts are identified. Where needed, feasible mitigation measures that would reduce or eliminate such impacts are identified and evaluated in Chapter 9, "Mitigation."

3.10.2 METHODOLOGY

The analyses within this section primarily follow overall procedures and methodologies found in the *CEQR Technical Manual* and, where appropriate, guidelines from the New York State Department of Transportation (NYSDOT). According to the *CEQR Technical Manual* procedures for transportation analyses, a two-tiered screening process is undertaken to determine whether a quantified analysis is necessary. The first step, the Level 1 (Trip Generation) screening, determines whether the volume of peak hour person and vehicle trips generated by the Proposed Action would remain below the minimum thresholds for further study. A vehicle trip is considered travel between one point and another (e.g., a construction employee trip to a site), while round trips in a given hour (to/from) represent two vehicle trips.

These thresholds are:

- 50 peak hour vehicle trip ends;
- 200 peak hour rail or bus transit riders; and
- 200 peak hour pedestrian trips.

If the Proposed Action results in increments that would exceed any of these thresholds, a Level 2 (Trip Assignment) screening assessment is performed. Under this assessment, project-generated trips that exceed Level 1 thresholds are assigned to and from the construction sites' roadway network based on expected origin-destination patterns and travel routes. If project-generated trips fall under the Level 1 threshold, no further analyses are needed.

In order to determine the peak volume of hourly vehicle trips generated by the Proposed Action for detailed traffic analysis, a detailed projection of construction tasks and activities was developed for each quarter of the construction period. From this detailed projection of construction activities, the analysis first identified the quarters with the highest potential construction activity and then the traffic based on daily construction worker and truck projections. Next, for these quarters with the highest potential construction vehicle volumes, the peak hours of construction vehicle activity were identified. This is detailed in terms of construction worker and construction truck volumes in Sections 3.10.2.2 and 0.

The identification of the peak hours of construction vehicle activity included a number of factors, primarily the number of shifts for each activity. Although some quarters of construction would have a higher number of daily construction-related trips, the number of shifts and associated hourly distributions vary for each construction task. A task with higher vehicle volumes, based on daily projections, and with more shifts would result in a more uniform distribution of construction worker and truck arrivals and departures throughout the day. However, its peak hour traffic volumes may not be as high as another task with less daily construction activity but also fewer shifts which could result in a higher intensity of worker and truck arrivals and departures during the peak hours. Therefore, it is possible that a construction quarter with lower daily construction vehicles could be the peak quarter for construction traffic analysis and the worst-case condition for potential significant traffic impacts. For the Proposed Action, the construction vehicle distribution did indicate this.

3.10.2.1 Reasonable Worst-Case Scenario

In order to provide a conservative assessment of potential impacts due to the Proposed Action, a construction schedule that includes an overlap of activities at the KEC Eastview Site was used to represent a reasonable worst-case scenario. While the current anticipated construction schedule would not include these overlaps, the analysis assumes these overlaps in order to provide a more conservative assessment of the potential for impacts. Potential impacts based upon the current

anticipated construction schedule would therefore result in less potential impacts than those assessed as part of the reasonable worse-case scenario discussed above.

3.10.2.2 Trip Generation: Average Daily Vehicles by Quarter of Construction

Construction of the Proposed Action would be initiated ~~in~~ around January 2024 and is anticipated to be completed in 2033. Start-up and commissioning for the Proposed Action would commence during the third quarter of 2033 (Q3 2033) and would last approximately 13 months. Construction activities would generate trips from construction workers traveling to and from the sites, as well as construction trucks delivering materials and equipment and removing debris. The phases, duration, and overlap of construction activities, and average daily worker and truck estimates, were identified for each quarter of construction for the Kensico Campus and the KEC Eastview Site.

Although the Kensico Campus and the KEC Eastview Site study areas are served by transit through Metro-North Railroad and the Westchester Bee-Line bus system, it is expected that the vast majority of construction workers would drive to the Kensico Campus and the KEC Eastview Site based on the local travel patterns and general commuting trends for the construction industry. Therefore, it was conservatively assumed for the purposes of the trip generation projections that all construction workers would drive to the Kensico Campus and the KEC Eastview Site. An average vehicle occupancy of 1.2 workers per vehicle was assumed for construction worker vehicle trips, similar to previous assumptions from construction projects in the Kensico Campus and the KEC Eastview Site study areas such as the *Catskill/Delaware Ultraviolet Light Disinfection Facility Final Environmental Impact Statement (2004)*.

Table 3.10-1 shows the average number of daily construction workers, worker autos, and trucks by quarter during the weekday, as well as by total vehicles and total vehicle passenger car equivalents (PCEs).[28] While some activities would also occur during the weekend, overall, there would be fewer workers and trucks during the weekend as compared to the weekday. In addition, a comparison of existing weekday and weekend background traffic volumes was conducted and determined that existing weekend traffic volumes were generally lower than during the weekday, and that weekday conditions would therefore represent the worst-case scenario for analysis.

Based on the daily vehicle and worker projections, and anticipated worker shifts, three peak quarters were identified as potential candidates for detailed analysis, consisting of the fourth quarter of 2027 (Q4 2027), the third quarter of 2029 (Q3 2029), and the second quarter of 2031 (Q2 2031), as described below.

[28] Per the *CEQR Technical Manual*, truck trips are considered to be "equivalent" to more than one car and were therefore converted to passenger car equivalents (PCEs); for the construction traffic analysis, it was assumed that each truck trip is equal to two passenger car trips.

The highest daily construction traffic (measured in PCEs) for the Proposed Action is expected to occur during Q3 2029 and the fourth quarter of 2029 (Q4 2029) when the ECC excavation work and the main tunnel lining work would occur, and between the second quarter of 2027 (Q2 2027) and the first quarter of 2028 (Q1 2028) when the KEC Tunnel excavation work would occur. These tasks would be expected to generate significant construction worker and truck trips and would occur at the KEC Eastview Site. As noted above, the construction schedule used for the analyses conservatively included the overlapping of these activities at the KEC Eastview Site that are not anticipated to occur.

The peak quarter of daily construction activities would occur in Q3 2029. During this quarter, the ECC excavation and KEC Tunnel lining work would occur over multiple shifts during the day. The KEC Tunnel lining work task is anticipated to occur from the first quarter of 2029 (Q1 2029) to the first quarter of 2030 (Q1 2030) while ECC excavation work would be expected to occur from the second quarter of 2029 (Q2 2029) to the Q1 2030.

The KEC Tunnel excavation work would also generate significant construction worker and truck trips and would be expected to occur from Q2 2027 to the fourth quarter of 2028 (Q4 2028). The peak quarter of construction activities for this task would occur in Q4 2027.

During both Q4 2027 and Q3 2029, the majority of the construction activity under the Proposed Action would be at the KEC Eastview Site with less activity at the Kensico Campus. The schedule was reviewed to identify the peak quarter for daily construction activities at the Kensico Campus, which was determined to be during Q4 2027. A second peak quarter for the Kensico Campus was identified, Q2 2031, which would have fewer daily construction workers and deliveries, but which would also include different tasks and worker shift schedules.

Table 3.10-1. Average Number of Daily Construction Vehicles by Quarter

	2024				2025				2026			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Workers	2	25	76	83	129	137	133	163	175	170	141	165
Worker Autos	2	21	63	70	108	115	111	136	146	142	118	137
Trucks	1	4	60	160	124	25	23	27	25	25	27	29
Total Vehicles	3	25	123	230	232	140	134	163	171	167	145	166
Total Vehicles (PCEs)	4	29	183	390	356	165	157	190	196	192	172	195
	2027				2028				2029			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Workers	179	265	365	377	350	283	208	201	278	378	469	459
Worker Autos	149	221	304	314	291	236	173	168	232	315	391	382
Trucks	36	83	171	167	169	165	150	111	52	95	156	132
Total Vehicles	185	304	475	481	460	401	323	279	284	410	547	514
Total Vehicles	221	387	646	648	629	566	473	390	336	505	703	646

(PCEs)												
	2030				**2031**				**2032**			
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**
Workers	240	160	142	173	173	192	178	185	163	50	30	50
Worker Autos	200	134	118	144	144	160	149	154	136	42	25	42
Trucks	44	23	22	23	28	31	25	27	22	1	0	1
Total Vehicles	244	157	140	167	172	191	174	181	158	43	25	43
Total Vehicles (PCEs)	288	180	162	190	200	222	199	208	180	44	25	44
	2033				**2034**							
	Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**					
Workers	40	30	14	11	11	11	11					
Worker Autos	33	25	12	9	9	9	9					
Trucks	0	33	0	0	0	0	0					
Total Vehicles	33	58	12	9	9	9	9					
Total Vehicles (PCEs)	33	91	12	9	9	9	9					

Notes:
Gray highlighted cells represent the three potential quarters for further analysis based on daily traffic (measured in PCEs), shift information, and construction site activity for the Proposed Action.
Q1 = first quarter; Q2 = second quarter; Q3 = third quarter; Q4 = fourth quarter
PCEs = Passenger Car Equivalents

As a result of the detailed construction period analyses, three quarters were identified as potential peak quarters for detailed traffic analysis and were further assessed based on the distribution of construction workers and trucks by hour of the day: Q4 2027; Q3 2029; and Q2 2031. **Table 3.10-2** provides the construction PCEs for the Kensico Campus and the KEC Eastview Site during the three potential peak quarters.

Table 3.10-2. Average Number of Daily Construction Vehicles (PCEs) by Construction Site – Peak Quarters

	Q4 2027	**Q3 2029**	**Q2 2031**
Kensico Campus Daily PCEs	192	144	166
KEC Eastview Site Daily PCEs	456	559	56
Total Daily PCEs	648	703	222

Notes:
Q1 = first quarter; Q2 = second quarter; Q3 = third quarter; Q4 = fourth quarter
PCEs = Passenger Car Equivalents

3.10.2.3 Trip Generation: Hourly Vehicle Trips by Quarter of Construction

The hourly temporal distribution for construction-related worker vehicles and trucks were identified for each of the three potential peak construction quarters and were used to determine the peak construction quarter and peak hours for analysis. Once the construction-related trips were distributed by hour based on construction shift information for each construction task, it was determined that the peak quarter would be Q3 2029 and the peak hours would be 6 to 7 AM (AM construction traffic peak hour) when the majority of workers would arrive at the Kensico Campus and the KEC Eastview Site and 3 to 4 PM (PM construction traffic peak hour) when the majority of workers would depart the Kensico Campus and the KEC Eastview Site.

As the KEC Tunnel lining work would originate from the KEC Eastview Site, construction-related traffic near the Kensico Campus would be less intense during Q3 2029 than during other potential peak quarters. It was determined that the peak quarter for construction-related traffic at the Kensico Campus would be Q4 2027 during the AM and PM construction traffic peak hours. A second peak quarter for the Kensico Campus was previously identified, Q2 2031, which was found to have less intense construction activities than in Q4 2027. **Table 3.10-3** presents the highest traffic activity quarters expected in 2027, 2029, and 2031 and includes trips from DEP staff and construction managers which are separate from construction worker and truck projections detailed above. During the peak quarters of construction activities, approximately 74 DEP staff and construction managers would be located at the Kensico Campus and the KEC Eastview Site throughout the day.

Table 3.10-3. Hourly Vehicle Trip Projections (PCEs) – Peak Quarters

Hour Beginning[1]	Peak Quarter of 2027 KEC Tunnel Excavation[2]			Peak Quarter of 2029 KEC Tunnel Lining and ECC Excavation[3]			Peak Quarter of 2031 KEC Screen Chamber and ECC Work[4]		
	Kensico Campus PCE Trips	KEC Eastview Site PCE Trips	Total PCE Trips	Kensico Campus PCE Trips	KEC Eastview Site PCE Trips	Total PCE Trips	Kensico Campus PCE Trips	KEC Eastview Site PCE Trips	Total PCE Trips
6 AM	116	148	264	85	208	293	96	60	156
7 AM	9	77	86	11	68	79	13	9	22
8 AM	2	48	50	8	44	52	10	0	10
9 AM	0	52	52	8	44	52	10	4	14
10 AM	0	52	52	8	56	64	10	0	10
11 AM	0	52	52	8	42	50	8	0	8
Noon	0	52	52	8	38	46	8	0	8
1 PM	0	52	52	6	36	42	8	0	8
2 PM	93	118	211	51	141	192	63	28	91
3 PM	116	145	261	85	197	282	94	59	153
4 PM	0	48	48	0	18	18	0	0	0
5 PM	12	48	60	6	44	50	10	0	10
6 PM	0	0	0	0	36	36	0	0	0
7 PM	0	0	0	0	36	36	0	0	0
8 PM	0	0	0	0	28	28	0	0	0
9 PM	0	0	0	0	10	10	0	0	0
10 PM	3	29	32	3	38	41	3	5	8
11 PM	73	73	146	39	114	153	43	29	72

Notes:

(1) Construction vehicles are not anticipated to and from the Kensico Campus and the KEC Eastview Site between 12 AM and 6 AM.

(2) The peak quarter with the highest hourly traffic PCE trips in 2027 was identified as the fourth quarter of 2027.

(3) The peak quarter with the highest hourly traffic PCE trips in 2029 was identified as the third quarter of 2029.

(4) The peak quarter with the highest hourly traffic PCE trips in 2031 was identified as the second quarter of 2031.

Gray highlighted cells: peak hours would be 6 to 7 AM (AM construction traffic peak hour) when the majority of workers would arrive at the Kensico Campus and the KEC Eastview Site and 3 to 4 PM (PM construction traffic peak hour) when the majority of workers would depart the Kensico Campus and the KEC Eastview Site.

Assumes two vehicle trips per construction worker auto or construction truck. Vehicle trip projections include vehicle trips associated with the approximately 74 DEP staff and construction managers to be located at the two construction sites.

PCEs = Passenger Car Equivalents

As previously discussed, while the highest number of construction-related vehicles would occur during Q3 2029, the majority of the activity would occur at the KEC Eastview Site. For the Kensico Campus, the peak construction activities would occur during Q4 2027. The assessment of both Q3 2029 and Q4 2027 would represent the worst-case scenario for each of the potential traffic analysis intersections. The hourly vehicle trip projections for these two quarters are listed in **Table 3.10-4** and **Table 3.10-5** below.

Table 3.10-4. Hourly Vehicle Trip Projections – Third Quarter of 2029

Hour Beginning[(1)]	Kensico Campus				KEC Eastview Site				Total	
	Autos In	Autos Out	Trucks In	Trucks Out	Autos In	Autos Out	Trucks In	Trucks Out	Vehicle Trips	PCE Trips
6 AM	79	0	3	0	179	17	6	0	284	293
7 AM	0	3	4	0	0	22	17	6	52	79
8 AM	0	0	0	4	0	0	11	11	26	52
9 AM	0	0	4	0	0	0	11	11	26	52
10 AM	0	0	0	4	0	0	11	17	32	64
11 AM	0	0	4	0	0	0	10	11	25	50
Noon	0	0	0	4	0	0	9	10	23	46
1 PM	0	0	3	0	0	0	9	9	21	42
2 PM	39	0	0	6	113	0	5	9	172	192
3 PM	0	79	3	0	0	179	4	5	270	282
4 PM	0	0	0	0	0	0	9	0	9	18
5 PM	0	0	0	3	0	0	9	13	25	50
6 PM	0	0	0	0	0	0	9	9	18	36
7 PM	0	0	0	0	0	0	9	9	18	36
8 PM	0	0	0	0	0	0	5	9	14	28
9 PM	0	0	0	0	0	0	0	5	5	10
10 PM	3	0	0	0	38	0	0	0	41	41
11 PM	0	39	0	0	1	113	0	0	153	153

Notes:

(1) Construction vehicles are not anticipated to and from the Kensico Campus and the KEC Eastview Site between the hours of 12 AM and 6 AM.

Gray highlighted cells: peak hours would be 6 to 7 AM (AM construction traffic peak hour) when the majority of workers would arrive at the Kensico Campus and the KEC Eastview Site and 3 to 4 PM (PM construction traffic peak hour) when the majority of workers would depart the Kensico Campus and the KEC Eastview Site.

Table 3.10-5. Hourly Vehicle Trip Projections – Fourth Quarter of 2027

Hour Beginning[(1)]	Kensico Campus				KEC Eastview Site				Total	
	Autos In	Autos Out	Trucks In	Trucks Out	Autos In	Autos Out	Trucks In	Trucks Out	Vehicle Trips	PCE Trips
6 AM	102	0	7	0	97	3	12	12	233	264
7 AM	0	3	3	0	0	29	12	12	59	86
8 AM	0	0	1	0	0	0	12	12	25	50
9 AM	0	0	0	0	0	0	13	13	26	52
10 AM	0	0	0	0	0	0	13	13	26	52
11 AM	0	0	0	0	0	0	13	13	26	52
Noon	0	0	0	0	0	0	13	13	26	52
1 PM	0	0	0	0	0	0	13	13	26	52
2 PM	73	0	0	10	70	0	12	12	177	211
3 PM	0	102	6	1	0	97	12	12	230	261
4 PM	0	0	0	0	0	0	12	12	24	48
5 PM	0	0	0	6	0	0	12	12	30	60
6 PM	0	0	0	0	0	0	0	0	0	0
7 PM	0	0	0	0	0	0	0	0	0	0
8 PM	0	0	0	0	0	0	0	0	0	0
9 PM	0	0	0	0	0	0	0	0	0	0
10 PM	3	0	0	0	29	0	0	0	32	32
11 PM	0	73	0	0	3	70	0	0	146	146

Notes:
(1) Construction vehicles are not anticipated to and from the Kensico Campus and the KEC Eastview Site between the hours of 12 AM and 6 AM.
Gray highlighted cells: peak hours would be 6 to 7 AM (AM construction traffic peak hour) when the majority of workers would arrive to the Kensico Campus and the KEC Eastview Site and 3 to 4 PM (PM construction traffic peak hour) when the majority of workers would depart the Kensico Campus and the KEC Eastview Site.

3.10.2.4 Screening Assessment

Level 1 Screening Assessment

Based on the construction vehicle projections, it is expected that, in Q3 2029, the Proposed Action would generate 293 PCE trips during the weekday AM construction traffic peak hour and 282 PCE trips during the weekday PM construction traffic peak hour. In Q4 2027, construction-related activities would generate a total of 264 PCE trips during the weekday AM construction traffic peak hour and 261 PCE trips during the weekday PM construction traffic peak hour. Since the volume of vehicle trips generated by the Proposed Action would exceed the 50-vehicle trip threshold during both peak hours, a Level 2 screening assessment was performed to determine whether detailed vehicle traffic analyses would be needed and at which intersections.

The Bee-Line Bus system provides bus service to the Kensico Campus and the KEC Eastview Site, and there are Metro-North Railroad stations located in the Kensico Campus and the

KEC Eastview Site study area. However, as noted above, based on the local travel characteristics and general commuting trends of the construction industry, it is unlikely that transit or pedestrian trips would exceed CEQR thresholds for further analysis. Therefore, no further transit or pedestrian analysis is warranted. It was conservatively assumed for the purposes of the traffic impact analyses, that all construction workers would drive to the Kensico Campus and the KEC Eastview Site.

Level 2 Screening Assessment

The number of vehicle trips generated by the Proposed Action would exceed the CEQR Level 1 screening thresholds during the weekday AM and PM construction traffic peak hours. Therefore, a Level 2 screening assessment was warranted and construction-related vehicle trips were assigned through the surrounding roadway network based on expected routes to and from the Kensico Campus and the KEC Eastview Site. Construction worker and truck trips would access the Kensico Campus from Westlake Drive from Columbus Avenue. Access to the KEC Eastview Site would be from the existing entrance along Walker Road between Grasslands Road (State Route [SR]100C) and Dana Road.

Construction Worker Auto Trips

Construction worker vehicle assignments were based on the 2012-2016 American Community Survey Special Tabulation: Census Transportation Planning reverse journey to work data for the study area census tracts (Westchester County census tracts 109.01, 110, 119.02, 121.01, 123.01, and 9810). Most trips would be expected to originate from within Westchester County (approximately 56 percent) while approximately 12 percent would be expected to originate from New York City, 1 percent from Long Island, and 21 percent from nearby counties such as Dutchess, Orange, Putnam, and Rockland counties. Approximately 10 percent of the worker trips would be expected to originate from out-of-state, approximately 7 percent from Connecticut and 3 percent from New Jersey. **Figure 3.10-1** shows the projected construction worker trip origins arriving at the Kensico Campus and the KEC Eastview Site from the north, south, east, and west.

Approximately 38.5 percent of the construction worker auto trips would be expected to arrive from the south and were assigned to travel to the Kensico Campus and the KEC Eastview Site via the Bronx River Parkway, New York State Thruway (I-87), and Sprain Brook Parkway; some of the trips destined to the Kensico Campus were assigned along North Broadway (SR 22) to Columbus Avenue. Approximately 17 percent of the trips would be expected to arrive from the east and were assigned to travel to the Kensico Campus and the KEC Eastview Site via the Cross Westchester Expressway (I-287) or SR 22 (Mt. Kisco Road). About 28.5 percent of the trips would be expected to originate from the north and were assigned to travel to the Kensico Campus and the KEC Eastview Site via Saw Mill River Road (SR 9A), the Sprain Brook Parkway, and Taconic State Parkway; some of the trips that are destined to the Kensico Campus

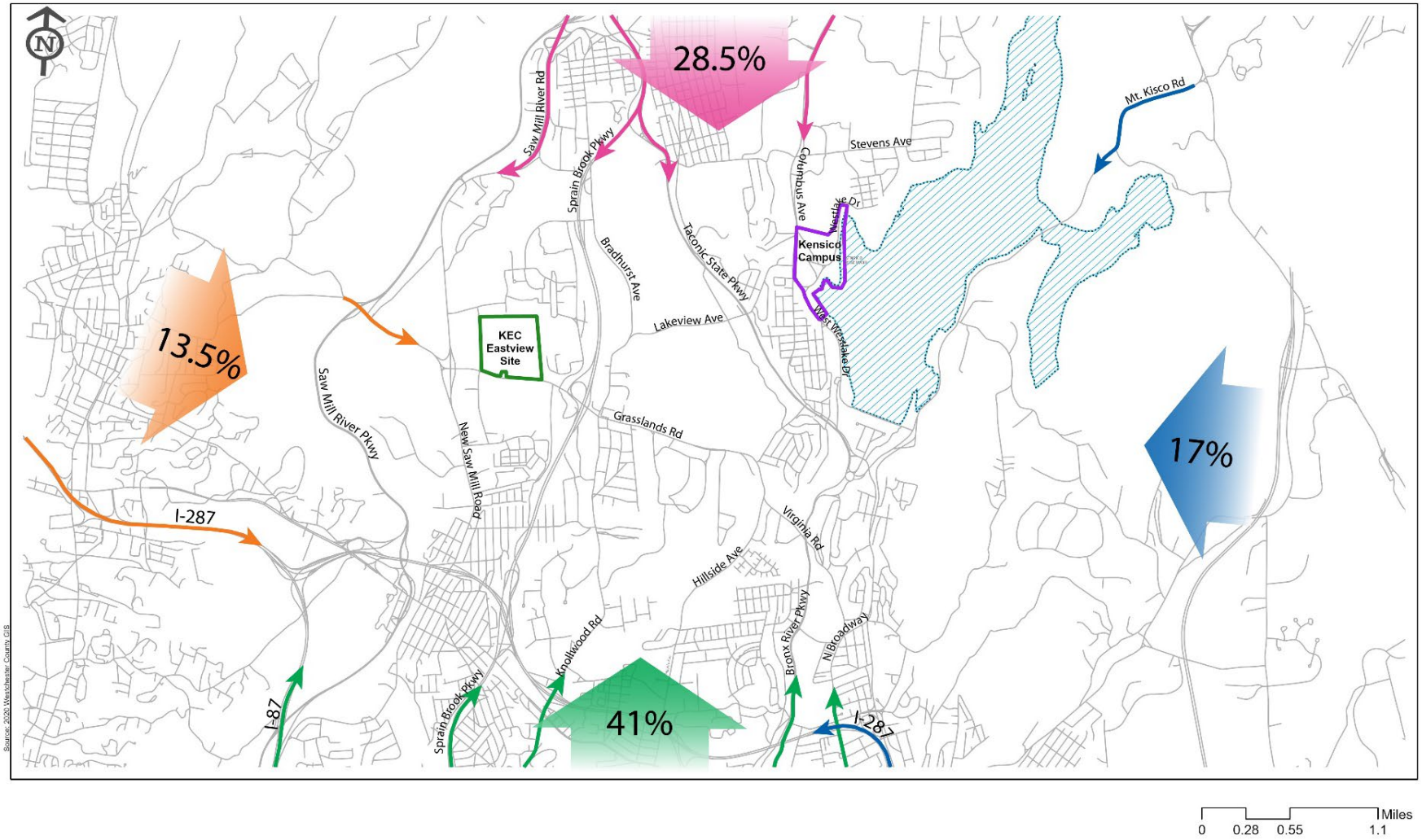


Figure 3.10-1. Projected Construction Worker Trip Origins

were assigned along Columbus Avenue. Trips from the west (11 percent) were assigned to travel to the Kensico Campus and the KEC Eastview Site via the Cross Westchester Expressway and Grasslands Road. A modest percentage of vehicles (5 percent) were assigned to travel to the Kensico Campus and the KEC Eastview Site via the local roadways from study area residential areas. Half of these trips were assigned from the west along Grasslands Road and the other half were assigned from the south along Knollwood Road, resulting in a total of 13.5 percent from the west and 41 percent from the south. Worker trips leaving the Kensico Campus and the KEC Eastview Site were generally assigned along similar routes in the opposite directions.

Construction Truck Trips

Construction truck trip assignments were based on available suppliers of construction materials (concrete, asphalt, and steel) within a 25-mile radius of the Kensico Campus and the KEC Eastview Site; where applicable, materials would be sourced locally to advance sustainability goals. Twenty-five miles is considered the maximum distance that concrete could be sourced from; if concrete was sourced from further away it would likely dry and harden enroute to the Kensico Campus and the KEC Eastview Site and generally would not be suitable for use. Approximately 15 percent of the suppliers were located in North White Plains, and deliveries from these areas were assigned along North Broadway (SR 22) to the Kensico Campus and the KEC Eastview Site. The majority of suppliers were found further away (such as from New Jersey, Connecticut, and eastern parts of the Bronx) and would arrive at the study area through the Cross Westchester Expressway (20 percent from the east and 25 percent from the west) and the New York State Thruway from points further south, such as Yonkers and other parts of the Bronx (40 percent).

Level 2 Screening Results

A preliminary traffic study area was previously identified in consultation with DEP, the NYSDOT, Westchester County, and the Town of Mount Pleasant. The traffic study area encompasses 35 intersections representing potential traffic analysis locations along primary routes leading to and from the Kensico Campus and the KEC Eastview Site. **Figure 3.10-2** shows the locations of these 35 intersections. In addition, the 35 potential traffic analysis locations are listed below.

- Columbus Avenue (County Route [CR]64) and Westlake Drive
- Columbus Avenue (CR64) and Lakeview Avenue
- Columbus Avenue (CR64) and West Westlake Drive
- Saw Mill River Road (SR9A) and Dana Road
- Dana Road and Walker Road
- Walker Road and KEC Eastview Site Driveway

- Grasslands Road (SR100C) and Old Saw Mill River Road
- Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps
- Grasslands Road (SR100C) and Walker Road / Clearbrook Road
- Saw Mill River Road (SR9A) and Old Saw Mill River Road
- Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road
- Bradhurst Avenue (SR100) and Lakeview Avenue
- Columbus Avenue (CR64) and Legion Drive (CR29)
- Broadway (CR29) and Cleveland Street
- Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)
- Grasslands Road (SR100) and Westchester Community College West Gate
- Grasslands Road (SR100) and Westchester Community College East Gate
- Grasslands Road (SR100) and Legion Drive (CR29)
- Hillside Avenue (SR100) and Virginia Road (CR51)
- Bronx River Parkway and Virginia Road (CR51)
- North Broadway (CR29) and Hillandale Avenue
- Mt. Kisco Road (SR22) and Hillandale Avenue
- Mt. Kisco Road (SR22) and North Broadway (CR29)
- New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue
- New Saw Mill River Road (SR9A) and Frontage Street / Williams Street
- North Broadway (SR22) and Virginia Road (CR51)
- North Broadway (SR22) and Orchard Street / Cemetery Road
- North Broadway (SR22) and Cross Westchester Expressway (I-287) EB On/Off-Ramps
- West Stevens Avenue and Elwood Avenue / Commerce Street (CR29)
- Columbus Avenue (CR64) and West Stevens Avenue
- Columbus Avenue (CR64) and East Stevens Avenue
- Brighton Avenue and Broadway (SR100)
- Broadway (SR141) and Elwood Avenue / Sunset Place
- Mt. Kisco Road (SR22) and King Street (SR120)
- Nanny Hagen Road and King Street (SR120)

The final selection of intersections for detailed traffic analysis was determined upon completion of the distribution and assignment of construction vehicles and construction worker vehicles, in conjunction with Town of Mount Pleasant officials.

Based on the trip assignments previously discussed for the construction workers and truck trips, construction-generated traffic volume maps for Q3 2029 and Q4 2027 are shown on **Figure 3.10-3** through **Figure 3.10-34**.[29]

[29] Construction-related traffic is anticipated to be minimal (no trips or less than 10 vehicle trips) at four of the potential traffic analysis intersections, therefore traffic volumes are not shown at these northernmost intersections: Brighton Avenue and Broadway (SR100), Broadway (SR141) and Elwood Avenue / Sunset Place, Mt. Kisco Road (SR22) and King Street (SR120), and Nanny Hagen Road and King Street (SR120).

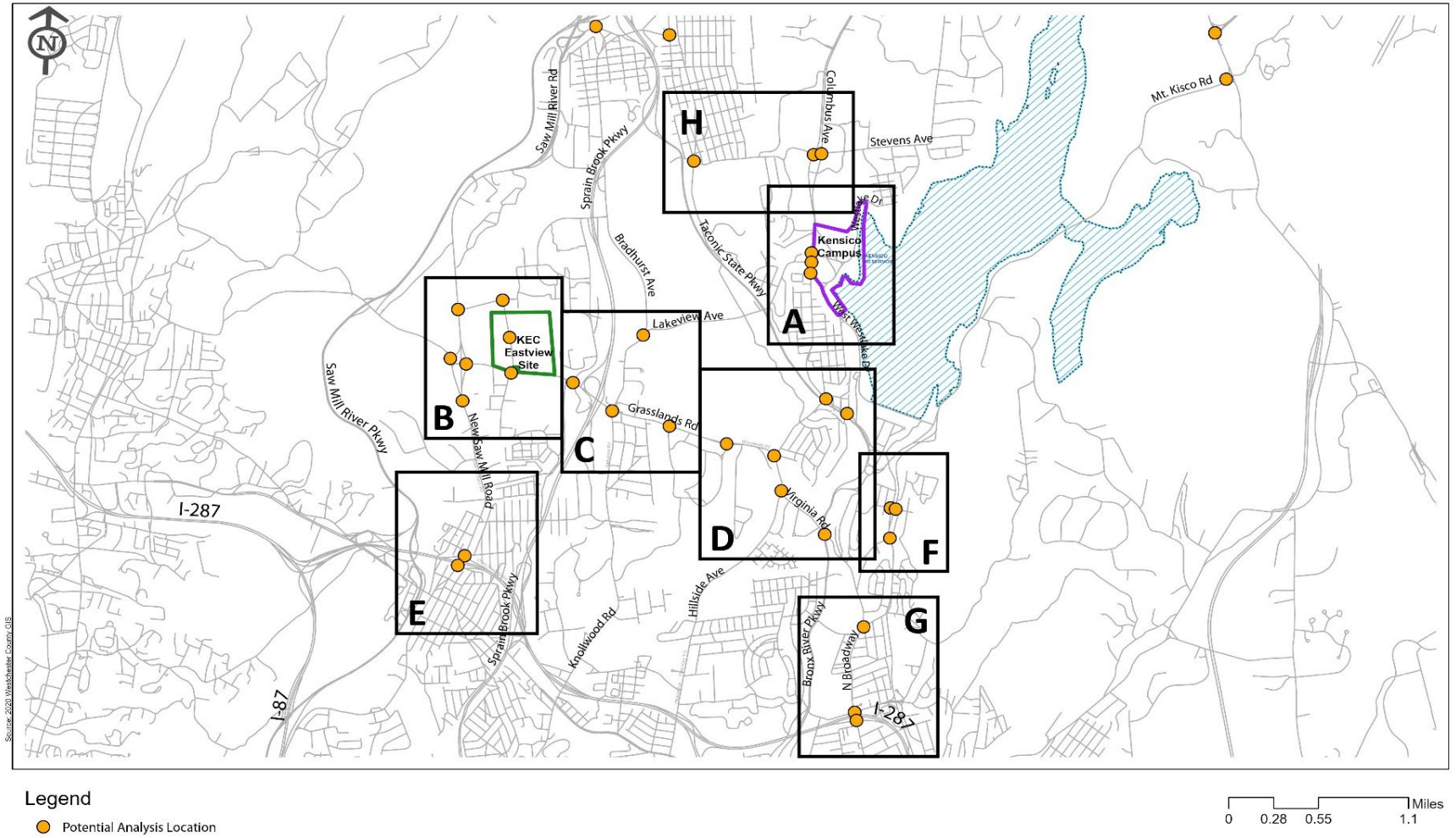


Figure 3.10-2. Traffic Study Area Intersections

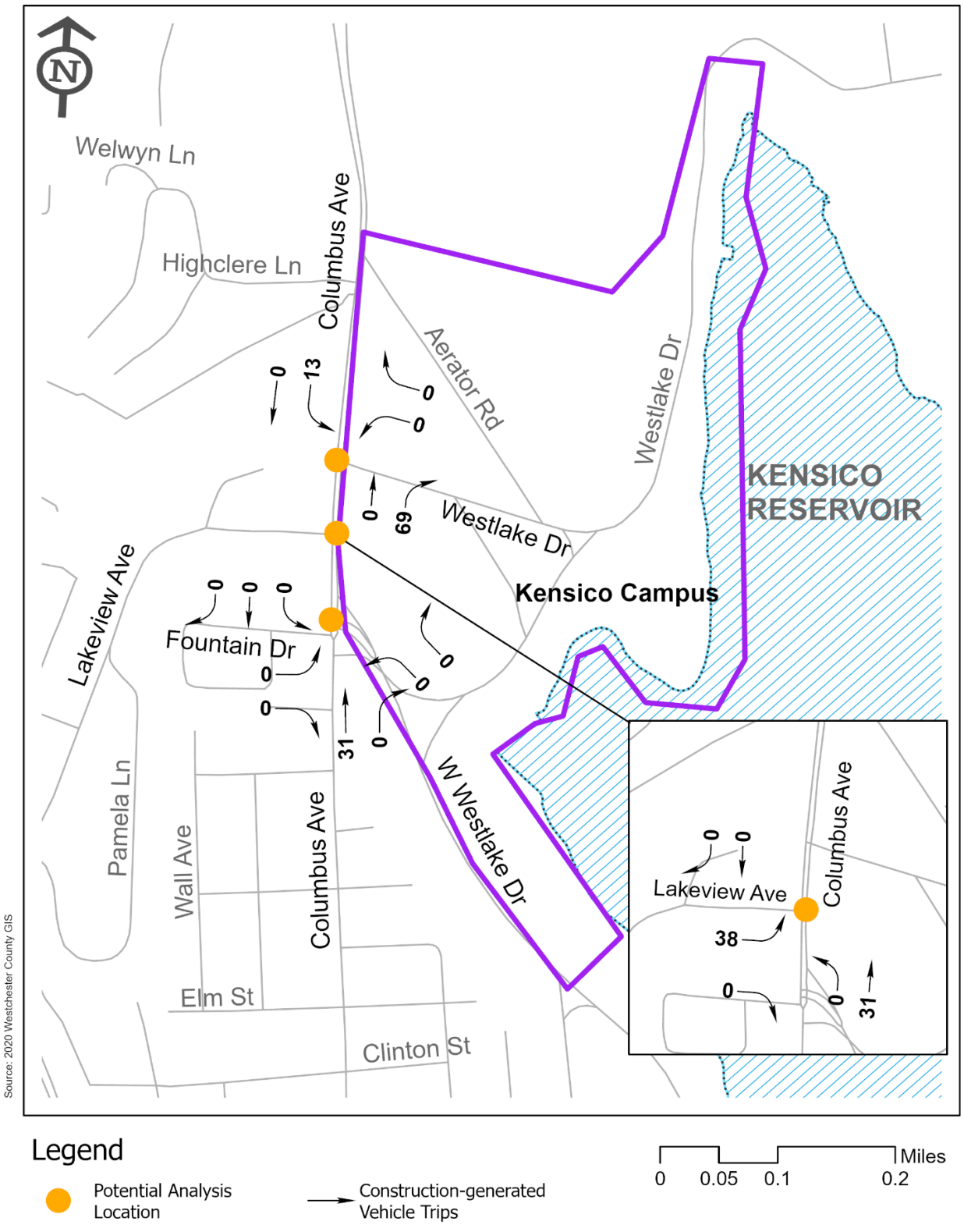


Figure 3.10-3. Inset A – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

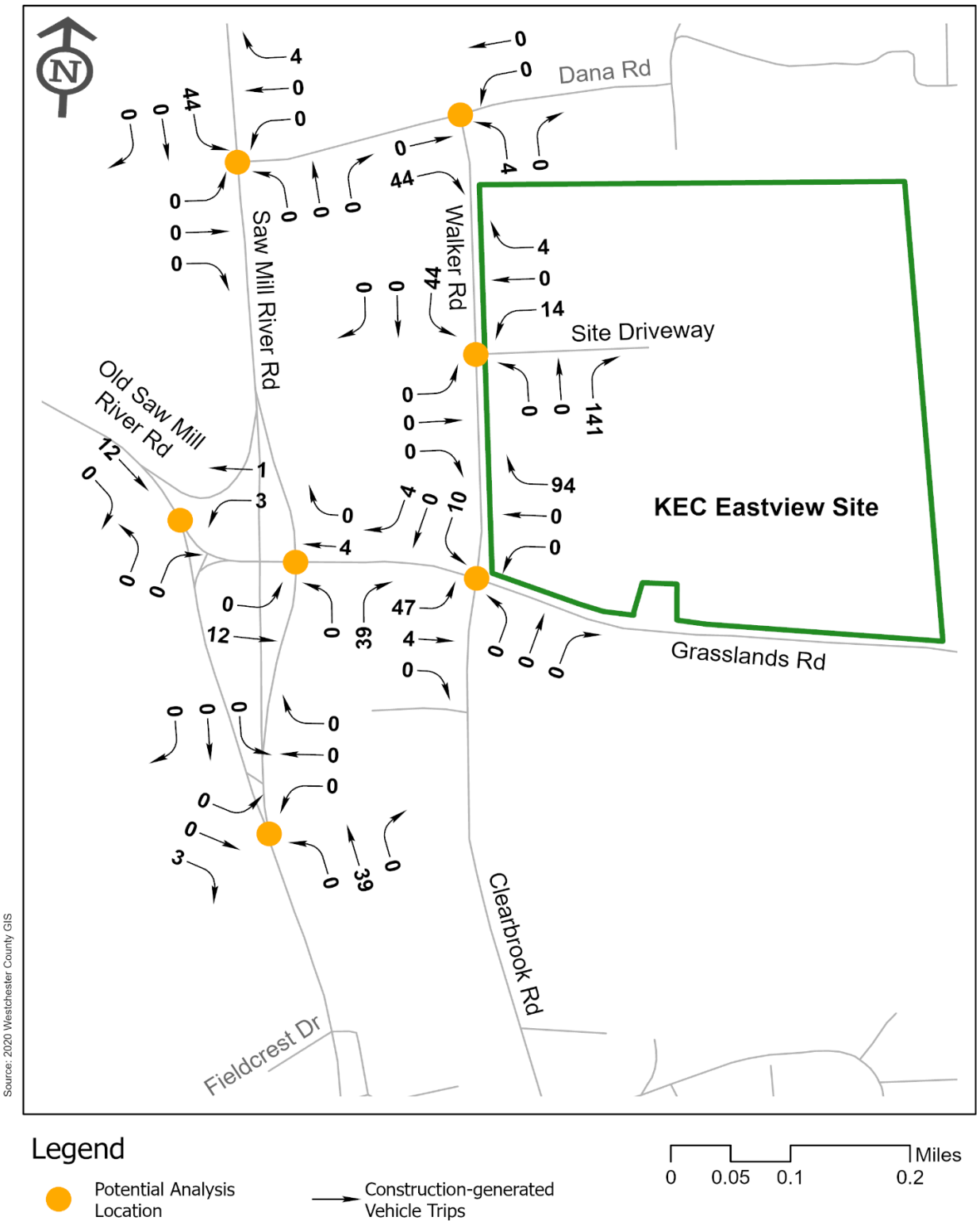


Figure 3.10-4. Inset B – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

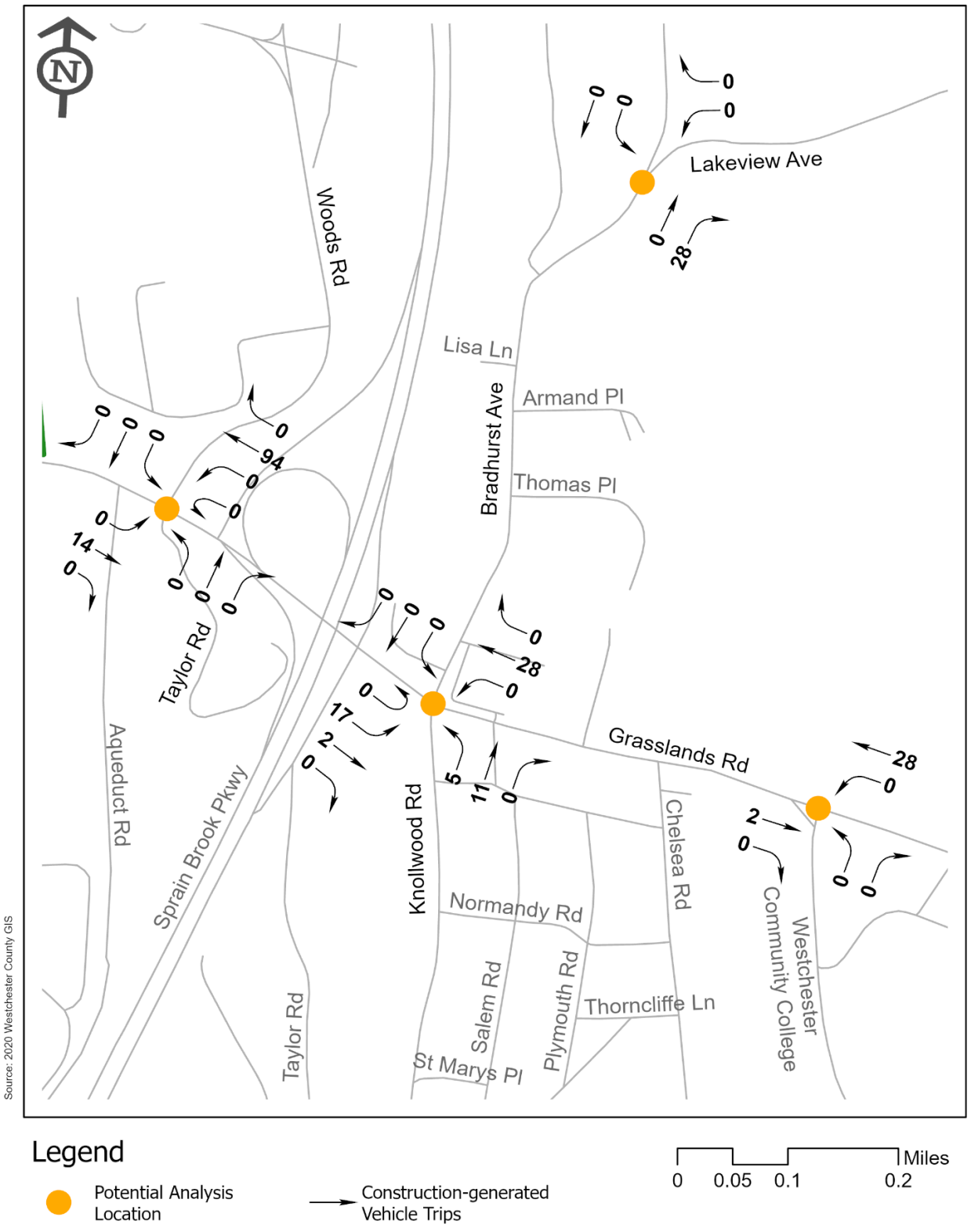


Figure 3.10-5. Inset C – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

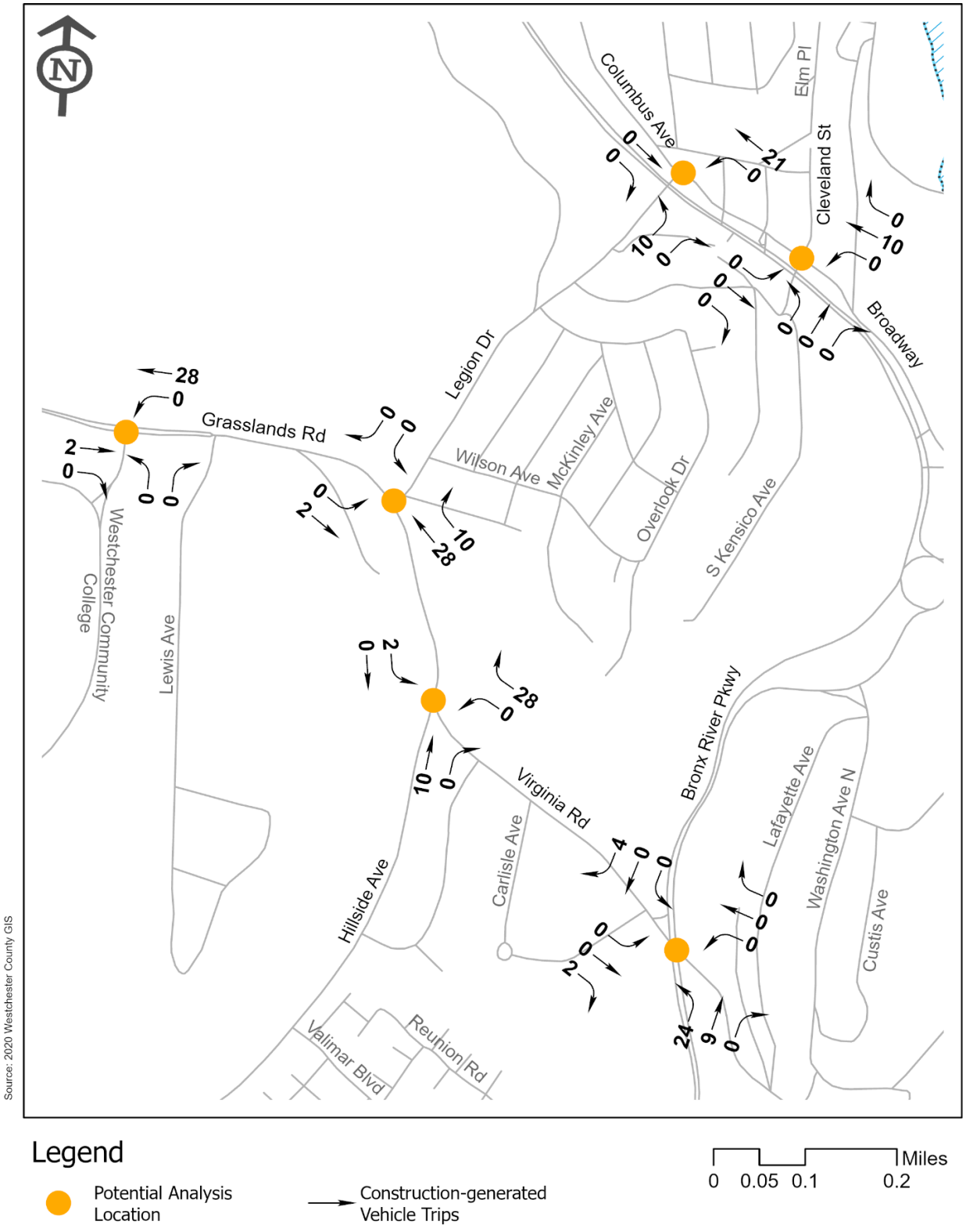


Figure 3.10-6. Inset D – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

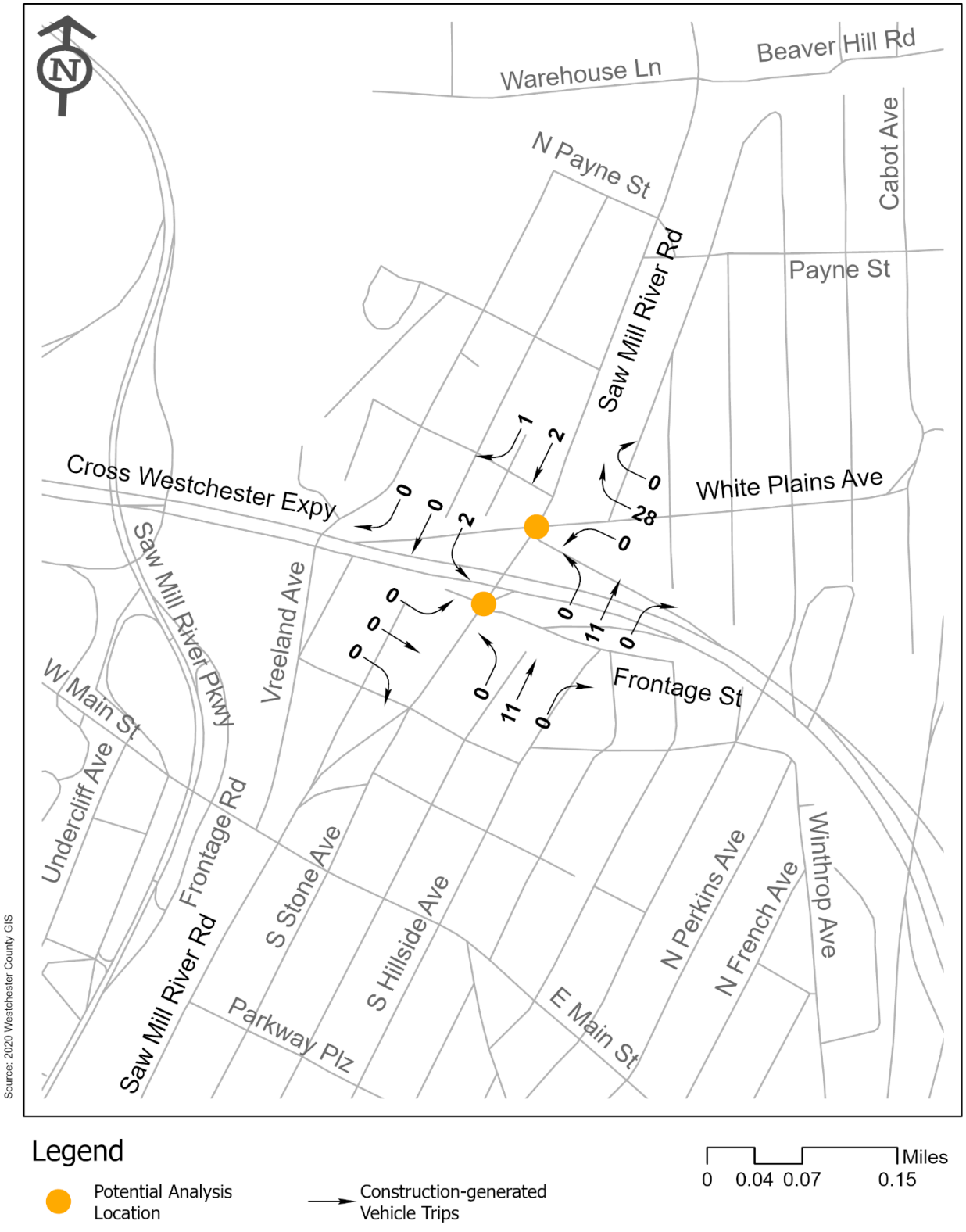


Figure 3.10-7. Inset E – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

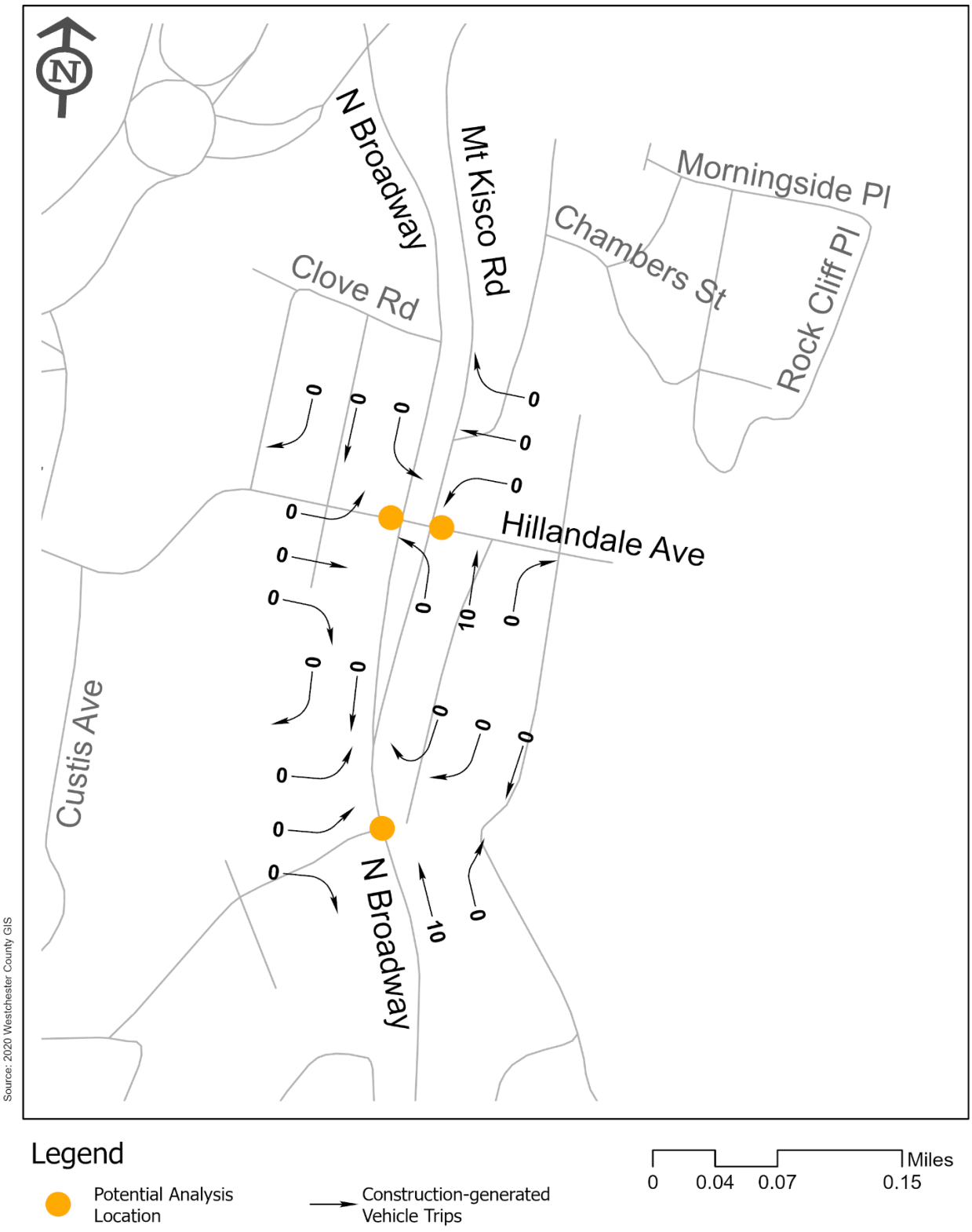


Figure 3.10-8. Inset F – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

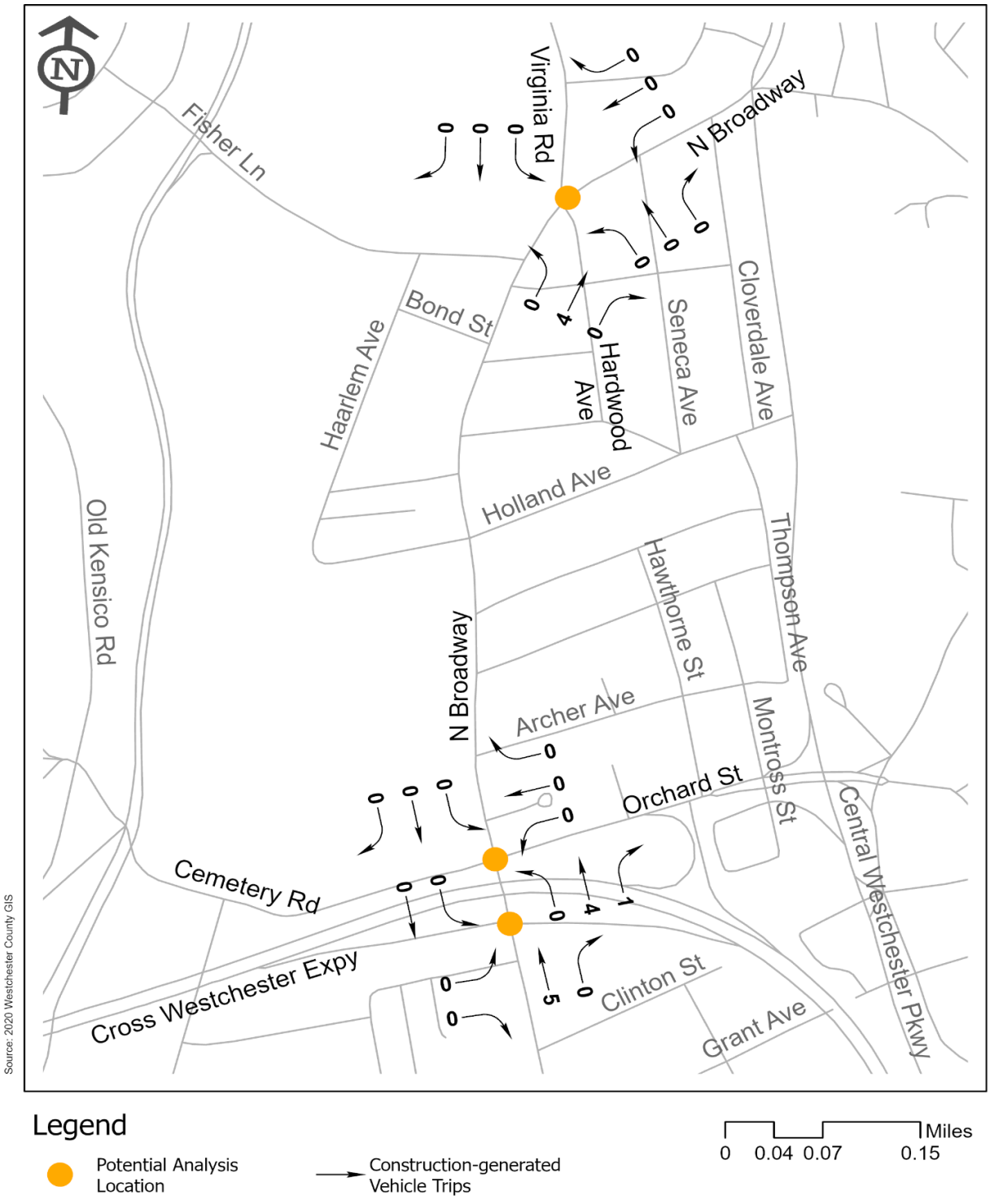


Figure 3.10-9. Inset G – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

Figure 3.10-10. Inset H – Construction-Generated Vehicle Trips – Third Quarter of 2029 AM Construction Traffic Peak Hour

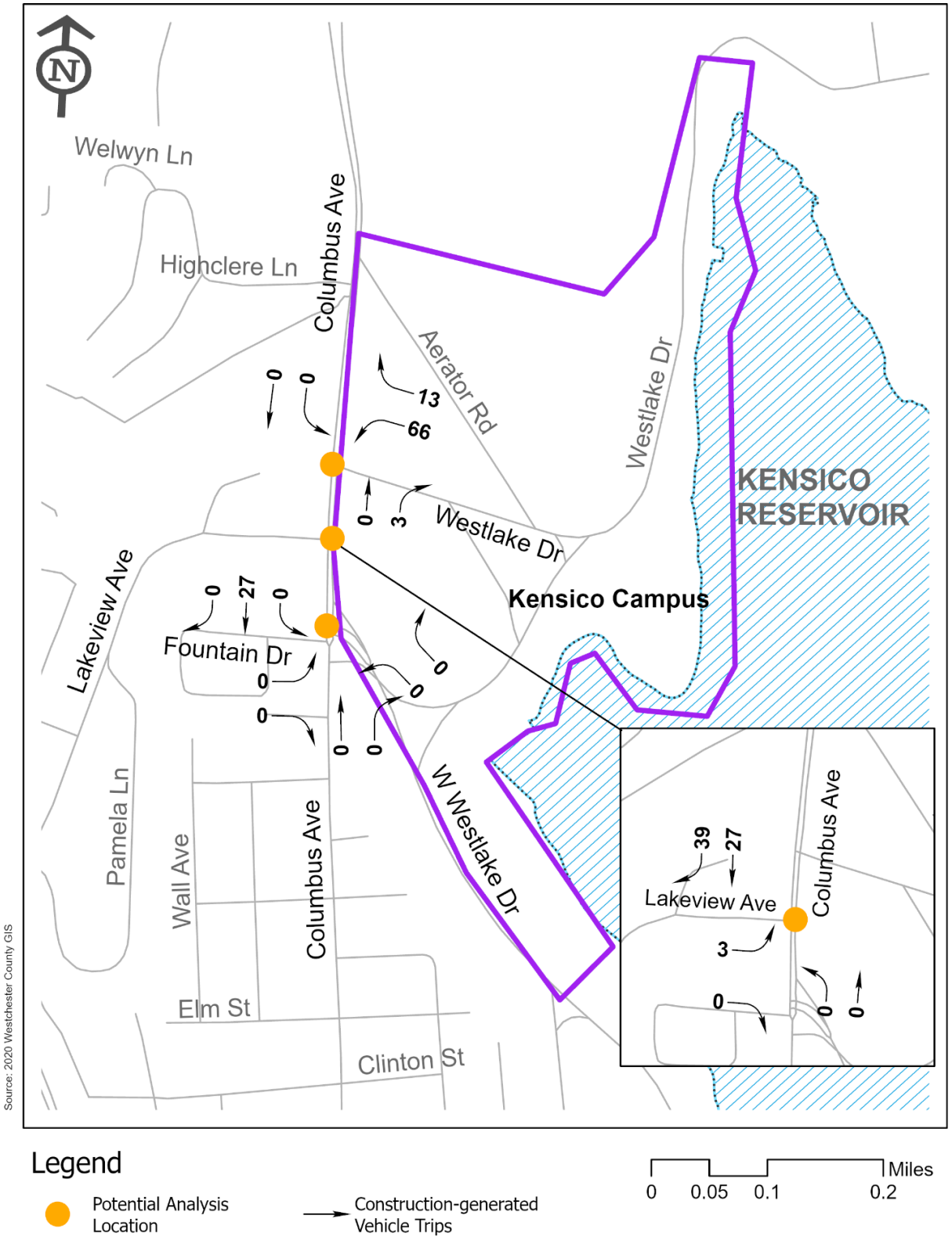


Figure 3.10-11. Inset A – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

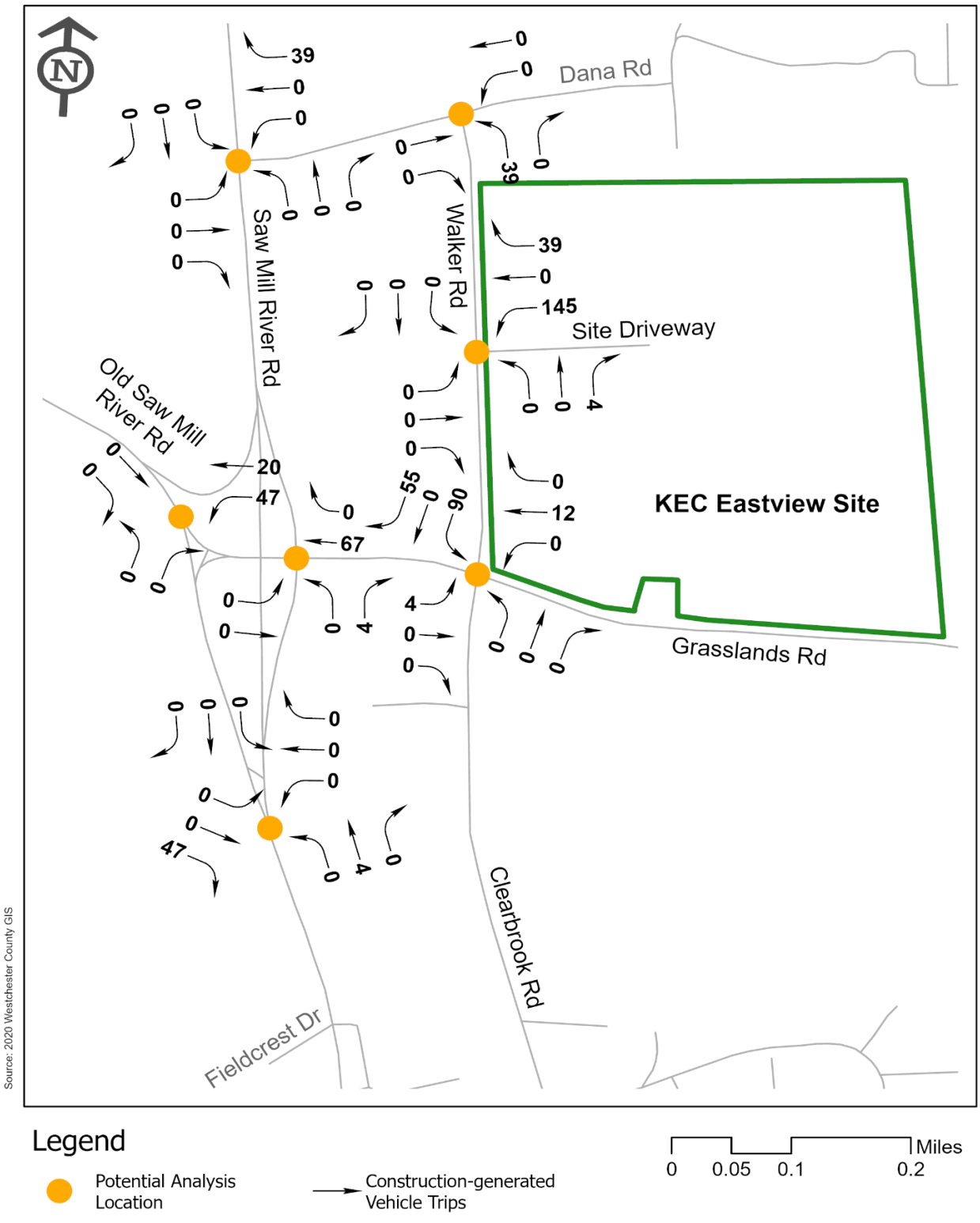


Figure 3.10-12. Inset B – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

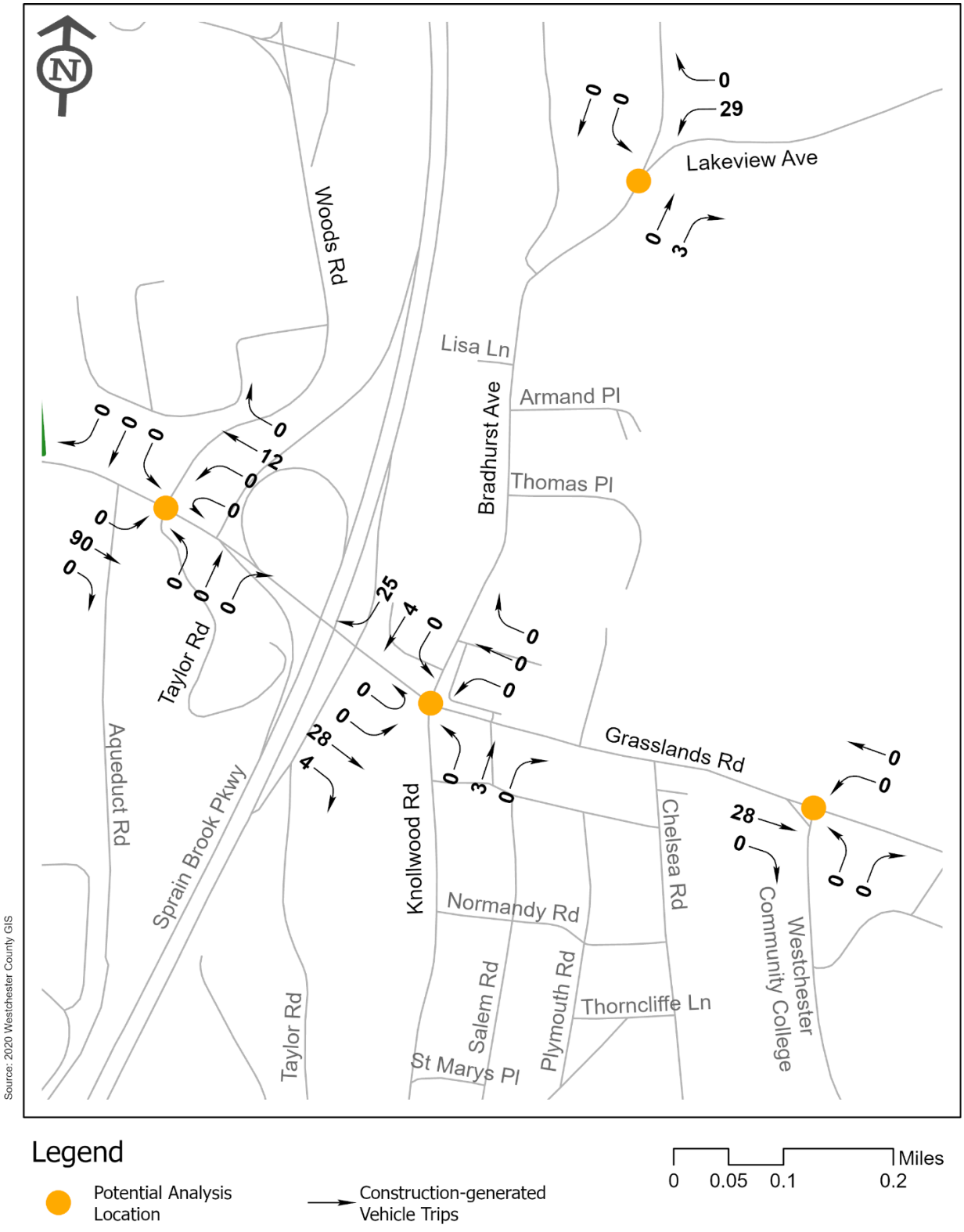


Figure 3.10-13. Inset C – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

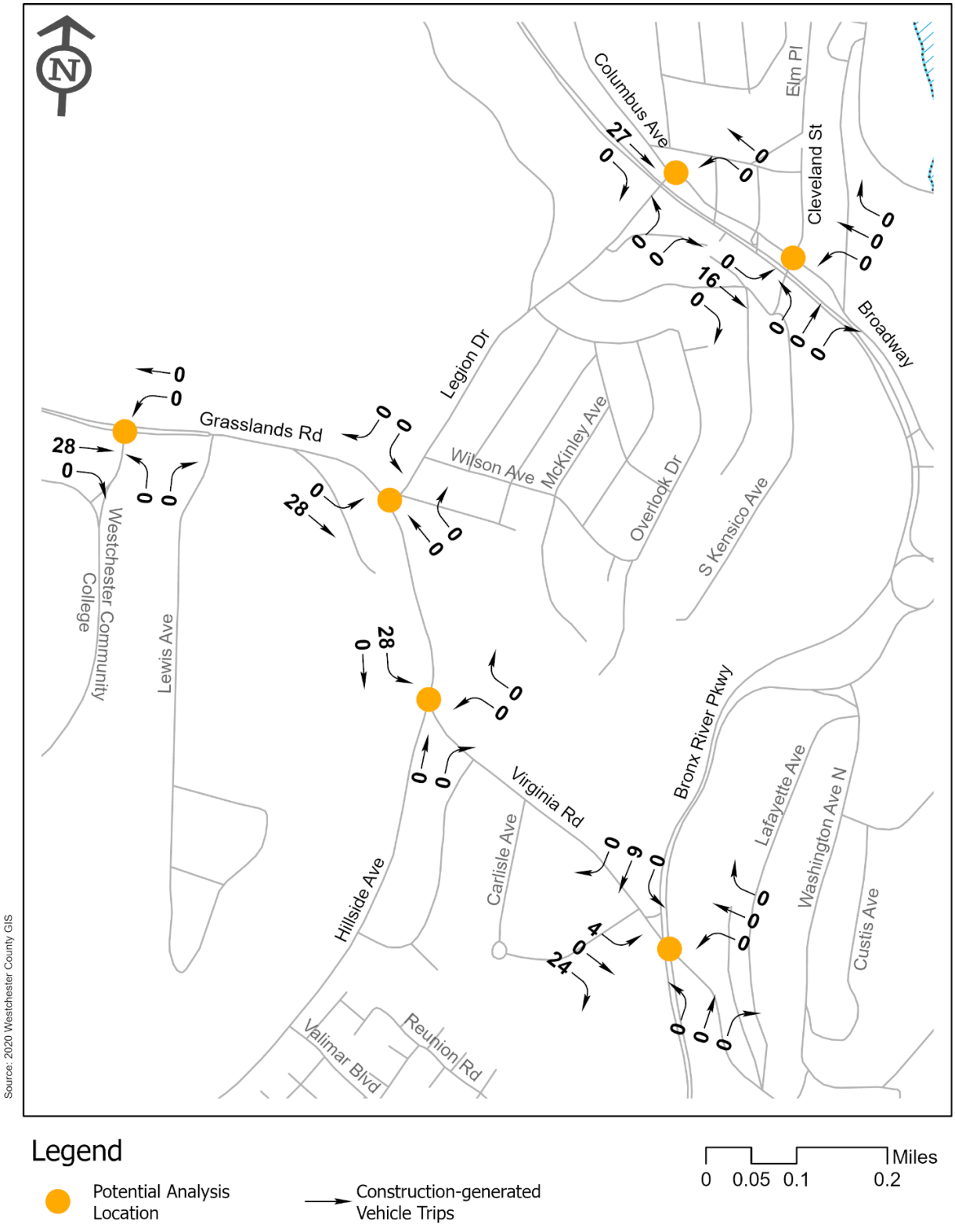


Figure 3.10-14. Inset D – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

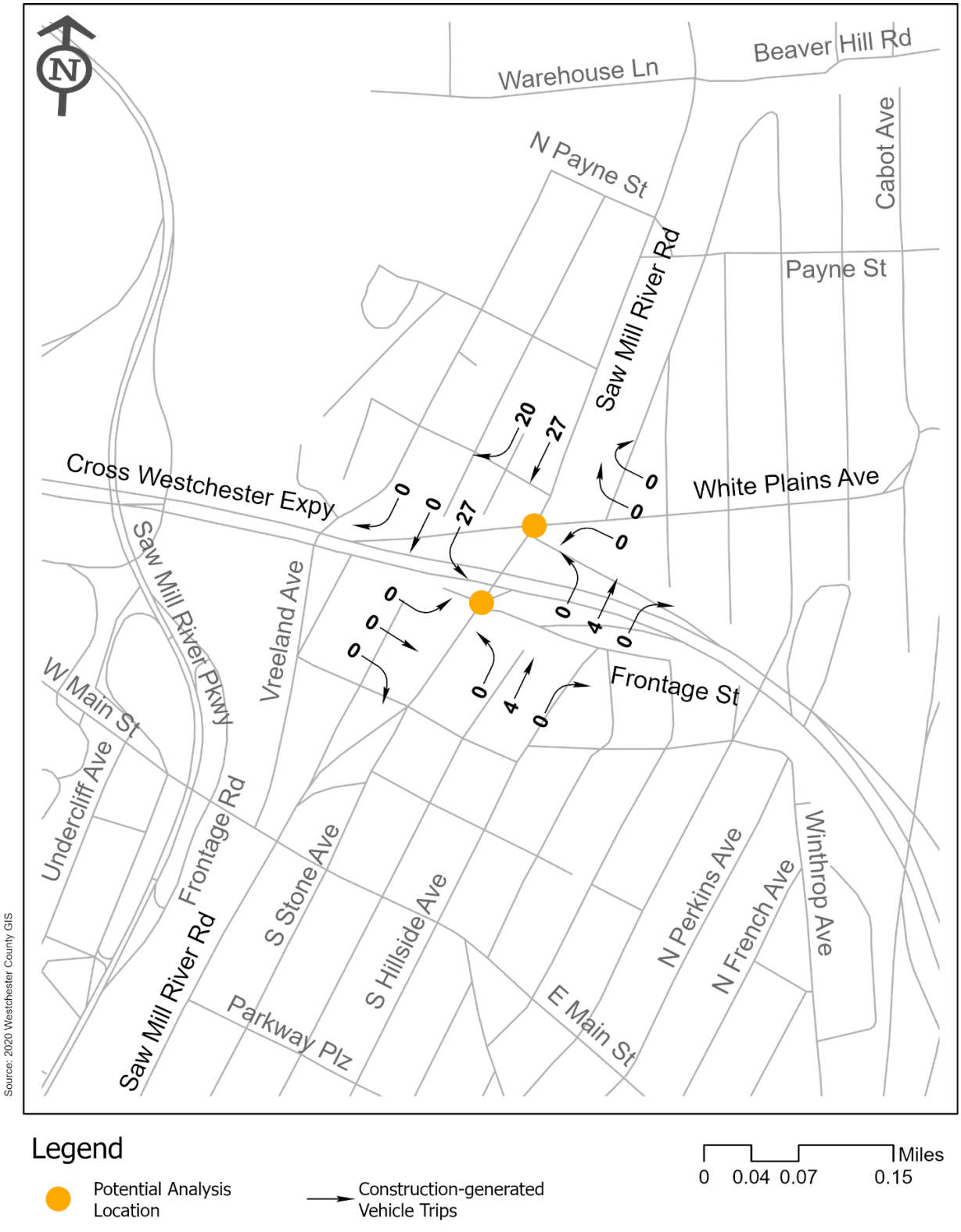


Figure 3.10-15. Inset E – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

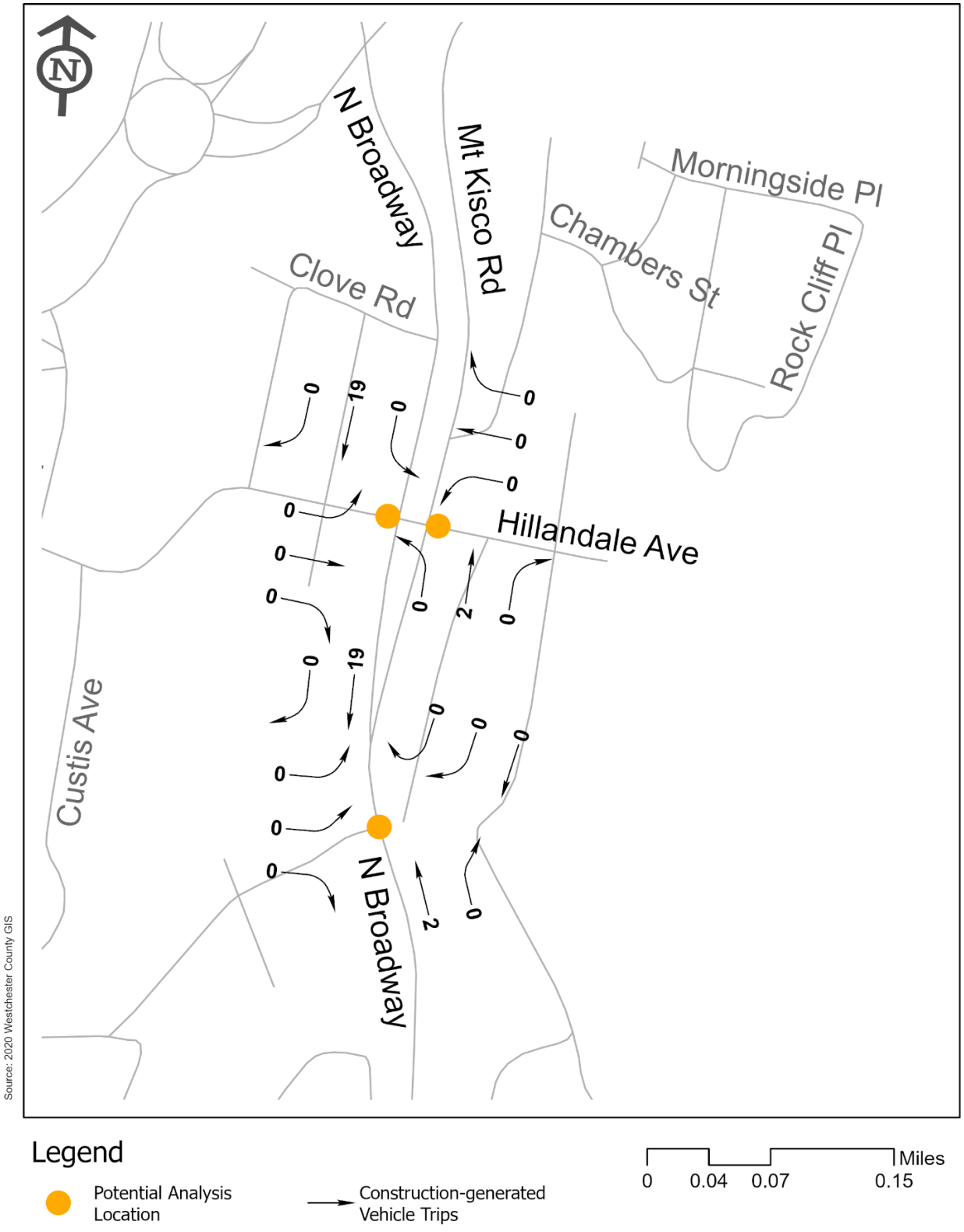


Figure 3.10-16. Inset F – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

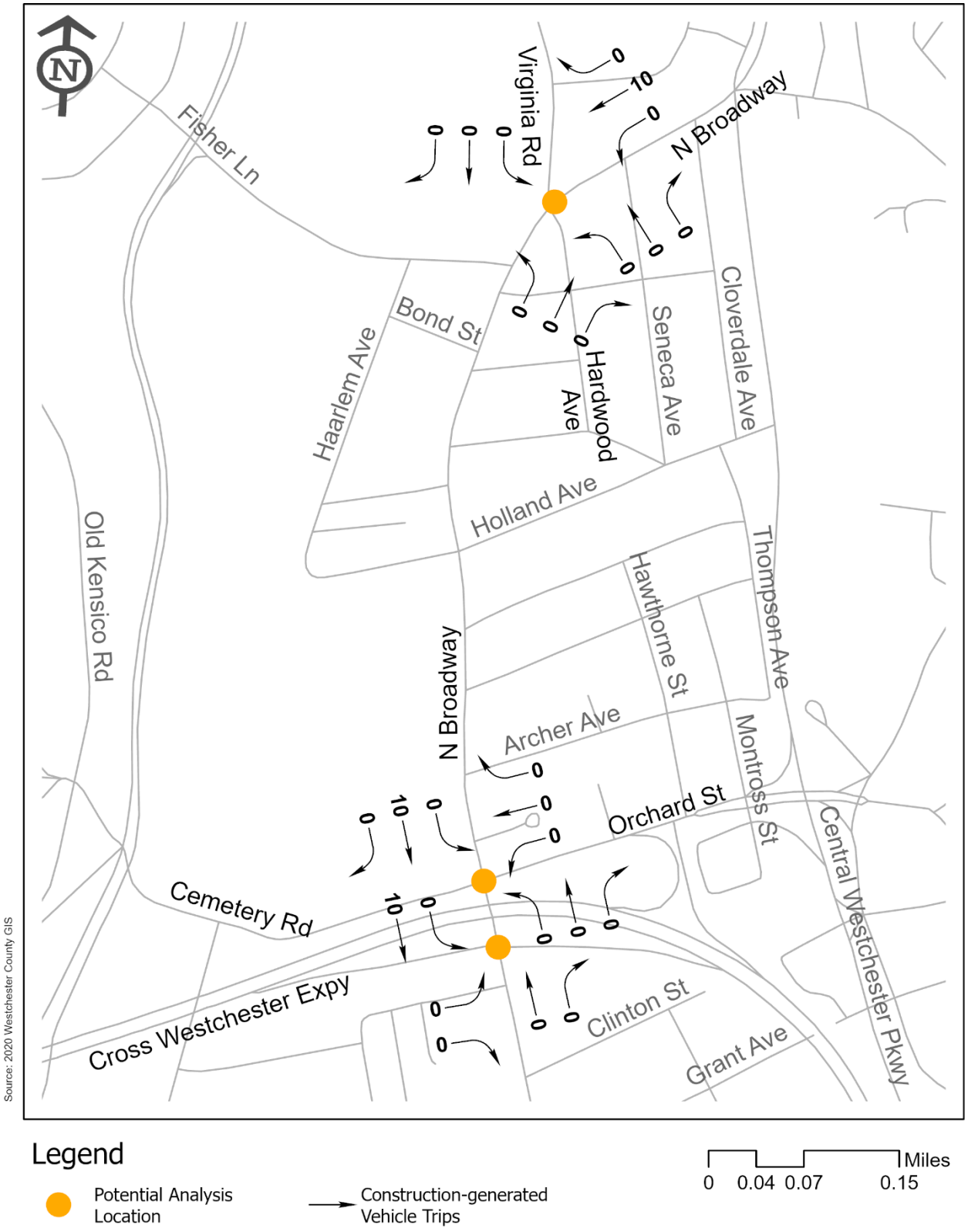


Figure 3.10-17. Inset G – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

Figure 3.10-18. Inset H – Construction-Generated Vehicle Trips – Third Quarter of 2029 PM Construction Traffic Peak Hour

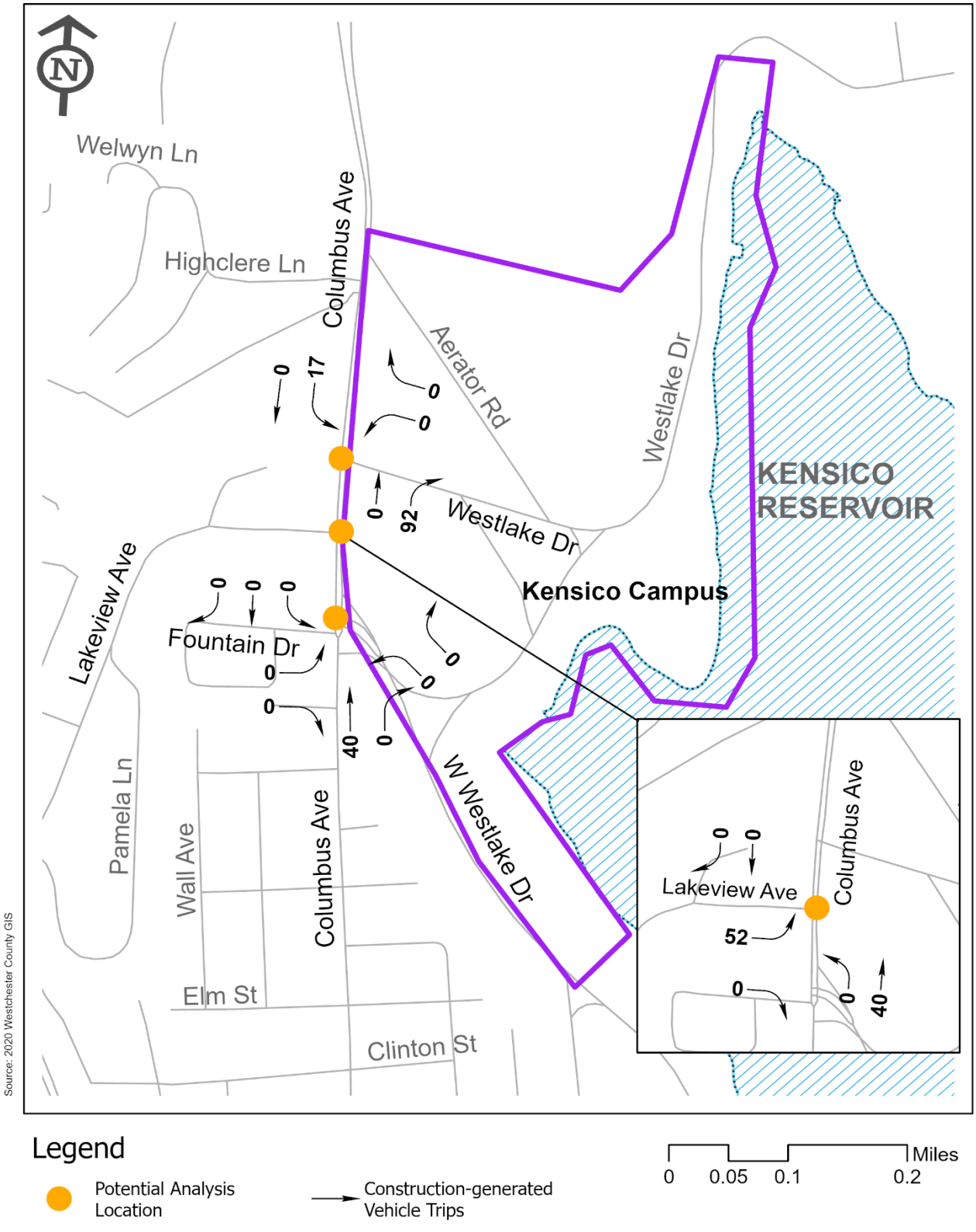


Figure 3.10-19. Inset A – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

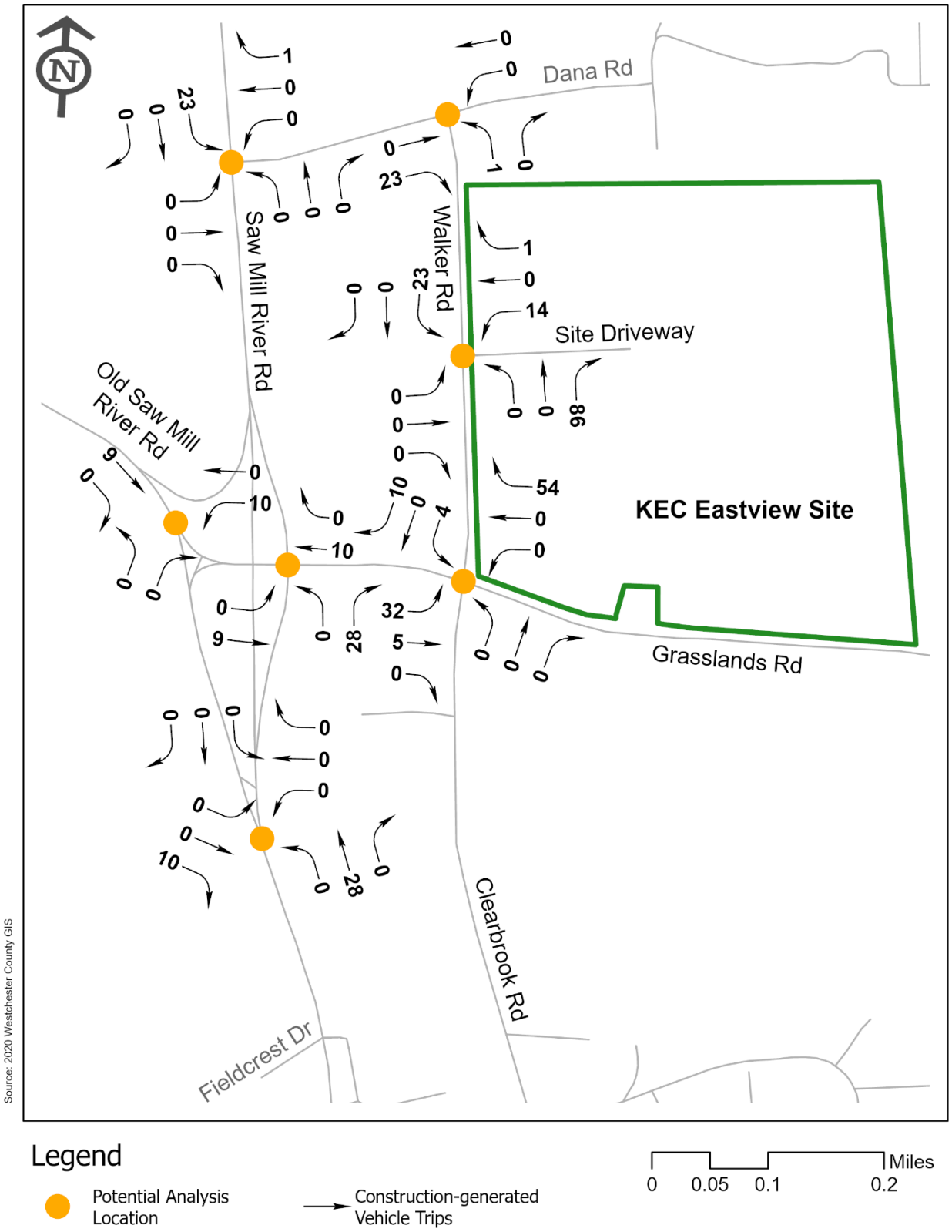


Figure 3.10-20. Inset B – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

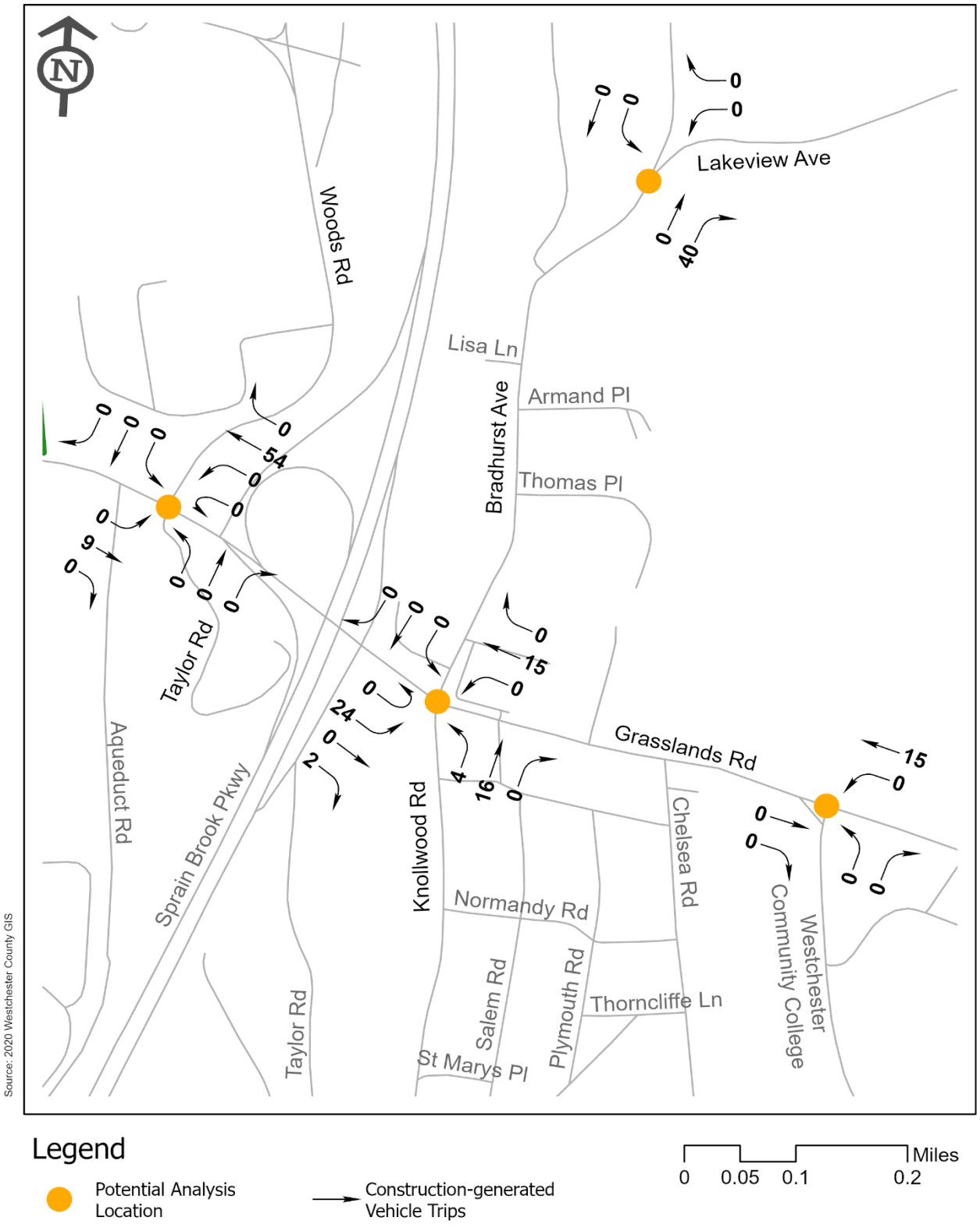


Figure 3.10-21. Inset C – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

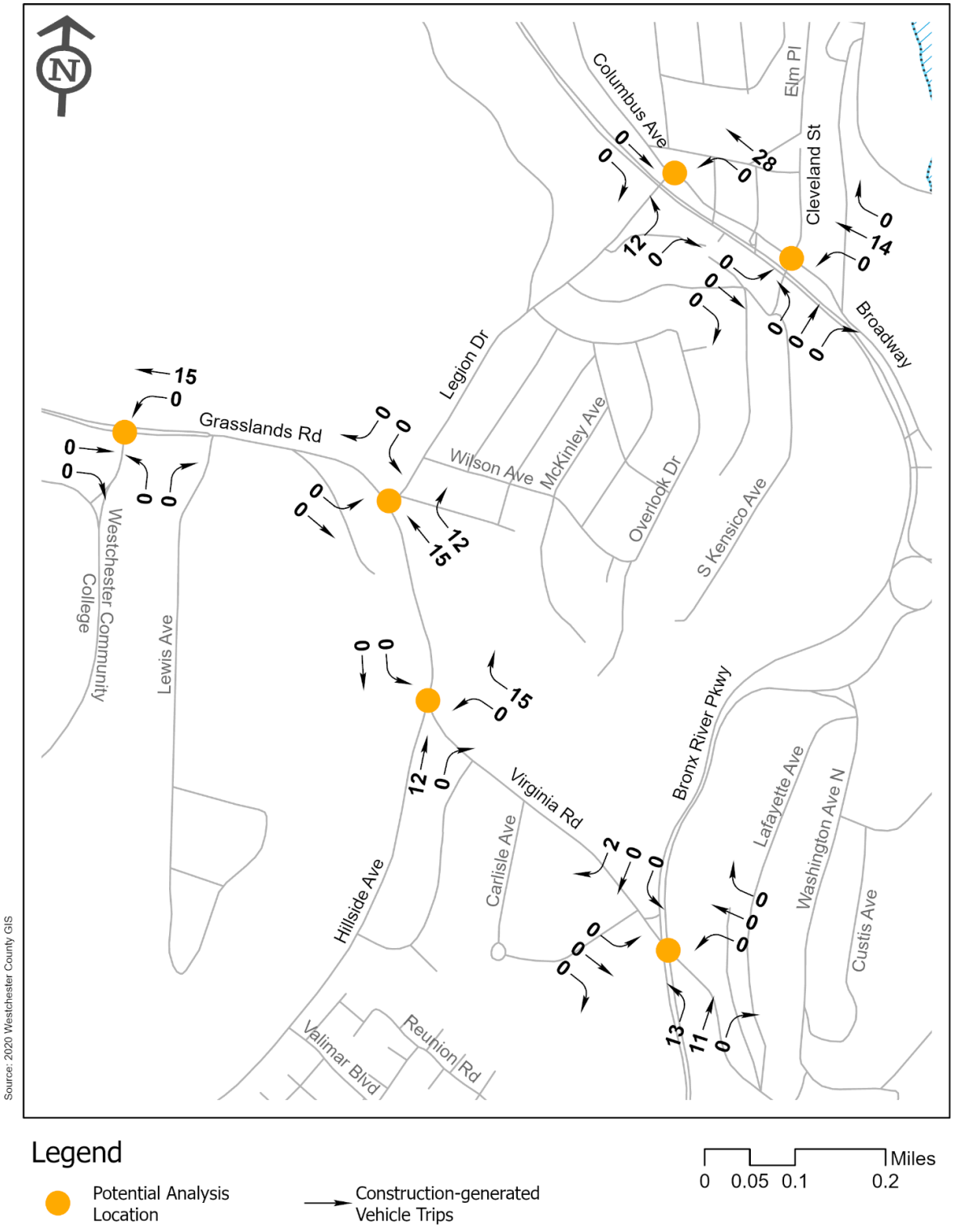


Figure 3.10-22. Inset D – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

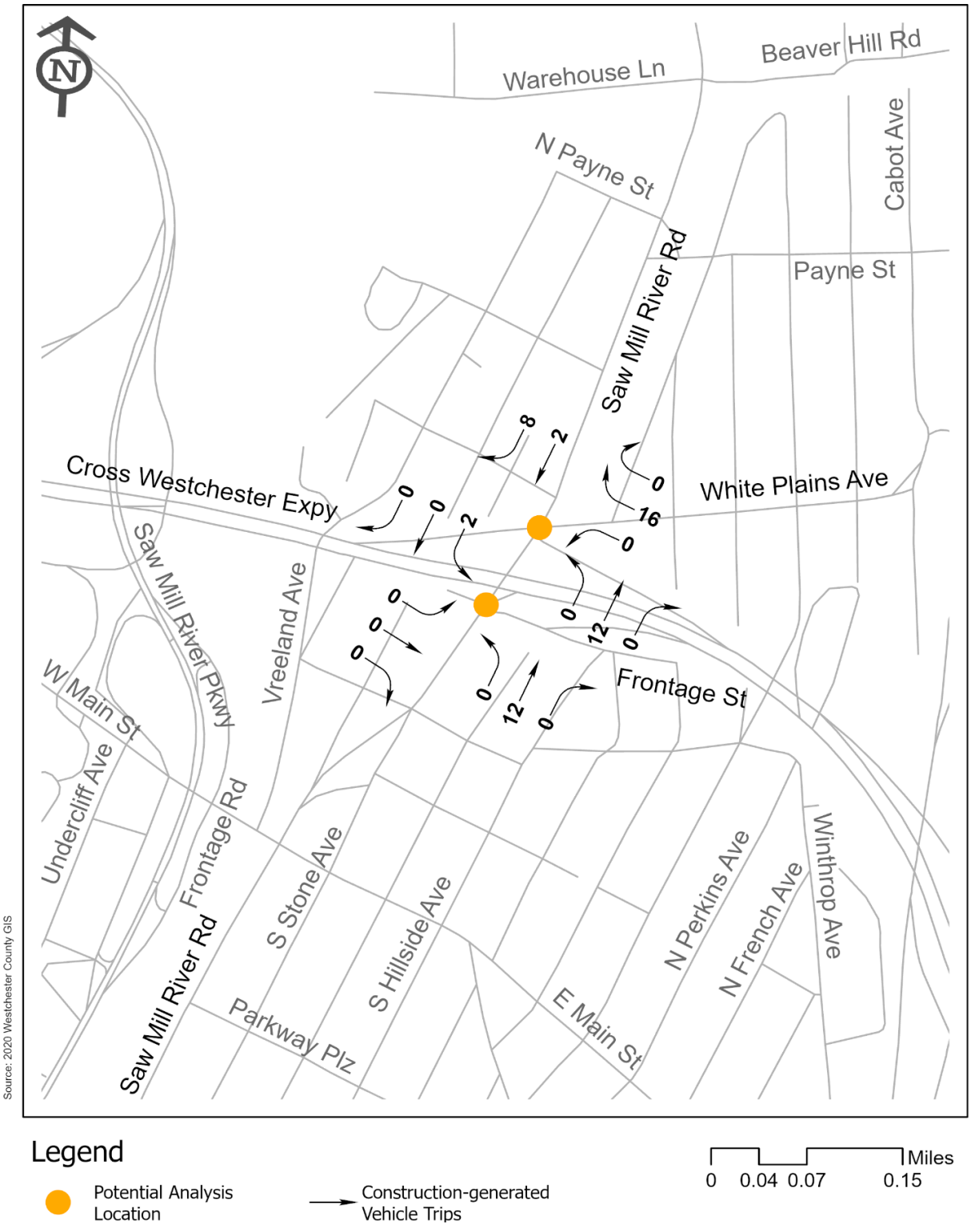


Figure 3.10-23. Inset E – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

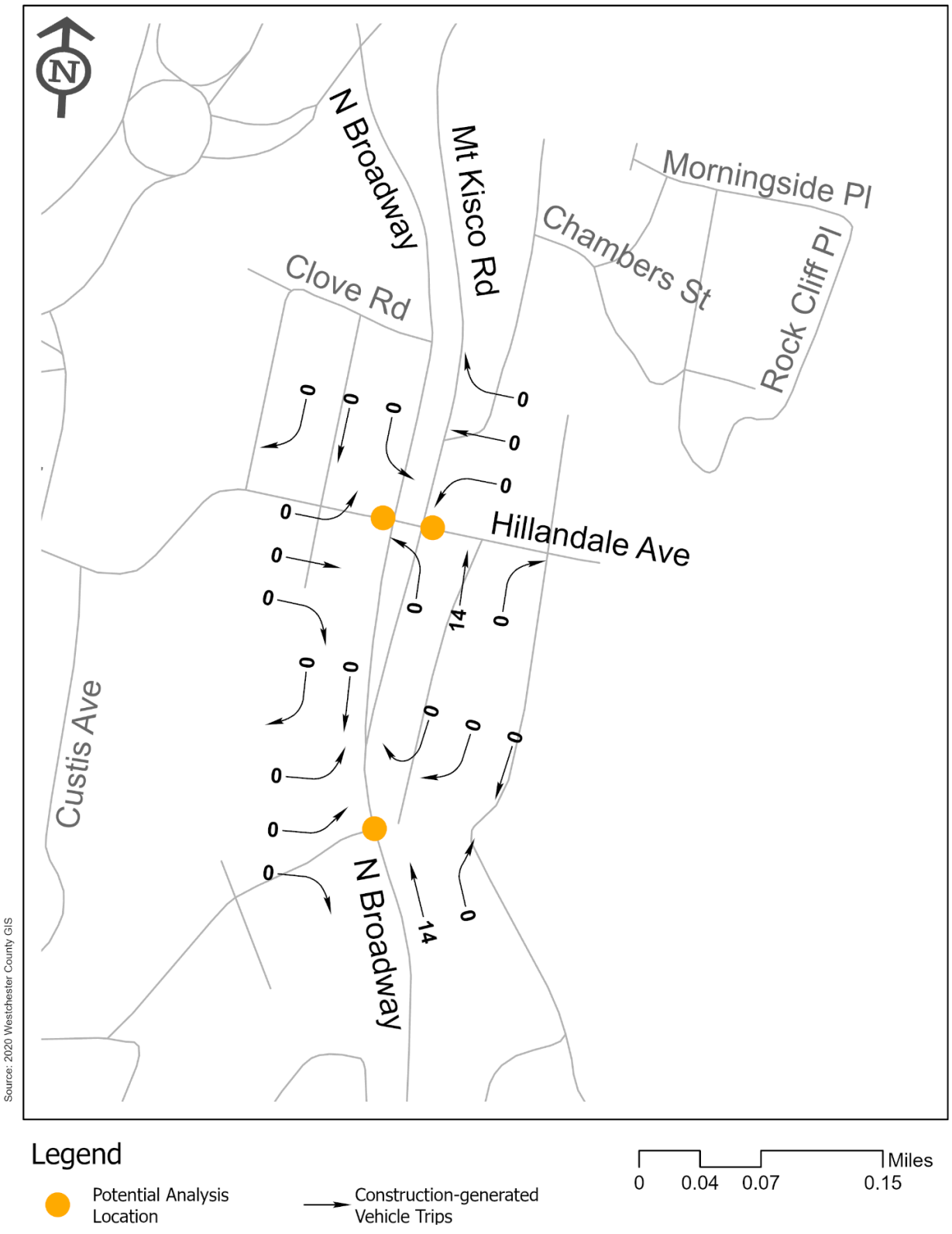


Figure 3.10-24. Inset F – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

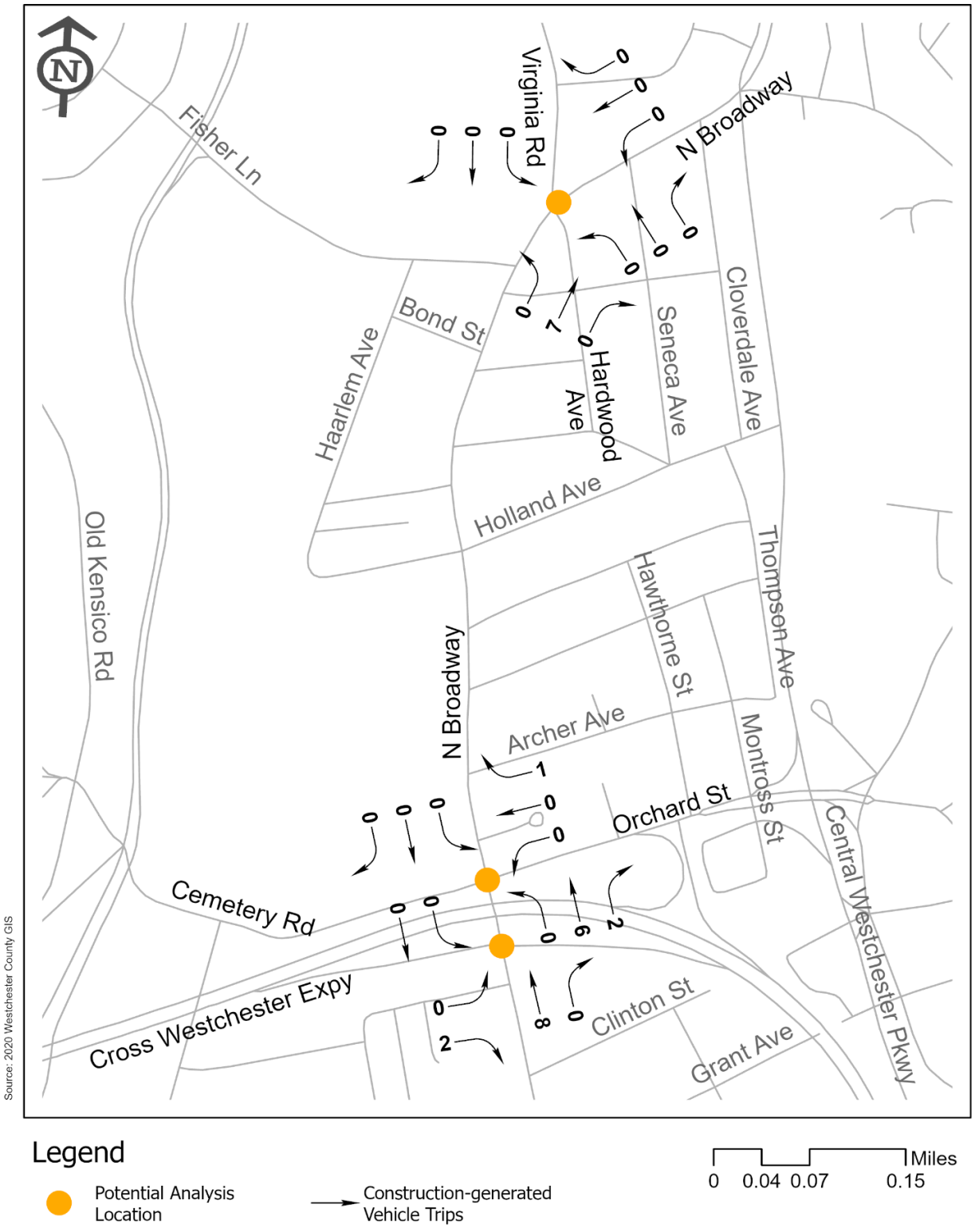


Figure 3.10-25. Inset G – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

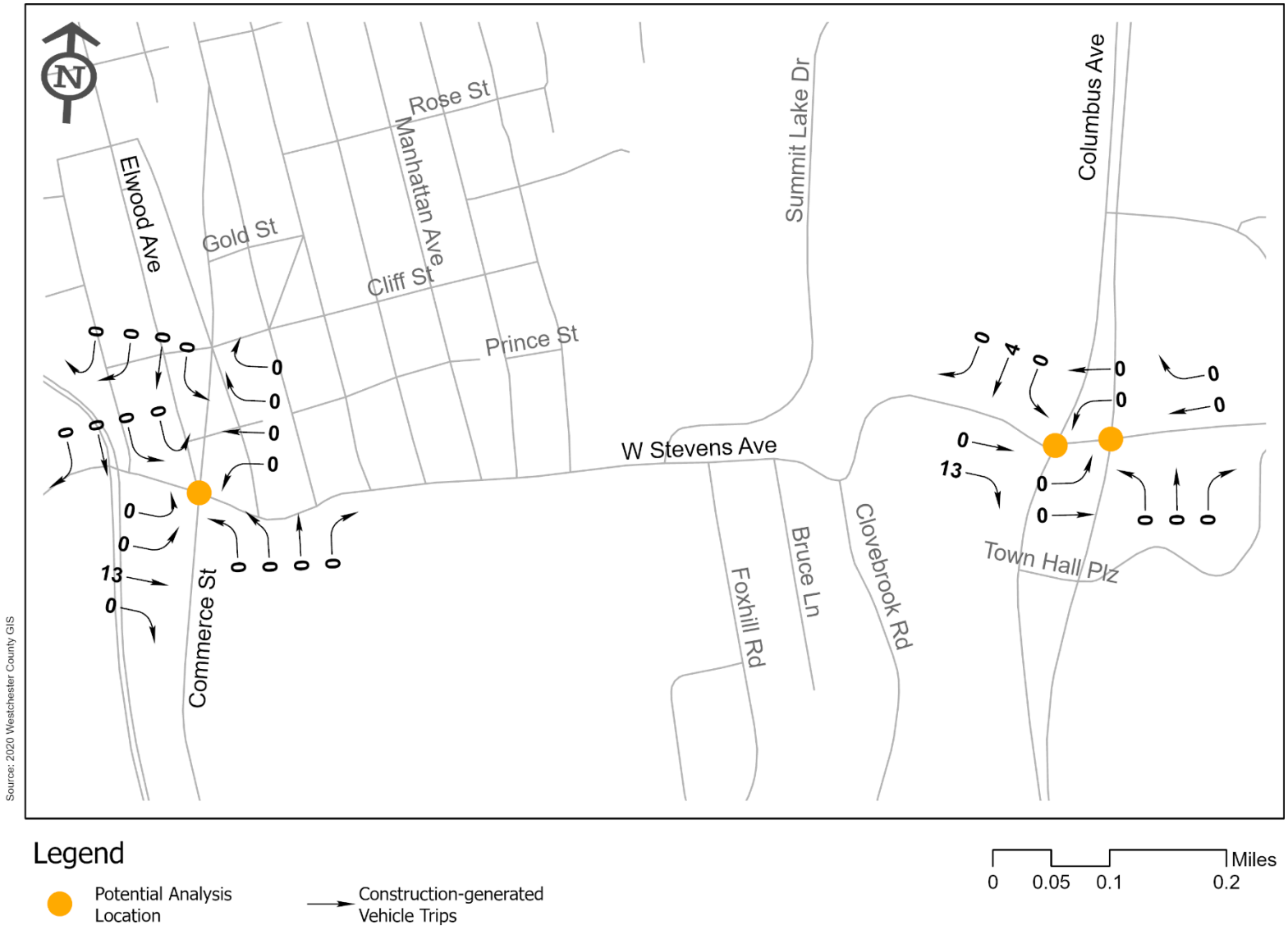


Figure 3.10-26. Inset H – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 AM Construction Traffic Peak Hour

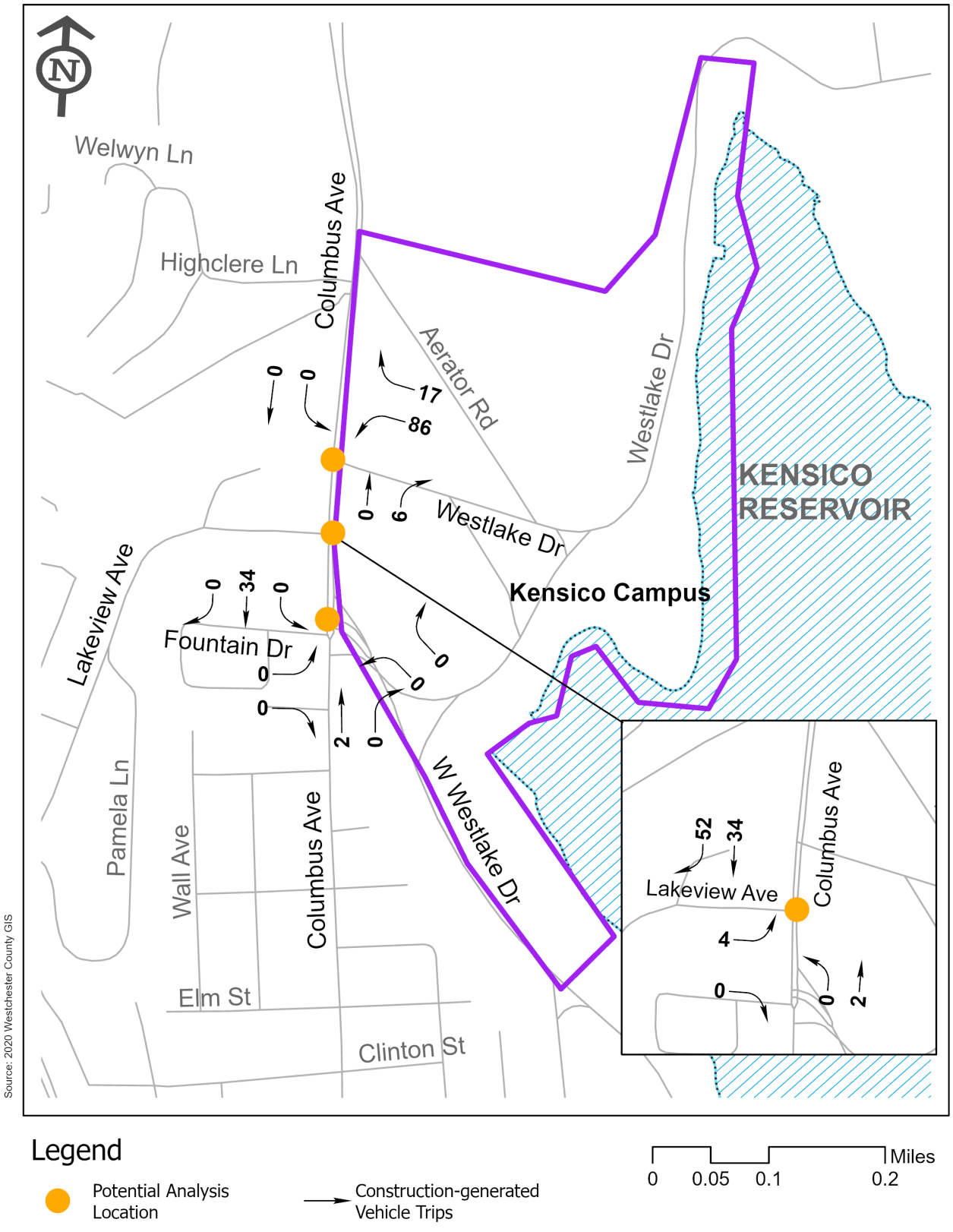


Figure 3.10-27. Inset A – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

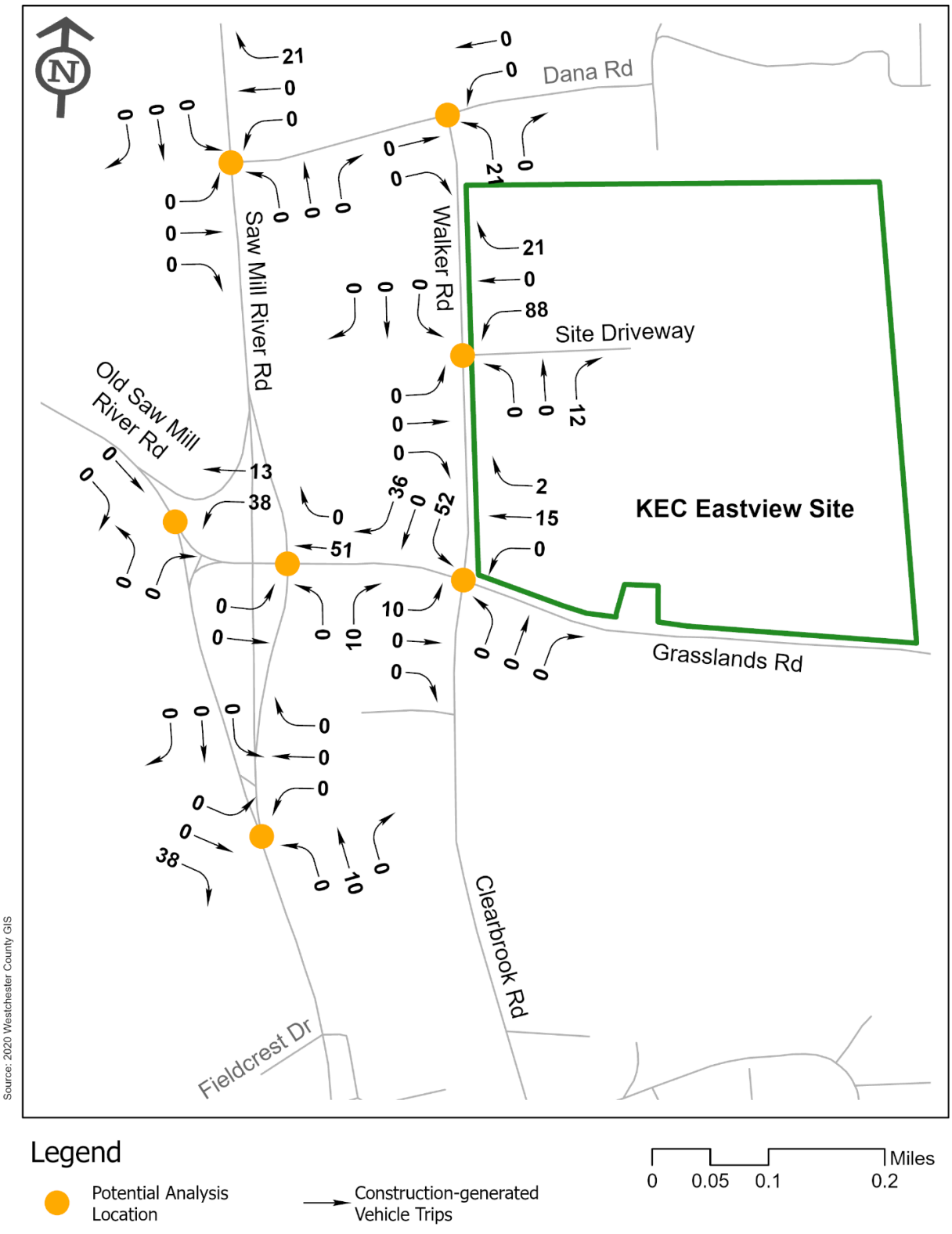


Figure 3.10-28. Inset B – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

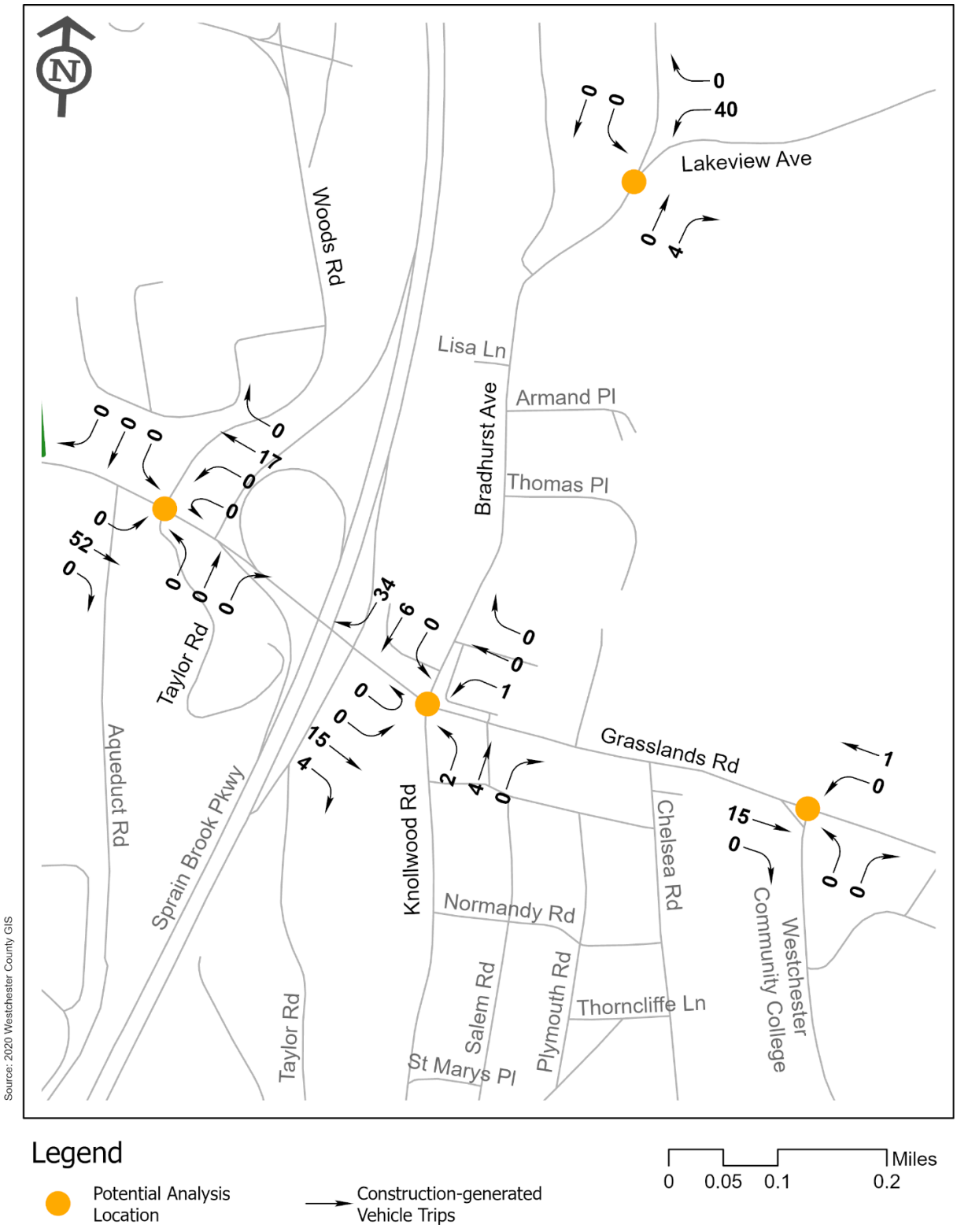


Figure 3.10-29. Inset C – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

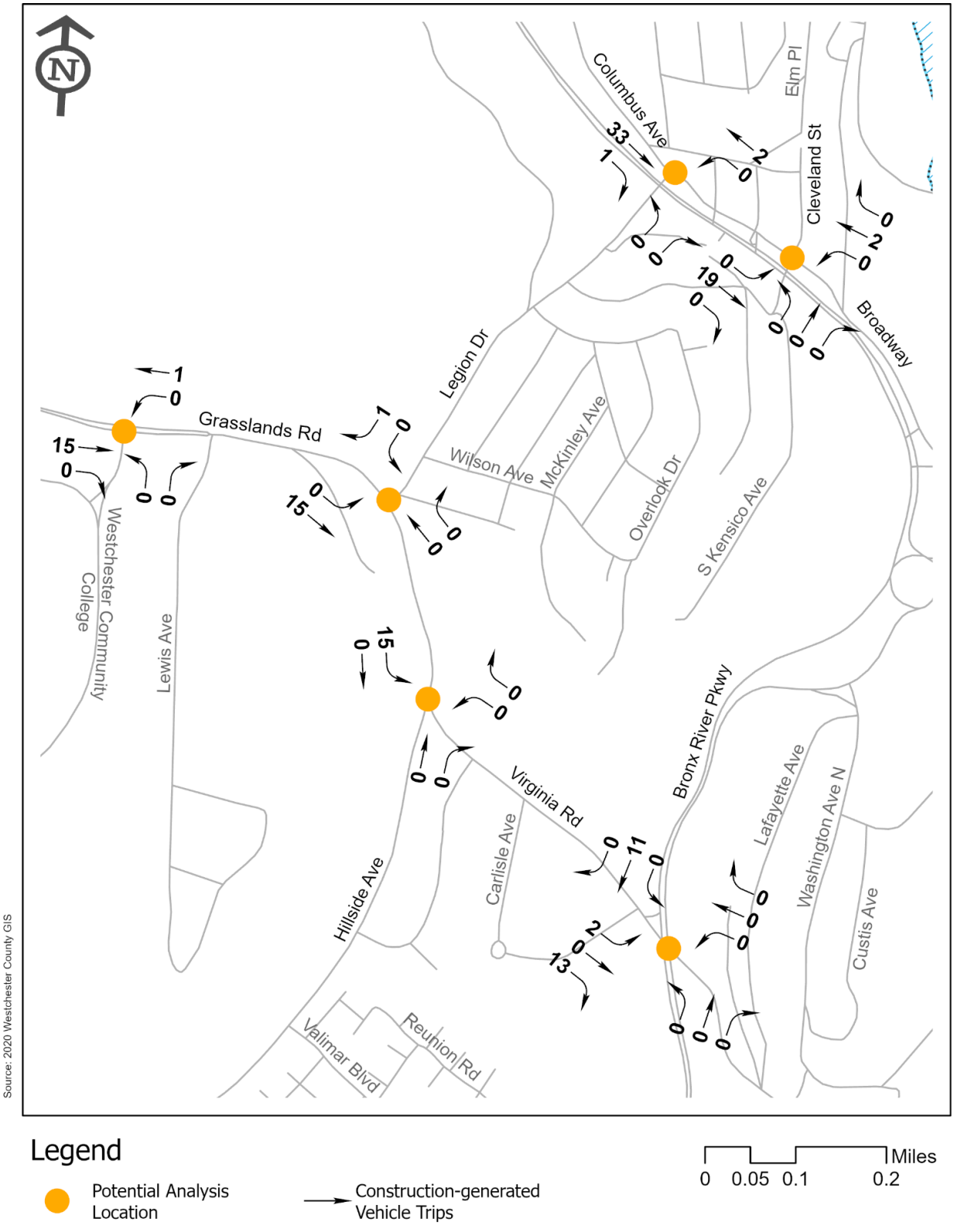


Figure 3.10-30. Inset D – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

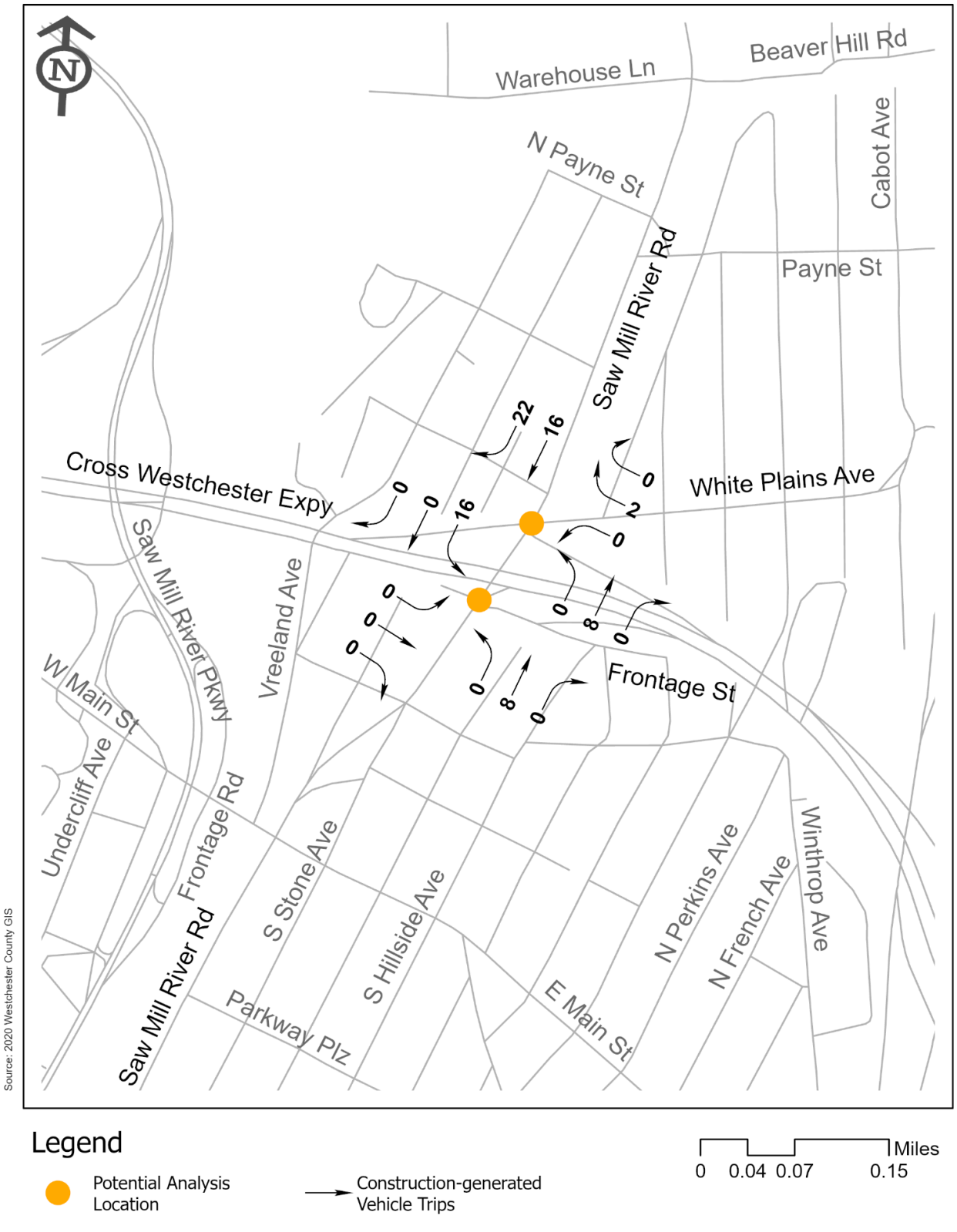


Figure 3.10-31. Inset E – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

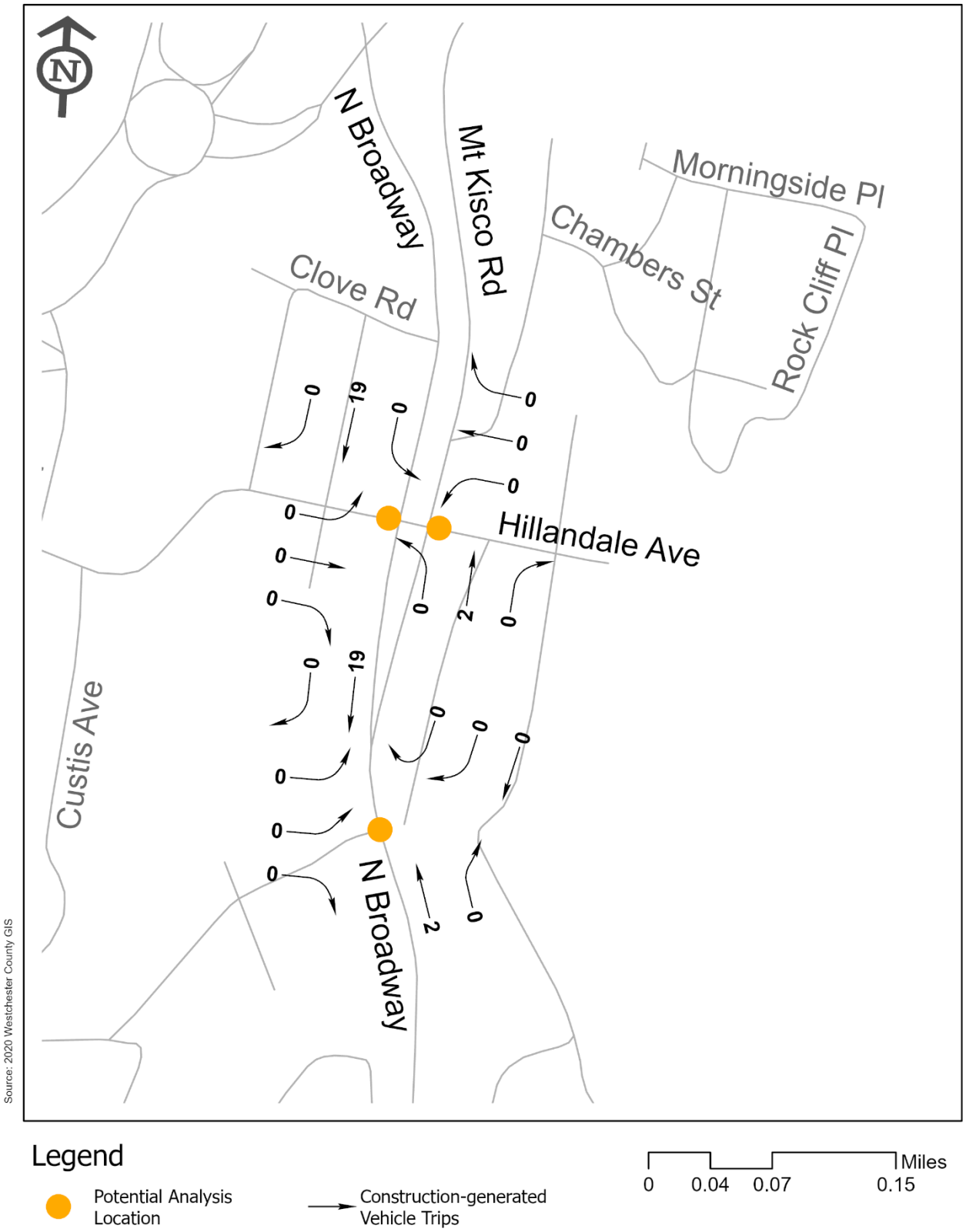


Figure 3.10-32. Inset F – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

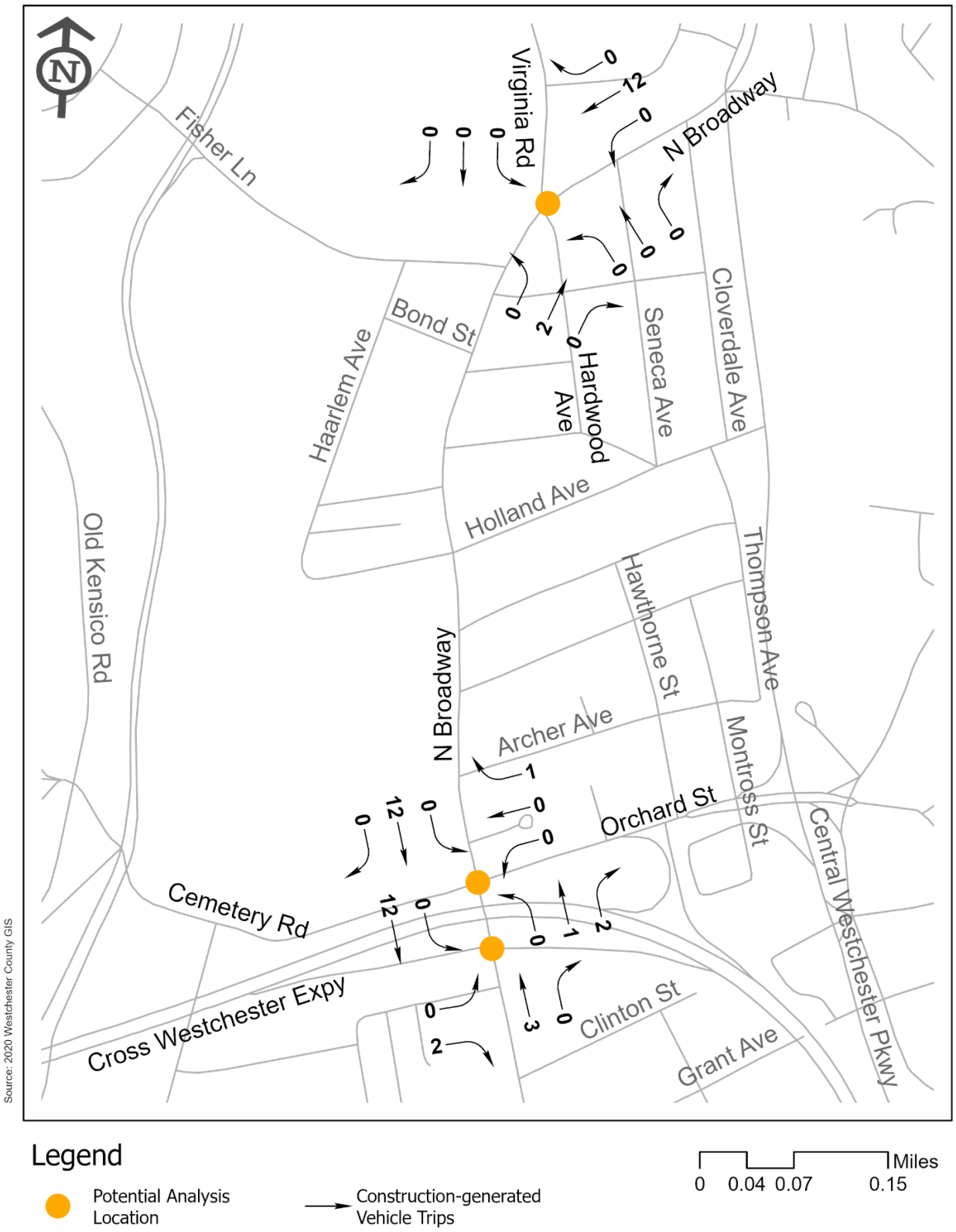


Figure 3.10-33. Inset G – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

Figure 3.10-34. Inset H – Construction-Generated Vehicle Trips – Fourth Quarter of 2027 PM Construction Traffic Peak Hour

The Level 2 screening assessment for Q3 2029 and Q4 2027 identified 11 intersections for detailed traffic analysis based on the CEQR 50 PCE trip threshold for the AM or PM construction traffic peak hour; construction-related traffic at the intersection of New Saw Mill River Road and Frontage Street / Williams Street would be below the threshold but was included due to the intersection being a highway ramp intersection pair with the intersection of New Saw Mill River Road and the Cross Westchester Expressway WB On/Off-Ramps / White Plains Avenue. In addition to these 11 intersections, the intersections of Columbus Avenue and West Westlake Drive / Fountain Drive, Broadway and Cleveland Street, and Columbus Avenue and Legion Drive were included for analysis as requested by Town of Mount Pleasant officials. Of the remaining 21 intersections, a secondary screening assessment was conducted to determine if construction-related vehicle trips would be assigned to specific intersection movements (i.e., left turn, right turn, through movement) that operate in the existing condition under congested or constrained conditions and would therefore have a potential for significant traffic impacts. Four intersections were thus added for detailed analysis along with the 11 intersections meeting the CEQR screening threshold and three intersections requested by the Town, resulting in a total of 18 traffic analysis locations. These traffic analysis locations are listed below and shown on **Figure 3.10-35**. No further traffic analysis is warranted at the other 17 intersections within the traffic study area.

1. Columbus Avenue (CR64) and Westlake Drive
2. Columbus Avenue (CR64) and Lakeview Avenue
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive
4. Walker Road and KEC Eastview Site Driveway
5. Grasslands Road (SR100C) and Old Saw Mill River Road
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road
10. Bradhurst Avenue (SR100) and Lakeview Avenue
11. Columbus Avenue (CR64) and Legion Drive (CR29)
12. Broadway (CR29) and Cleveland Street
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)
14. Grasslands Road (SR100) and Legion Drive (CR29)
15. Hillside Avenue (SR100) and Virginia Road (CR51)
16. Bronx River Parkway and Virginia Road (CR51)
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street

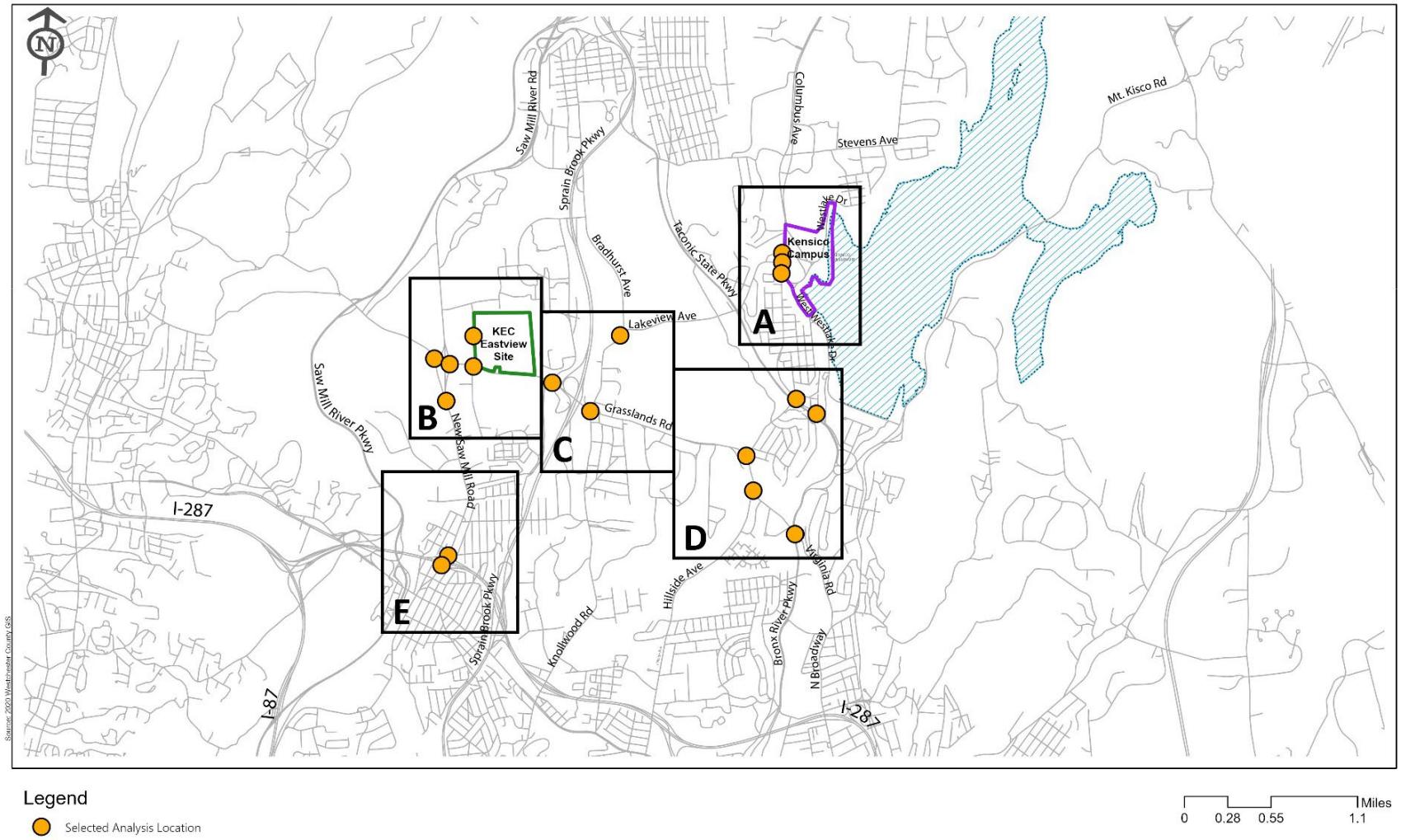


Figure 3.10-35. Traffic Analysis Locations

3.10.2.5 Detailed Traffic Analysis Methodology

The operation of all signalized and unsignalized intersection analysis locations was assessed for both the AM and PM construction traffic peak hours using Synchro software which is based on methodologies presented in the *Highway Capacity Manual 6* (*HCM 6*). The *HCM 6* procedures and the *CEQR Technical Manual* provide guidance and traffic analysis methodological information used in determining traffic operating characteristics and level of service (LOS) for both signalized and unsignalized intersections.

Intersection performance measures can be calculated in the form of volume-to-capacity (V/C) ratios, average vehicle control delays, and level of service. A V/C ratio that approaches or exceeds 1.0 indicates traffic congestion or poor operating conditions. Levels of service are grades that are used to describe different operating conditions that can occur. It is a qualitative measure of the effect of a number of factors including roadway and lane geometries, travel speed and delay, freedom to maneuver, and safety, and is determined for both the overall intersection and its individual traffic movements (i.e., left turns, right turns, and through traffic). Level of service is divided into a range of six letter grades, ranging from A to F, with A being the best and F being the worst. For unsignalized intersections, through traffic on the major street are considered to be operating under free flow conditions (LOS A and no delay), while levels of service for "minor" movements are provided for left turns, right turns, or through movements from the "side" street.

Signalized Intersections

The delay levels for signalized intersections are described below.

- LOS A describes operations with very low delays, i.e., 10.0 seconds or less per vehicle. This occurs when signal progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
- LOS B describes operations with delays in the range of 10.0 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. Again, most vehicles do not stop at the intersection.
- LOS C describes operations with delays in the range of 20.0 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. The number of vehicles stopping is noticeable at this level, although many still pass through the intersection without stopping.
- LOS D describes operations with delays in the range of 35.0 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines.

- LOS E describes operations with delays in the range of 55.0 to 80.0 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios.
- LOS F describes operations with delays in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high V/C ratios with cycle failures. Poor progression and long cycle lengths may also contribute to such delays. Often, vehicles do not pass through the intersection in one signal cycle.

Unsignalized Intersections

For unsignalized intersections, delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. Delay levels for unsignalized intersections are described below.

- LOS A describes operations with very low delay, i.e., 10.0 seconds or less per vehicle.
- LOS B describes operations with delays in the range of 10.0 to 15.0 seconds per vehicle.
- LOS C describes operations with delays in the range of 15.0 to 25.0 seconds per vehicle.
- LOS D describes operations with delays in the range of 25.0 to 35.0 seconds per vehicle.
- LOS E describes operations with delays in the range of 35.0 to 50.0 seconds per vehicle.
- LOS F describes operations with delays in excess of 50.0 seconds per vehicle, which is considered unacceptable to most drivers. This condition exists when there are insufficient gaps of suitable size in a major vehicular traffic stream to allow side street traffic to cross safely.

Based on *CEQR Technical Manual* guidelines for both signalized and unsignalized intersections, LOS A, B, C, and D are considered acceptable, and LOS E and F are considered unacceptable and indicate congestion. These guidelines are applicable to individual traffic movements and overall intersection levels of service.

Significant Impact Criteria

The assessment of potential significant traffic impacts was based on significant impact criteria defined in the *CEQR Technical Manual*. These criteria are typically used for denser New York City urban environments and have been applied for other non-New York City projects; they provide a conservative baseline for assessing traffic impacts in Westchester County. Under this set of criteria:

- For future with the Proposed Action LOS A, B, C, or D conditions are considered acceptable and there would be no significant traffic impacts.

- For future with the Proposed Action LOS E, an increase of delay by five or more seconds in comparison to the future without the Proposed Action is considered a significant traffic impact.
- For future with the Proposed Action LOS F, an increase of delay of four or more seconds in comparison to the future without the Proposed Action delay is considered a significant traffic impact.

The *CEQR Technical Manual* indicates that unsignalized intersections are held to the same significant impact criteria as signalized intersections. However, for a minor street to result in a significant impact, a minimum of 90 PCEs must be identified in the future with the Proposed Action in any peak hour.

The identification and evaluation of traffic improvements that would be needed to eliminate or reduce significant traffic impacts that could potentially result from the Proposed Action are addressed in Chapter 9, "Mitigation." In evaluating potential significant traffic impacts, the construction analysis considers both the potential for construction of a project to create traffic impacts (the "intensity") and whether construction traffic impacts would occur for an extended period of time (the "duration").

3.10.2.6 Safety

The assessment of vehicular and pedestrian safety consists of a crash analysis at the traffic analysis intersections, including an assessment of whether project-generated trips would be expected to significantly increase accident rates. The crash analysis was based on the methodology and procedures utilized by NYSDOT in the performance of crash studies and consists of a review of accident reports from the most recent three-year period of available information. Accident rates at the traffic analysis intersections were calculated and compared to statewide average accident rates on New York State roadways by facility type.

For each analysis intersection, the accident rates are expressed as accidents per million entering vehicles (accidents/MEV), as shown in the formula below. The AADT is the annual average daily traffic (AADT) volume entering the intersection on all approaches in vehicles per day.

$$\text{Accident Rate per MEV} = \frac{(\text{Number of Accidents x } 1{,}000{,}000)}{\text{AADT x Number of Years x } 365 \text{ days}}$$

3.10.2.7 Parking

The parking analysis identifies the amount of on-site parking that would be provided at each of the Kensico Campus and the KEC Eastview Site and determines whether it would be sufficient to accommodate the amount of parking that would be needed by construction workers throughout working hours. If the on-site parking supply is not sufficient, the analysis determines

the extent of off-site parking available within a quarter-mile radius (i.e., a five-minute walk) of each construction site under existing and future conditions that may be used to accommodate construction workers and whether or not there would be a significant parking shortfall.

3.10.3 EXISTING CONDITIONS

3.10.3.1 Roadway Network and Study Area

The traffic study area is generally bounded by Stevens Avenue to the north, Columbus Avenue and Broadway to the east, the Cross Westchester Expressway to the south and Saw Mill River Road to the west. The study area is served by several north-south highways such as the Bronx River Parkway, Sprain Brook Parkway, Saw Mill River Parkway, and Taconic State Parkway, and the east-west Cross Westchester Expressway along the study area's southern boundary. These highways lead to arterials, collector streets, and local roadways to the Kensico Campus and the KEC Eastview Site.

The Kensico Campus is bounded by Westlake Drive to the north, Kensico Reservoir to the east, West Westlake Drive to the south, and Columbus Avenue to the west. Westlake Drive within the study area is an east-west, two-way roadway with one travel lane plus curbside parking in each direction and would provide access to the Kensico Campus during construction.

Descriptions of the key access roadways near the Kensico Campus are provided below.

- Columbus Avenue is a two-way north-south roadway with two travel lanes in each direction north of West Westlake Drive. The west side of Columbus Avenue between Stevens Avenue and West Westlake Drive is primarily residential in character while the east side of Columbus Avenue features water supply lands (including Kensico Campus), and commercial and school uses. The local police and fire departments are also located along this section of Columbus Avenue. Columbus Avenue consists of one travel lane in each direction between West Westlake Drive and Valhalla Place and travels through residential areas. South of Valhalla Place, Columbus Avenue is known as Broadway and generally consists of one travel lane with curbside parking in each direction.
- West Westlake Drive extends along the west side of Kensico Reservoir from Columbus Avenue to the west to Mt. Kisco Road on the east side of the reservoir. Access to the section of West Westlake Drive at the southern end of the reservoir (near the Kensico Dam) is restricted to DEP vehicles and is not open to the public. West Westlake Drive consists of one travel lane in each direction. The land uses along West Westlake Drive are generally water supply lands (including Kensico Campus).
- Lakeview Avenue is a two-way east-west roadway with one travel lane in each direction. Lakeview Avenue extends from Bradhurst Avenue to the west to Columbus Avenue to

the east and provides access to the Taconic State Parkway. The land uses along Lakeview Avenue are generally residential and cemeteries.

The KEC Eastview Site is bounded by Dana Road to the north, Woods Road to the east, Grasslands Road to the south, and Walker Road to the west. Access to the KEC Eastview Site would be provided by Walker Road, a north-south, two-way roadway that typically consists of one travel lane in each direction with dedicated left-turn lanes at selected driveway intersections.

Descriptions of key access roadways near the KEC Eastview Site are provided below.

- Grasslands Road extends to the west past Saw Mill River Road where it transitions to Old Saw Mill River, and to the east where it splits into Virginia Road and Hillside Avenue east of Westchester Community College. Grasslands Road is a two-way roadway with one travel lane in each direction except in the section between Walker Road and Bradhurst Avenue/Knollwood Road where additional travel lanes and dedicated turn lanes are provided to accommodate traffic to and from the Sprain Brook Parkway. The section of Grasslands Road west of Walker Road also has dedicated left-turn lanes at selected intersections. The land uses along Grasslands Road are generally water supply lands (including the KEC Eastview Site), office and research, vacant land, residential, and the Westchester Community College.
- Saw Mill River Road is a north-south, two-way roadway west of the KEC Eastview Site and generally consists of two travel lanes in each direction with dedicated left-turn lanes at selected intersections. The land uses along Saw Mill River Road are generally commercial and manufacturing/industrial uses. South of Payne Avenue, Saw Mill River Road is known as New Saw Mill River Road.
- Bradhurst Avenue/Knollwood Road is a north-south, two-way roadway that is located east of the Sprain Brook Parkway. This roadway is known as Bradhurst Avenue north of Grasslands Road and as Knollwood Road south of Grasslands Road. It generally consists of one travel lane in each direction with the exception of its intersection at Grasslands Road where there is an additional dedicated left-turn lane along both the northbound and southbound approaches. The land uses along Bradhurst Avenue generally consist of community facilities and cemeteries, while Knollwood Road extends through primarily residential areas.

3.10.3.2 Detailed Traffic Analysis

Traffic Volumes

Traffic counts were conducted in March 2021 for the weekday AM and PM construction traffic peak periods using video cameras and 24-hour Automatic Traffic Recorder (ATR) machine counts. With guidance from NYSDOT and in consultation with DEP, these collected traffic

counts were adjusted upward based on NYSDOT's ATR count data collected within the past five-year period to reflect pre-pandemic levels. The adjustment factors were developed by comparing traffic volumes between normal pre-pandemic conditions and lower volume conditions during the pandemic. The traffic volume comparisons indicated that the following upward adjustments needed to be made to the traffic volume data newly counted in March 2021:

- In the AM construction traffic peak hour, a one percent upward volume adjustment along roadways in the western portion of the traffic study area (i.e., generally west of the Taconic State Parkway) and a 37 percent upward volume adjustment at analysis intersections in the eastern portion of the traffic study area (i.e., generally east of the Taconic State Parkway).
- In the PM construction traffic peak hour, a seven percent upward volume adjustment along roadways within the study area since the differential between the western and eastern subareas was only pronounced in the AM peak period.

These volume adjustment factors were then applied to the March 2021 volume data and AM and PM construction traffic peak hour volume networks were developed. Detailed traffic volume maps for the normalized data for these two peak construction traffic hours are presented on **Figure 3.10-36** through **Figure 3.10-45**.

The Kensico Campus is directly served by Columbus Avenue (CR22), which is an arterial roadway, plus other connector and local roadways. The KEC Eastview Site is served by two primary arterials, Grasslands Road and Saw Mill River Road, plus other connector and local roadways which further serve the adjacent network. Other than highways such as the Taconic State Parkway, Bronx River Parkway, and the Cross Westchester Expressway, which are major highways providing regional access to the area, Grasslands Road, Columbus Avenue, and Saw Mill River Road would be the next set of high volume traffic carriers.

During the traffic counts, the intersection of Grasslands Road and Old Saw Mill River Road (Intersection #5) was under construction and the south leg of the intersection which provides access to southbound Saw Mill River Road was closed. Due to construction activities during the traffic counts, motorists were diverted to use alternative routes to connect to southbound Saw Mill River Road. As of 2022, the intersection has been reconfigured from a three-legged T-intersection to a roundabout.

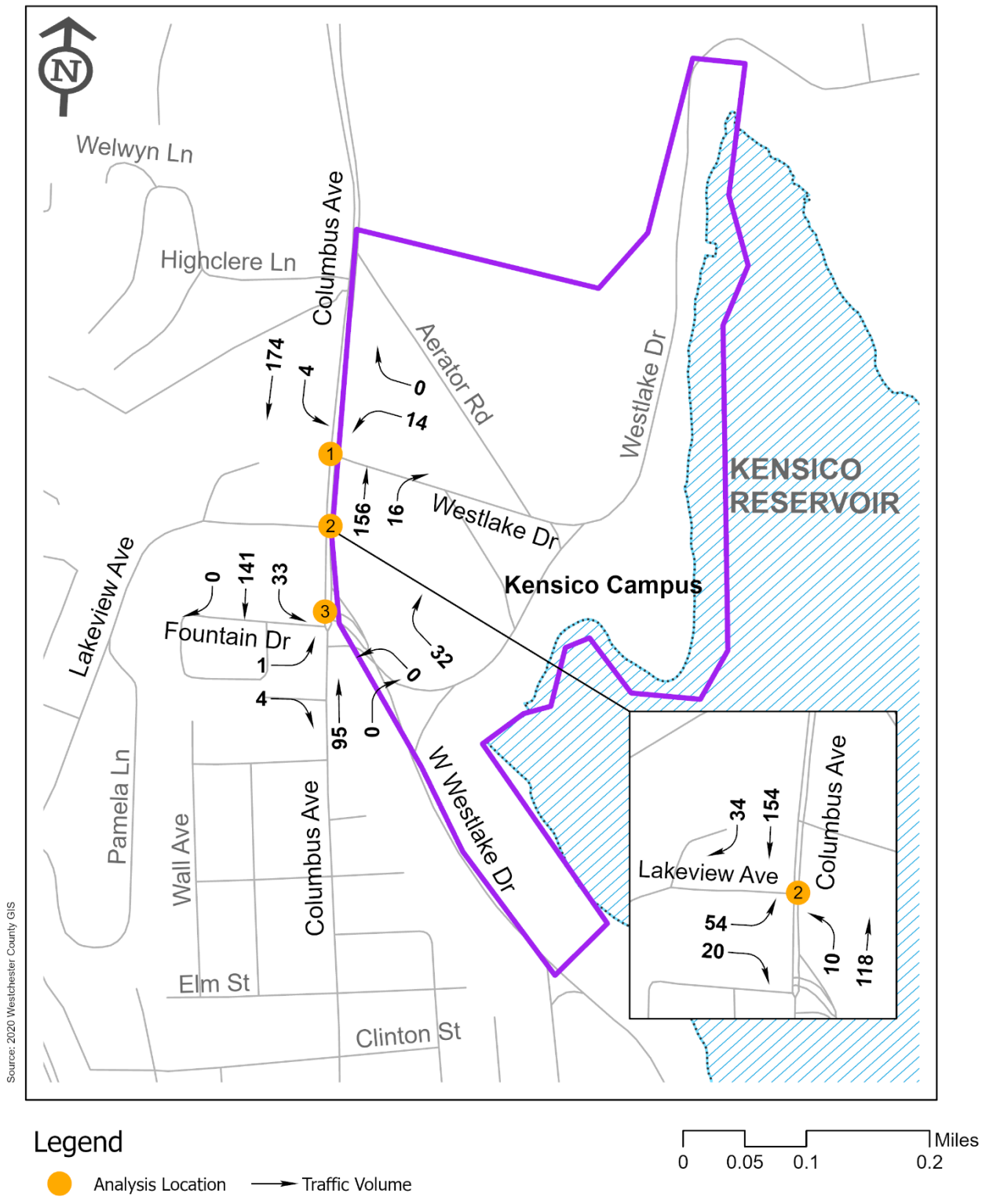


Figure 3.10-36. Inset A – Existing Conditions Traffic Volumes (Normalized) – AM Construction Traffic Peak Hour

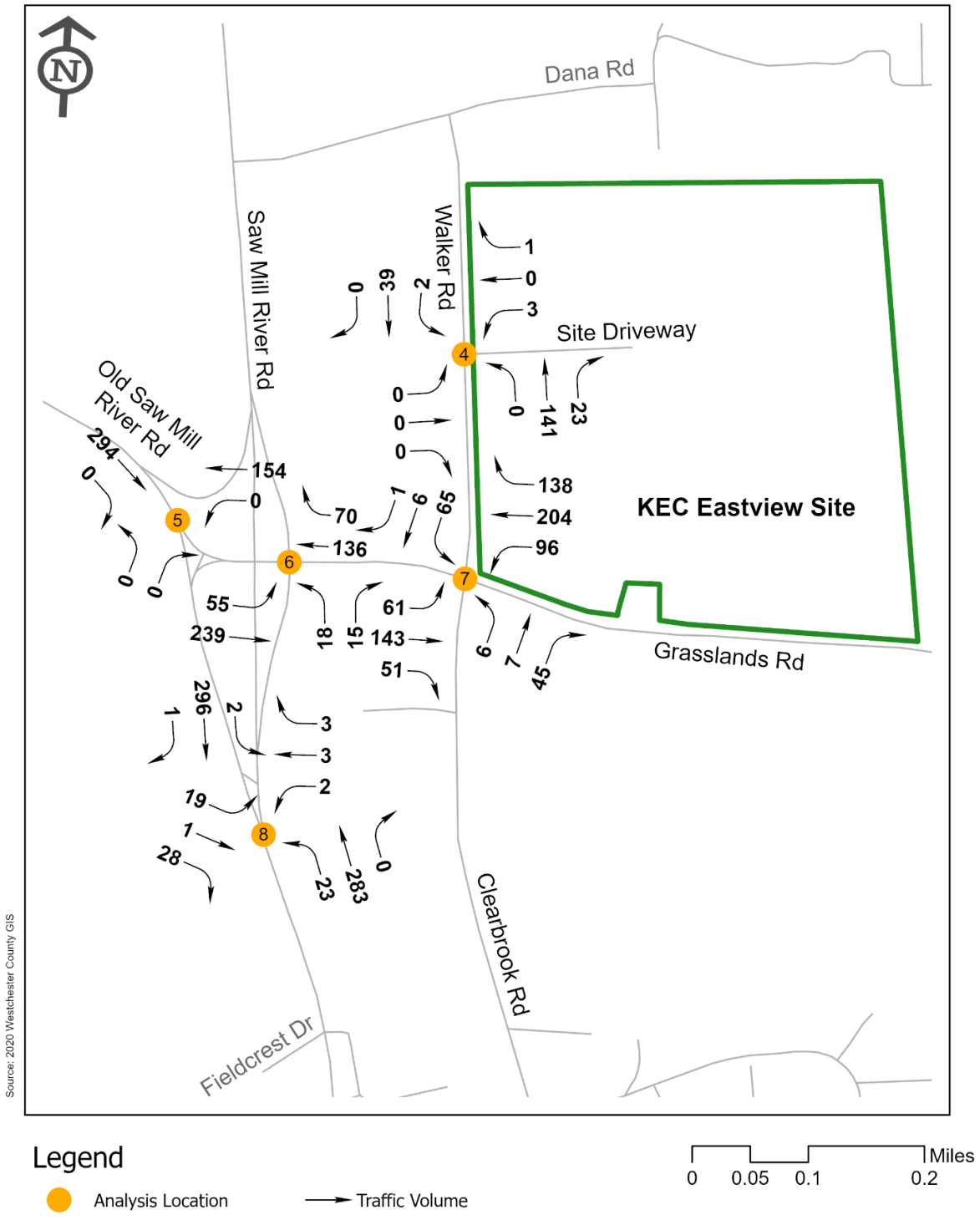


Figure 3.10-37. Inset B – Existing Conditions Traffic Volumes (Normalized) – AM Construction Traffic Peak Hour

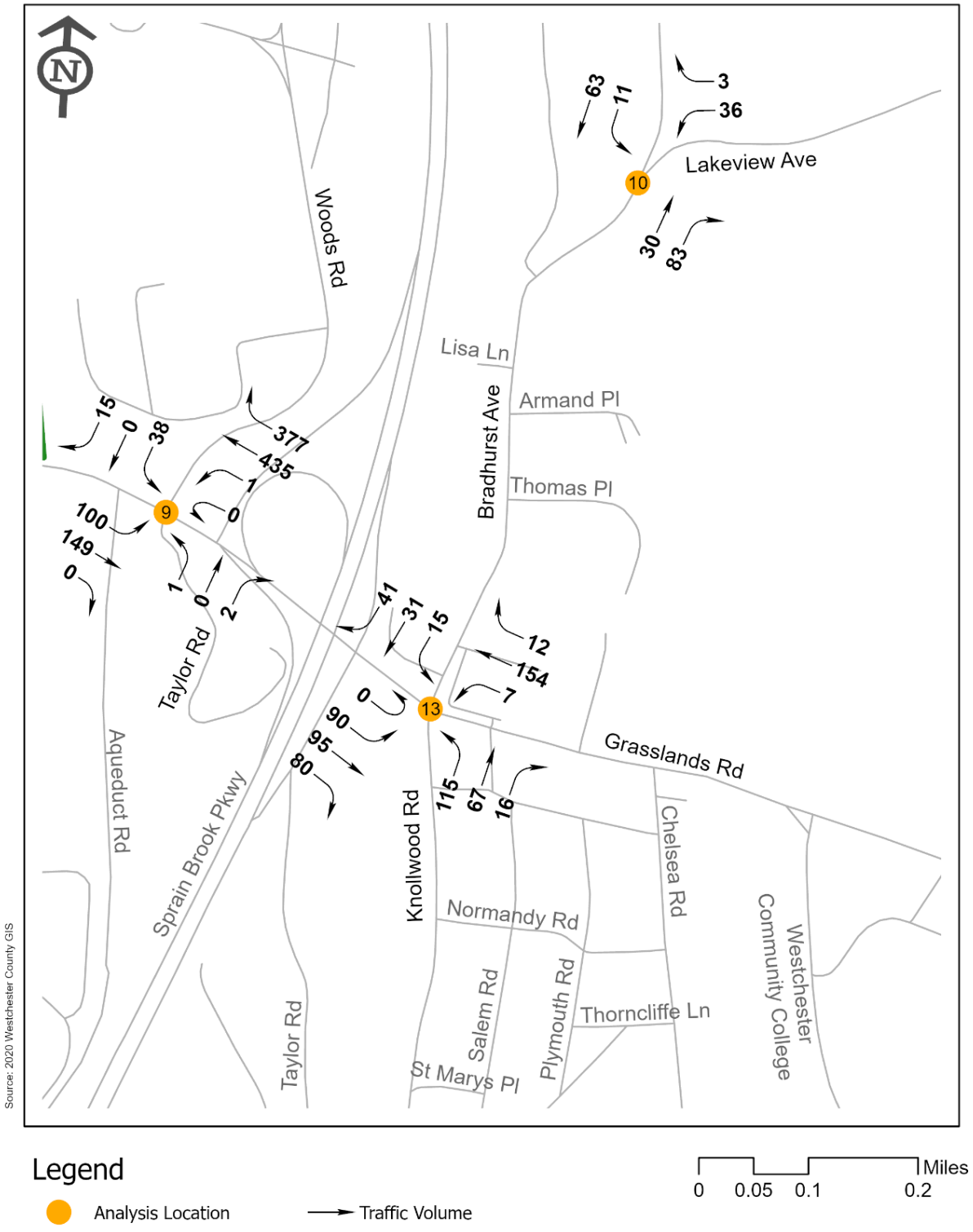


Figure 3.10-38. Inset C – Existing Conditions Traffic Volumes (Normalized) – AM Construction Traffic Peak Hour

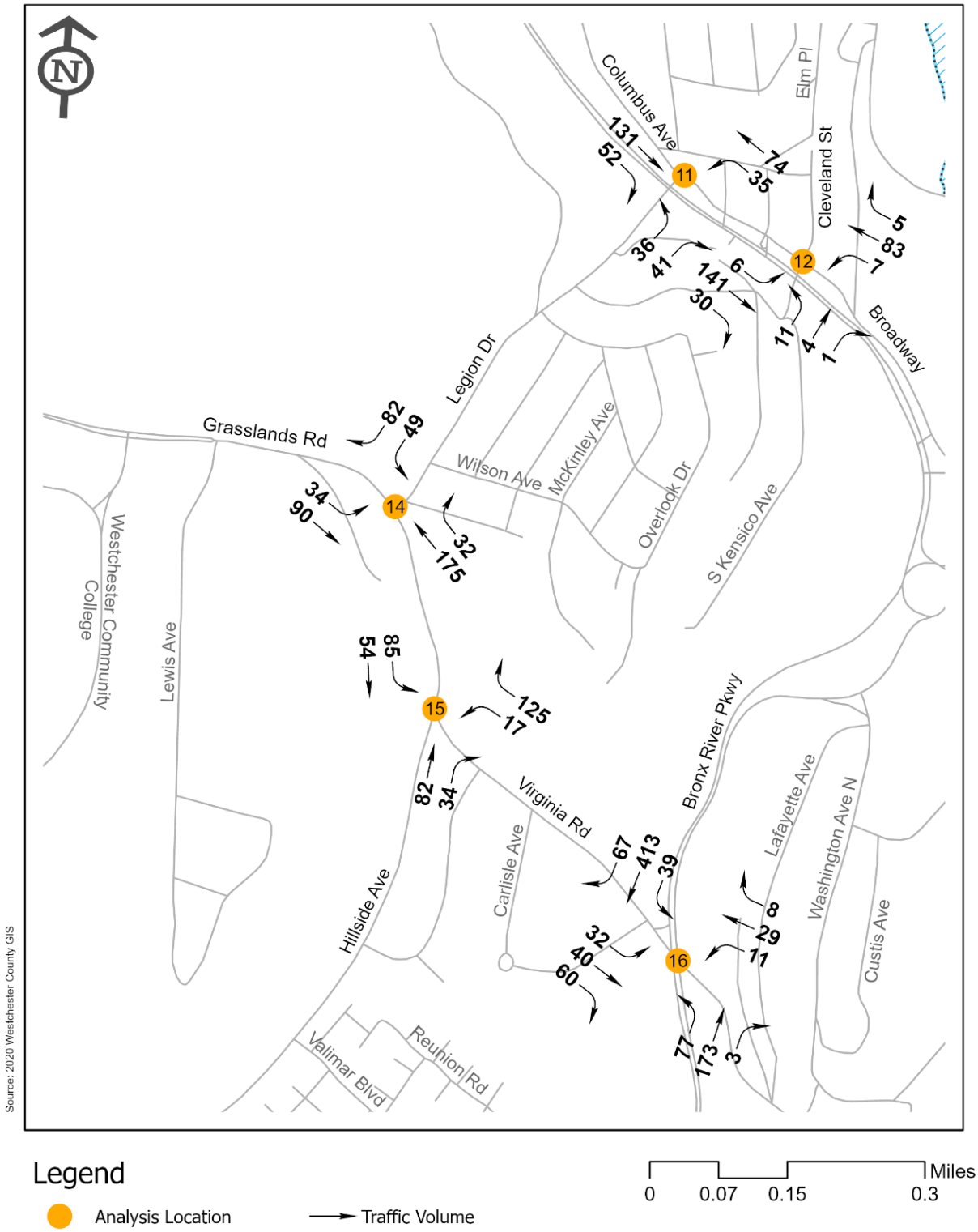


Figure 3.10-39. Inset D – Existing Conditions Traffic Volumes (Normalized) – AM Construction Traffic Peak Hour

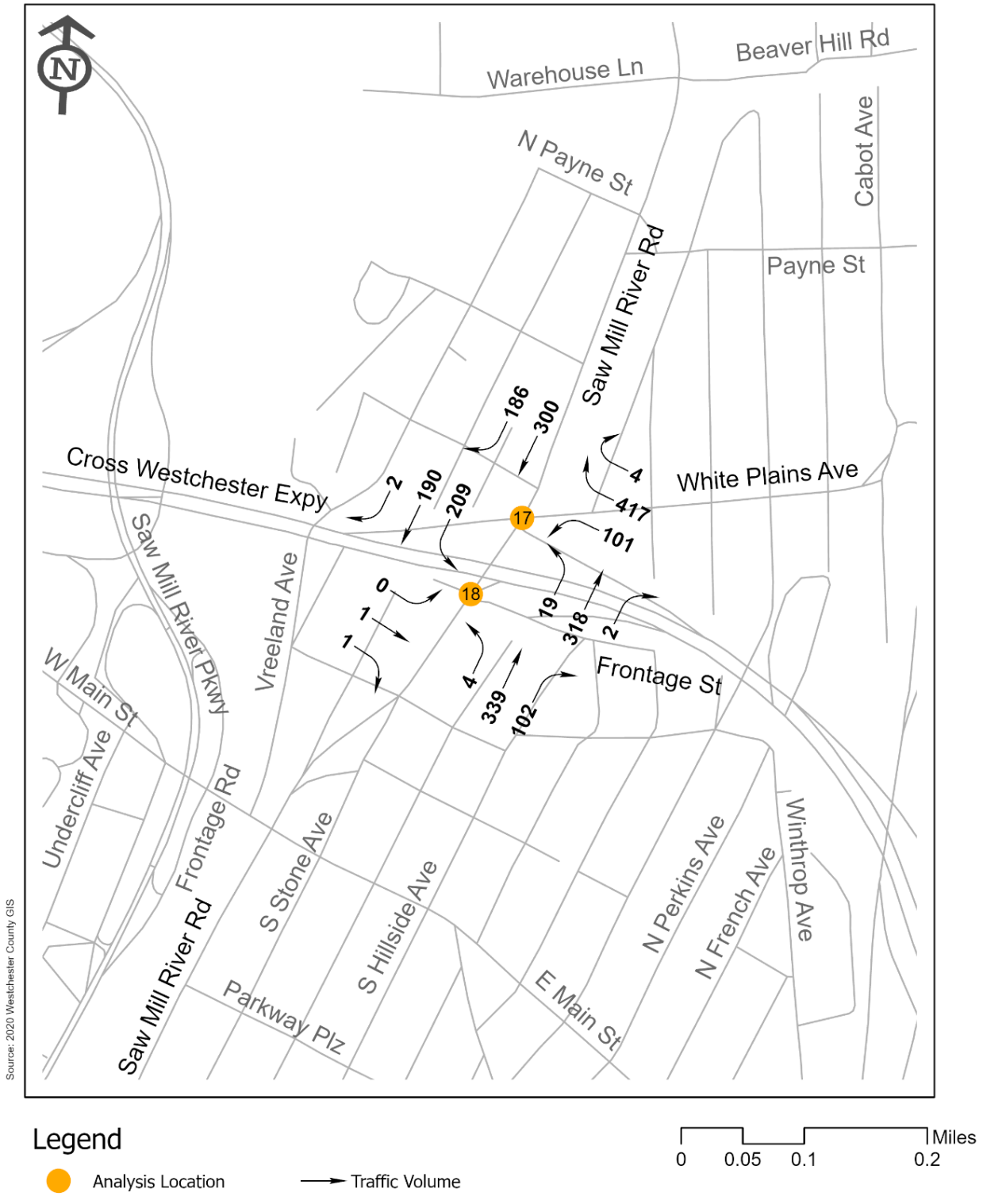


Figure 3.10-40. Inset E – Existing Conditions Traffic Volumes (Normalized) – AM Construction Traffic Peak Hour

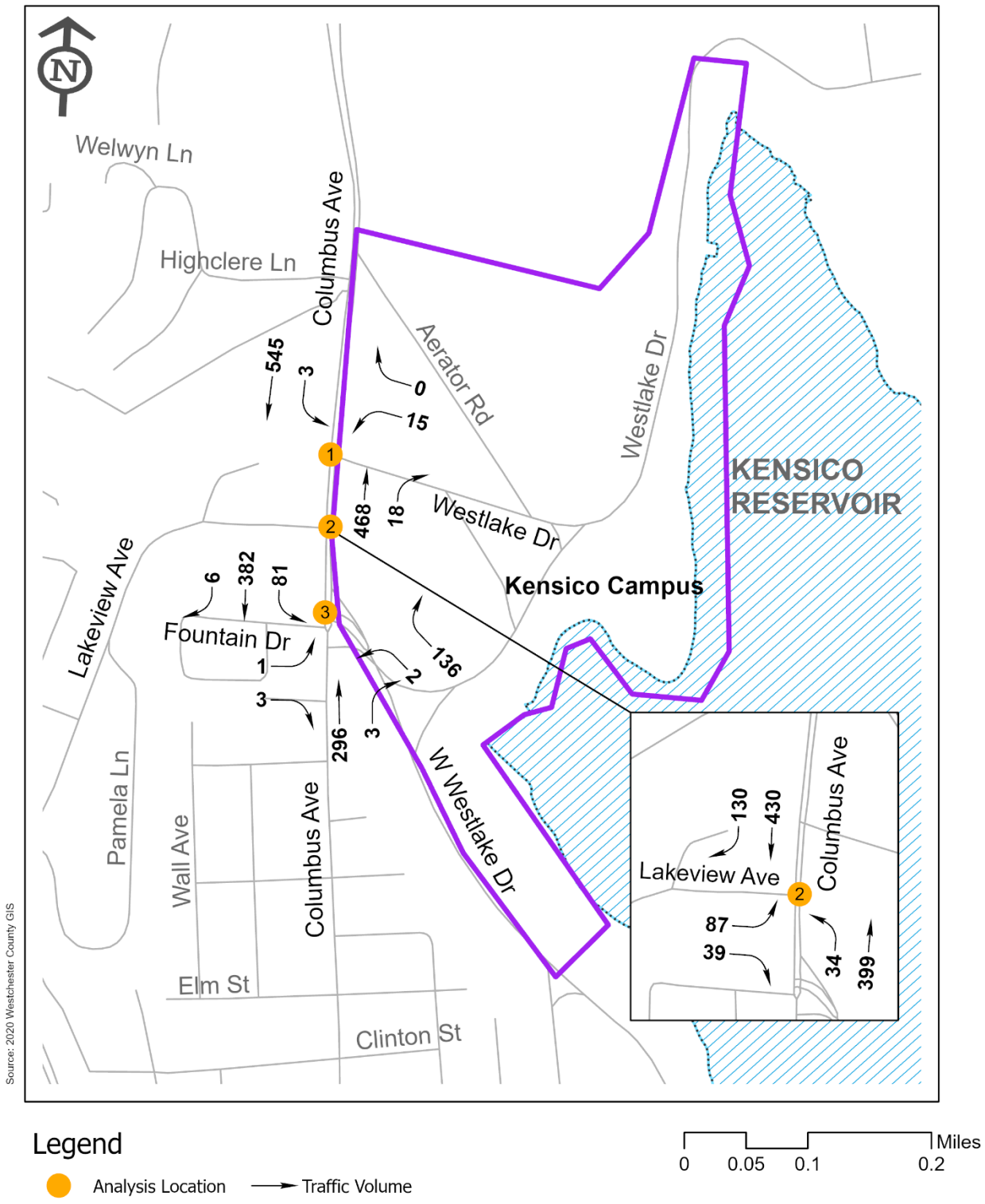


Figure 3.10-41. Inset A – Existing Conditions Traffic Volumes (Normalized) – PM Construction Traffic Peak Hour

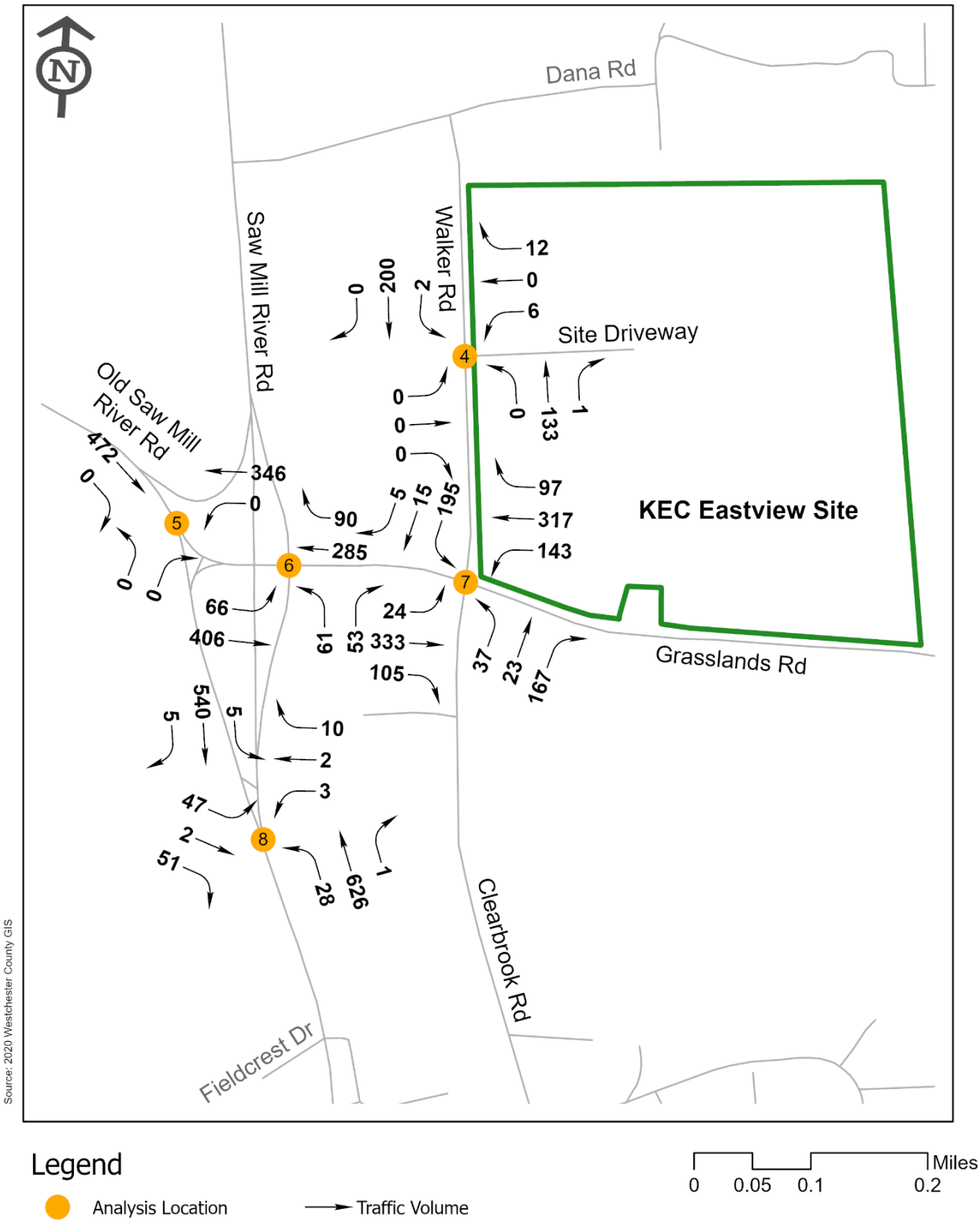


Figure 3.10-42. Inset B – Existing Conditions Traffic Volumes (Normalized) – PM Construction Traffic Peak Hour

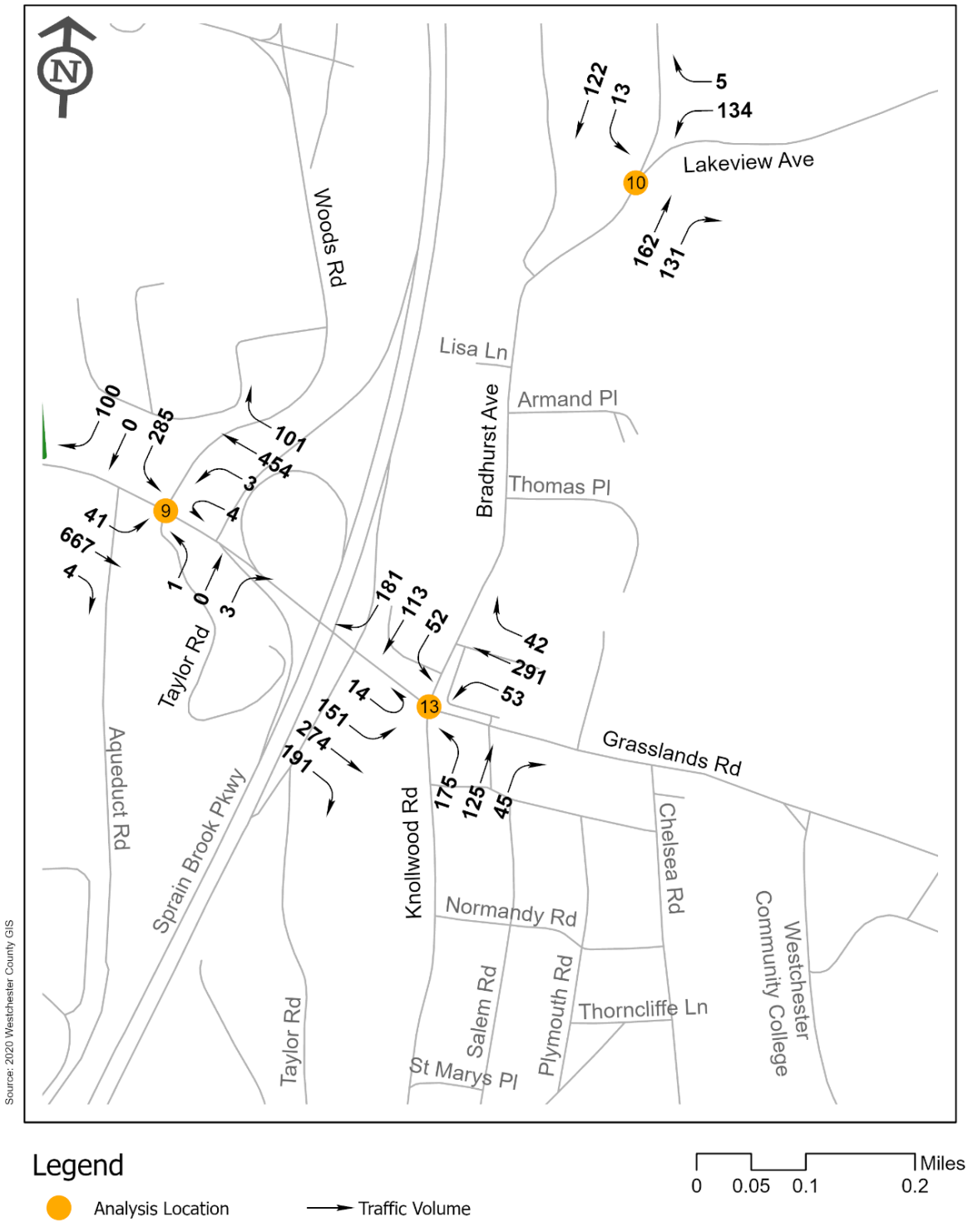


Figure 3.10-43. Inset C – Existing Conditions Traffic Volumes (Normalized) – PM Construction Traffic Peak Hour

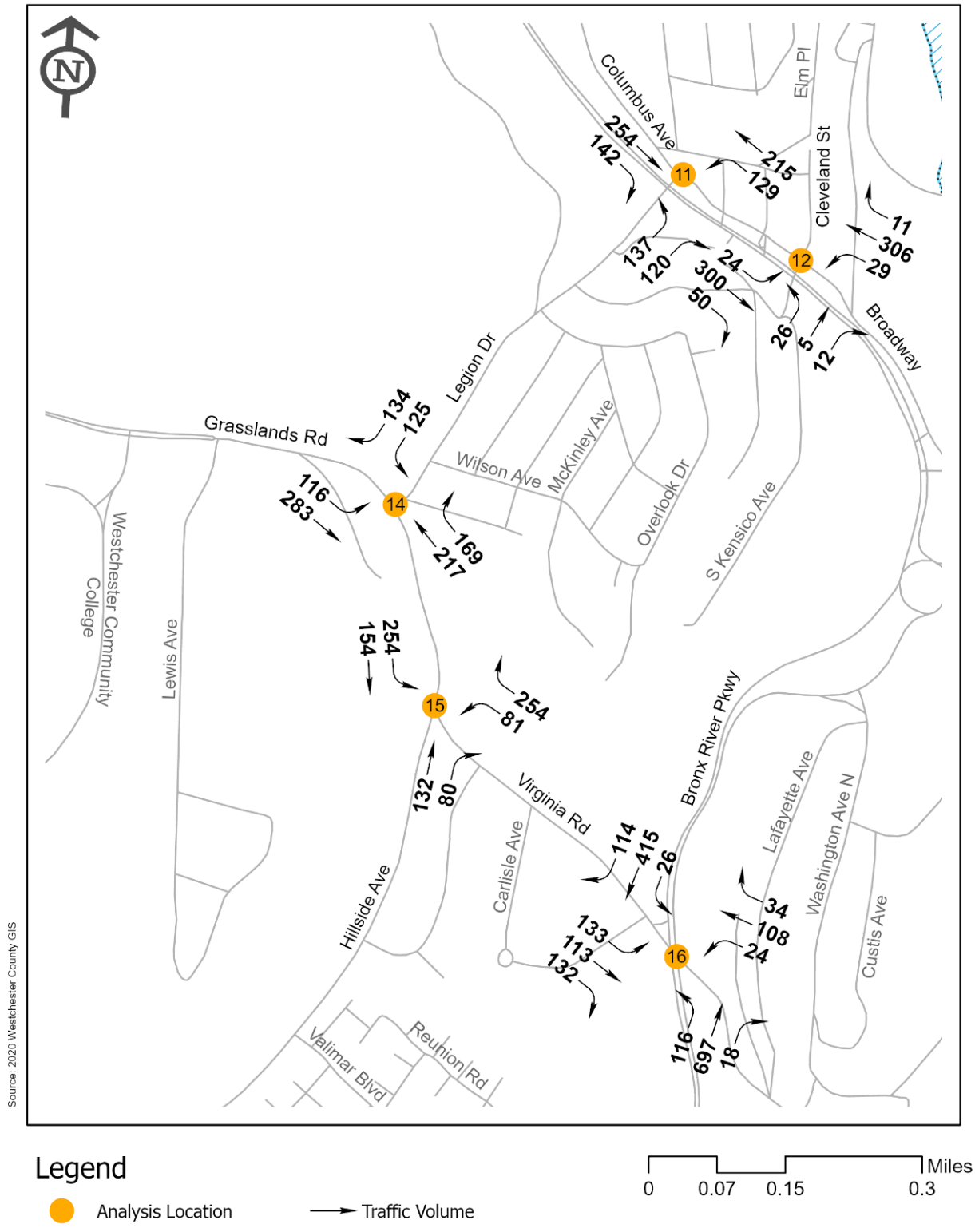


Figure 3.10-44. Inset D – Existing Conditions Traffic Volumes (Normalized) – PM Construction Traffic Peak Hour

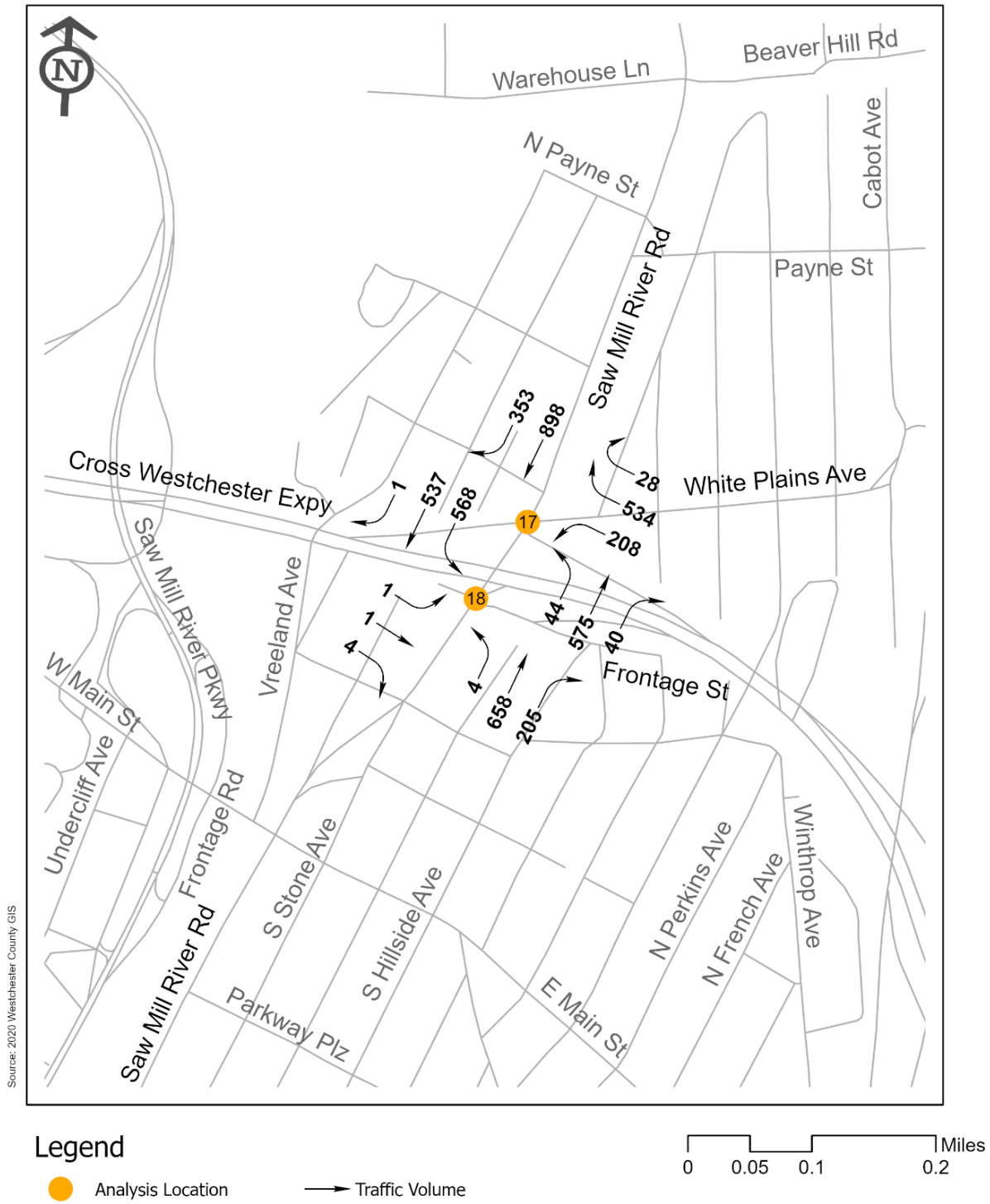


Figure 3.10-45. Inset E – Existing Conditions Traffic Volumes (Normalized) – PM Construction Traffic Peak Hour

Traffic volumes along Columbus Avenue near the Kensico Campus entrance at Westlake Drive is low during the AM construction traffic peak hour, approximately 175 vehicles in each direction, and increases during the PM construction traffic peak hour. During this time, Columbus Avenue carries approximately 475 to 550 vehicles per hour (vph) in each direction. The section of Grasslands Road near the KEC Eastview Site between Walker Road and Woods Road generally carries approximately 250 vehicles during the AM construction traffic peak hour and 450 vehicles during the PM construction traffic peak hour in the eastbound direction, and approximately 450 to 550 vehicles in the westbound direction during the two construction traffic peak hours. Traffic volume along Saw Mill River Road south of Dana Road, which provides access from Saw Mill River Road to the KEC Eastview Site, generally carries approximately 375 vehicles in each direction during the AM construction traffic peak hour, and 700 to 800 vehicles in each direction during the PM construction traffic peak hour. As noted above, detailed traffic volumes are shown on **Figure 3.10-36** through **Figure 3.10-45**.

The volumes developed were used along with in-person observations of traffic conditions to determine the existing conditions' levels of service for the AM and PM construction traffic peak hours.

Traffic Levels of Service

Table 3.10-6 and **Table 3.10-7** provide an overview of the traffic levels of service that characterize existing "overall" intersection conditions and individual traffic movements, respectively, during the AM and PM construction traffic peak hours.

Table 3.10-6. Existing Traffic Level of Service (LOS) Summary – Overall Intersections(1)

	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Intersections at Overall LOS A/B/C	18	18
Intersections at Overall LOS D	0	0
Intersections at Overall LOS E	0	0
Intersections at Overall LOS F	0	0

Note:
(1) Includes the 18 analysis intersections (7 signalized; 11 unsignalized). One unsignalized intersection, Grasslands Road at Old Saw Mill River Road, was under construction and operated at free flow conditions (LOS A).

Table 3.10-7. Existing Traffic Level of Service (LOS) Summary – Traffic Movements(1)

	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Traffic Movements at LOS A/B/C	81	75
Traffic Movements at LOS D	5	13
Traffic Movements at LOS E	3	1
Traffic Movements at LOS F	0	0
Total Number of Individual Traffic Movements	89	89

Note:
(1) Includes the traffic movements for 18 analysis intersections (7 signalized; 11 unsignalized). One intersection, Grasslands Road at Old Saw Mill River Road, was under construction: the Old Saw Mill River Road leg of the intersection was closed and the remaining movements operated at free flow conditions (LOS A).

A summary overview of existing conditions, as listed in **Table 3.10-6**, indicates that:

- In the AM construction traffic peak hour, none of the 18 intersections analyzed were operating at overall LOS E or F ("overall" LOS E or F means that serious congestion exists). All intersections were operating at overall LOS A, B, or C. Three individual traffic movements out of the approximately 89 such movements analyzed were operating at an unacceptable level of service (LOS E or LOS F).
- In the PM construction traffic peak hour, all of the intersections were operating at overall LOS A, B, or C. One individual traffic movement was operating at an unacceptable level of service.

Traffic movements operating at unacceptable traffic level of service are listed below and in **Table 3.10-7**.

- Intersection #16, Bronx River Parkway and Virginia Road (CR51) – eastbound Virginia Road left-through movement (AM construction traffic peak hour) and westbound Virginia Road approach[30] (AM construction traffic peak hour).
- Intersection #17, New Saw Mill River Road (SR9A) and Cross Westchester Expressway WB On/Off-Ramps / White Plains Avenue – westbound Cross Westchester Expressway off-ramp right turn movement (PM construction traffic peak hour).
- Intersection #18, New Saw Mill River Road (SR9A) and Frontage Street / Williams Street – eastbound William Street approach (AM construction traffic peak hour).

[30] Intersection approaches with only one travel lane are identified as "approach" movements and encompasses all allowable traffic movements.

Detailed descriptions of the existing V/C ratios, average vehicle delays, and levels of service are provided in **Table 3.10-8**.

Table 3.10-8. Existing Traffic Levels of Service (LOS)[(1)]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Intersection and Approach	**MVT**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
1. Columbus Avenue (CR64) and Westlake Drive – unsignalized							
Westlake Dr – WB	L	0.03	10.7	B	0.06	18.2	C
	R	0.00	0.0	A	0.00	0.0	A
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	LT	0.00	0.2	A	0.00	0.1	A
Overall Intersection			**0.5**	**A**		**0.3**	**A**
2. Columbus Avenue (CR64) and Lakeview Avenue – signalized							
Lakeview Ave – EB	LR	0.29	22.1	C	0.45	24.6	C
Columbus Ave – NB	LT	0.08	4.1	A	0.28	5.8	A
Columbus Ave – SB	TR	0.10	3.5	A	0.34	5.6	A
Overall Intersection			**7.2**	**A**		**7.8**	**A**
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive – unsignalized							
Fountain Dr – EB	LTR	0.01	9.5	A	0.01	13.9	B
West Westlake Dr – WB	L	0.00	0.0	A	0.01	24.5	C
	R	0.04	8.7	A	0.19	10.4	B
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	L	0.03	7.5	A	0.08	8.3	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**1.9**	**A**		**2.4**	**A**
4. Walker Road and KEC Eastview Site Driveway – unsignalized							
Driveway – EB	LR	0.00	0.0	A	0.00	0.0	A
Driveway – WB	LTR	0.01	9.9	A	0.03	10.0	B
Walker Rd – NB	L	0.00	0.0	A	0.00	0.0	A
	TR	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	L	0.00	7.6	A	0.00	7.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.3**	**A**		**0.6**	**A**
5. Grasslands Road (SR100C) and Old Saw Mill River Road – unsignalized							
Grasslands Rd – WB	R	0.00	0.0	A	0.00	0.0	A
Old Saw Mill River Rd – SB	L	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.0**	**A**		**0.0**	**A**
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps – unsignalized							
Grasslands Rd – EB	L	0.05	8.0	A	0.07	8.5	A
	T	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – WB	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Road Ramp – NB	L	0.06	14.4	B	0.24	20.2	C
	R	0.03	10.1	B	0.12	12.2	B
Overall Intersection			**1.6**	**A**		**2.6**	**A**

Table 3.10-8. Existing Traffic Levels of Service (LOS)[1]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Intersection and Approach	**MVT**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road – signalized							
Grasslands Rd – EB	L	0.10	9.2	A	0.05	17.5	B
	TR	0.25	12.1	B	0.65	23.9	C
Grasslands Rd – WB	L	0.13	6.8	A	0.32	23.3	C
	TR	0.45	14.5	B	0.64	23.4	C
Clearbrook Rd – NB	LT	0.08	32.7	C	0.21	30.3	C
	R	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	LT	0.45	35.7	D	0.70	35.6	D
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**14.8**	**B**		**25.8**	**C**
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road – unsignalized							
Old Saw Mill River Rd – EB	LTR	0.07	9.8	A	0.33	19.5	C
Hotel Driveway – WB	LTR	0.02	13.4	B	0.06	17.4	C
Saw Mill River Rd – NB	L	0.03	8.2	A	0.04	9.0	A
	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd – SB	LTR	0.00	0.1	A	0.00	0.1	A
Overall Intersection			**1.2**	**A**		**2.1**	**A**
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road – signalized							
Grasslands Rd – EB	L	0.29	4.9	A	0.14	11.1	B
	TR	0.08	3.0	A	0.42	11.9	B
Grasslands Rd – WB	UL	0.00	11.0	B	0.04	19.7	B
	TR	0.49	9.7	A	0.43	17.9	B
Taylor Rd – NB	LTR	0.02	0.0	A	0.02	0.0	A
Woods Rd – SB	LT	0.26	26.2	C	0.81	37.9	D
	R	0.07	0.5	A	0.21	4.5	A
Overall Intersection			**8.7**	**A**		**18.0**	**B**
10. Bradhurst Avenue (SR100) and Lakeview Avenue – unsignalized							
Lakeview Ave – WB	LR	0.06	10.0	B	0.30	14.2	B
Bradhurst Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Bradhurst Ave – SB	LT	0.00	1.1	A	0.00	0.8	A
Overall Intersection			**2.1**	**A**		**3.8**	**A**
11. Columbus Avenue (CR64) and Legion Drive (CR29) – unsignalized							
Legion Dr – EB	LR	0.14	11.1	B	0.69	29.6	D
Columbus Ave – NB	LT	0.01	2.5	A	0.05	3.3	A
Columbus Ave – SB	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**3.1**	**A**		**8.9**	**A**
12. Broadway (CR29) and Cleveland Street – unsignalized							
Cleveland St – EB	LTR	0.03	10.5	B	0.15	17.2	C
Broadway – NB	LTR	0.00	0.6	A	0.00	0.7	A
Broadway – SB	LTR	0.00	0.3	A	0.00	0.5	A
Overall Intersection			**1.0**	**A**		**1.6**	**A**

Table 3.10-8. Existing Traffic Levels of Service (LOS)[1]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Intersection and Approach	**MVT**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) – signalized							
Grasslands Rd – EB	UL	0.27	13.3	B	0.60	22.4	C
	T	0.20	15.5	B	0.50	26.8	C
	R	0.12	2.2	A	0.26	2.4	A
Grasslands Rd – WB	L	0.03	11.4	B	0.18	14.5	B
	TR	0.57	29.5	C	0.84	47.4	D
Knollwood Rd – NB	L	0.31	16.0	B	0.61	30.4	C
	TR	0.16	17.0	B	0.44	32.9	C
Bradhurst Ave – SB	L	0.06	14.7	B	0.16	21.7	C
	TR	0.30	16.8	B	0.86	52.0	D
Overall Intersection			**17.3**	**B**		**32.2**	**C**
14. Grasslands Road (SR100) and Legion Drive (CR29) – unsignalized							
Legion Dr – WB	L	0.11	12.2	B	0.47	27.1	D
	R	0.13	10.2	B	0.20	11.0	B
Grasslands Rd – NB	TR	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – SB	LT	0.01	2.2	A	0.04	2.5	A
Overall Intersection			**3.7**	**A**		**5.6**	**A**
15. Hillside Avenue (SR100) and Virginia Road (CR51) – unsignalized							
Virginia Rd – WB	LR	0.20	10.2	B	0.72	25.8	D
Hillside Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Hillside Ave – SB	LT	0.05	4.7	A	0.15	5.4	A
Overall Intersection			**5.3**	**A**		**11.6**	**B**
16. Bronx River Parkway and Virginia Road (CR51) – signalized							
Virginia Rd – EB	LT	0.43	56.5	E	0.79	53.0	D
	R	0.23	46.4	D	0.31	35.8	D
Virginia Rd – WB	LTR	0.27	55.1	E	0.40	38.5	D
Bronx River Pkwy – NB	L	0.13	3.8	A	0.24	11.3	B
	TR	0.08	4.8	A	0.39	15.8	B
Bronx River Pkwy – SB	L	0.05	3.7	A	0.08	12.2	B
	T	0.19	5.5	A	0.23	15.0	B
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**14.9**	**B**		**23.7**	**C**
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue – signalized							
Cross Westchester Expressway Ramp – WB	L	0.35	41.7	D	0.63	52.7	D
	R	0.70	47.2	D	0.85	57.6	E
New Saw Mill River Rd – NB	LTR	0.23	7.3	A	0.47	9.8	A
New Saw Mill River Rd – SB	TR	0.35	6.6	A	0.65	10.6	B
Overall Intersection			**22.0**	**C**		**22.8**	**C**

Table 3.10-8. Existing Traffic Levels of Service (LOS)(1)

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Intersection and Approach	**MVT**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street – signalized							
Williams St – EB	LTR	0.19	55.2	E	0.15	52.7	D
New Saw Mill River Rd – NB	L	0.17	53.2	D	0.10	52.5	D
	TR	0.36	21.0	C	0.62	26.7	C
New Saw Mill River Rd – SB	L	0.27	23.6	C	0.53	26.6	C
	TR	0.17	2.6	A	0.43	3.8	A
Overall Intersection			**17.6**	**B**		**20.6**	**C**

Notes:
(1) The intersection of Grasslands Road and Old Saw Mill River Road (Intersection #5) was under construction; the Old Saw Mill River Road leg of the intersection was closed and the remaining traffic movements operated at free flow conditions (LOS A).
MVT = Movement
V/C Ratio = volume-to-capacity ratio
Sec = seconds
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound.
L = Left; T = Thru; R = Right; U = U-turn
Dr = Drive; Ave = Avenue; St = Street; Rd = Road; Pkwy = Parkway

3.10.3.3 Safety Conditions

Police crash reports and New York State Department of Motor Vehicles crash reports were obtained for the 18 traffic analysis locations for the most recent available three-year period (March 1, 2017 to February 28, 2020). The reports were obtained from the Safety Information Management System (SIMS) and were provided by the NYSDOT Traffic Safety and Mobility Division. The data quantify and provide details regarding the total number of reportable (involving a fatality, injury, or more than $1,000 in property damage) and non-reportable crashes, as well as the number of crashes involving injuries to pedestrians or bicyclists.

All crash reports were reviewed and sorted by location. The detailed information from each report was entered into a database program that generated crash summary information.

Table 3.10-9 provides this detailed information in summary format.

Table 3.10-9. Vehicle Crash Data Summary

Intersection	Severity				Total	Accident Type												
	Fatality	Injury	Property Damage Only	Non-Reportable		Rear End	Overtaking	Right Angle	Left Turn	Right Turn	Fixed-object	Head-on	Side-Swipe	Pedestrian	Parked Vehicle	Backing	Run-Off-The-Road	Bicycle	Other/Unknown
1. Columbus Avenue (CR64) and Westlake Drive	0	1	5	0	**6**	2	1	1	0	0	0	0	0	0	0	0	0	0	2
2. Columbus Avenue (CR64) and Lakeview Avenue	0	0	4	1	**5**	1	1	2	0	0	0	0	0	0	0	0	0	0	1
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive	0	0	1	1	**2**	1	0	1	0	0	0	0	0	0	0	0	0	0	0
4. Walker Road and KEC Eastview Site Driveway	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5. Grasslands Road (SR100C) and Old Saw Mill River Road	0	1	2	5	**8**	1	2	2	0	0	0	0	0	0	0	0	0	0	3
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps	0	0	0	1	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road	0	4	3	2	**9**	4	1	1	0	1	0	0	0	0	0	0	0	0	2
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road	0	12	11	3	**26**	14	1	7	1	0	0	0	0	0	0	0	0	0	3
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road	0	6	10	5	**21**	7	1	5	1	3	0	0	0	0	0	0	0	0	4
10. Bradhurst Avenue (SR100) and Lakeview Avenue	0	3	8	2	**13**	6	2	1	2	0	0	0	0	0	0	0	0	0	2
11. Columbus Avenue (CR64) and Legion Drive (CR29)	0	0	4	0	**4**	1	1	1	0	0	0	0	0	0	0	0	0	0	1
12. Broadway (CR29) and Cleveland Street	0	1	4	1	**6**	0	0	3	2	0	0	0	1	0	0	0	0	0	0
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)	0	10	26	10	**46**	15	9	5	4	3	0	1	1	0	0	0	0	0	8
14. Grasslands Road (SR100) and Legion Drive (CR29)	0	7	6	2	**15**	6	0	3	1	1	0	2	0	0	0	0	0	0	2
15. Hillside Avenue (SR100) and Virginia Road (CR51)	0	9	24	8	**41**	26	1	4	2	0	0	0	0	0	0	0	0	0	8
16. Bronx River Parkway and Virginia Road (CR51)	0	6	21	4	**31**	13	5	4	1	1	0	0	0	0	0	0	0	0	7

Table 3.10-9. Vehicle Crash Data Summary

Intersection	Severity				Total	Accident Type												
	Fatality	Injury	Property Damage Only	Non-Reportable		Rear End	Overtaking	Right Angle	Left Turn	Right Turn	Fixed-object	Head-on	Side-Swipe	Pedestrian	Parked Vehicle	Backing	Run-Off-The-Road	Bicycle	Other/Unknown
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue	0	2	5	6	**13**	3	7	1	0	1	0	0	0	0	0	0	0	0	1
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street	0	1	1	3	**5**	0	1	0	1	0	0	0	0	0	0	0	0	0	3
Total	**0**	**63**	**135**	**54**	**252**	**100**	**33**	**41**	**15**	**10**	**0**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**48**
Source: New York State Department of Transportation (NYSDOT) Safety Information Management System (SIMS) data from March 1, 2017 to February 28, 2020																			

Table 3.10-10 provides a summary of the accident rates as calculated for each traffic analysis location and the corresponding statewide average accident rate for that type of roadway.

Table 3.10-10. Summary of Accident Rate Comparisons

Intersection	AADT (vpd)[1]	Number of Accidents	Calculated Accident Rate (accidents/MEV)[2]	Statewide Average Accident Rate (accidents/MEV)[2,3]
1. Columbus Avenue (CR64) and Westlake Drive *(stop-controlled, 3-legged intersection with 5 or more lanes)*	12,212	6	0.45	0.07
2. Columbus Avenue (CR64) and Lakeview Avenue *(signalized, 3-legged intersection with 5 or more lanes without left-turn lanes)*	12,901	5	0.35	0.13
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive *(stop-controlled, 4-legged intersection with 4 or more lanes)*	10,262	2	0.18	0.15
4. Walker Road and KEC Eastview Site Driveway *(uncontrolled intersection, 4 - legged intersection)*	4,590	0	0.00	0.12

Table 3.10-10. Summary of Accident Rate Comparisons

Intersection	AADT (vpd)[1]	Number of Accidents	Calculated Accident Rate (accidents/MEV)[2]	Statewide Average Accident Rate (accidents/MEV)[2,3]
5. Grasslands Road (SR100C) and Old Saw Mill River Road *(stop-controlled, 3-legged intersection with 5 or more lanes)*	10,324	8	0.71	0.07
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps *(stop-controlled, 3-legged intersection with 5 or more lanes)*	12,129	1	0.08	0.07
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road *(signalized, 4-legged intersection with left-turn lanes)*	18,439	9	0.45	0.26
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road *(stop-controlled, 4-legged intersection with 4 or more lanes)*	17,640	26	1.35	0.15
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road *(signalized, 4-legged intersection with left-turn lanes)*	21,111	21	0.91	0.26
10. Bradhurst Avenue (SR100) and Lakeview Avenue *(stop-controlled, 3-legged intersection with 1 to 3 lanes)*	6,404	13	1.85	0.19
11. Columbus Avenue (CR64) and Legion Drive (CR29) *(stop-controlled, 3-legged intersection with 1 to 3 lanes)*	11,830	4	0.31	0.19
12. Broadway (CR29) and Cleveland Street *(stop-controlled, 4-legged intersection with 1 to 3 lanes)*	9,275	6	0.59	0.31

Table 3.10-10. Summary of Accident Rate Comparisons

Intersection	AADT (vpd)[1]	Number of Accidents	Calculated Accident Rate (accidents/MEV)[2]	Statewide Average Accident Rate (accidents/MEV)[2,3]
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) *(signalized, 4-legged intersection with left-turn lanes)*	21,611	46	1.94	0.26
14. Grasslands Road (SR100) and Legion Drive (CR29) *(signalized, 3-legged intersection with 4 lanes)*	11,909	15	1.15	0.13
15. Hillside Avenue (SR100) and Virginia Road (CR51) *(stop-controlled, 3-legged intersection with 1 to 3 lanes)*	11,621	41	3.22	0.19
16. Bronx River Parkway and Virginia Road (CR51) *(signalized, 4-legged intersection with left-turn lanes)*	23,725	31	1.19	0.26
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue *(signalized, 4-legged intersection with left-turn lanes)*	37,314	13	0.32	0.26
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street *(signalized, 4-legged intersection with left-turn lanes)*	26,860	5	0.17	0.26

Notes:
(1) Annual average daily traffic (AADT) is derived from 2021 traffic count data.
(2) Accident rate is expressed as accidents per million entering vehicles (accidents/MEV).
(3) Statewide average is presented based on intersection traffic control and intersection geometry.

Crash rates at the traffic study area locations, in general, are higher than the statewide average rates. The focus of the traffic analyses is along key access roadways to the Kensico Campus and the KEC Eastview Site which are primarily arterials with connections to the nearby highways. These roadways are typically characterized by substantial traffic volumes and would therefore be expected to have higher crash rates. Some of these intersections are also complex intersections with unique roadway characteristics. Therefore, crash rates would be expected to be higher than statewide averages which are a compilation of all State roadways, including the Upstate region where the majority of the roadways considered in compiling these statistics are located. These statewide rates are typically used to identify intersections with the highest crash rates so they can be prioritized for future roadway improvement project funding, and not to compare one intersection to another.

The findings of the above data are described below. Although 16 of the 18 analysis intersections are above the statewide average accident rates, the total number of accidents reported during the three-year study period at 12 of the 18 analysis intersections is quite low. Twelve of the analysis intersections reported fewer than 15 accidents during the study period, i.e., an average of about five accidents per year, and is typically the basis or the minimum for identifying an accident trend. At the 18 analysis intersections, all accidents reported involved motor vehicles; no pedestrian or bicyclist accidents were reported during the study period. No fatalities were reported during the study period.

Intersection #1, Columbus Avenue (CR64) and Westlake Drive

At this unsignalized intersection, a total of six accidents were reported to have occurred during the three-year study period. One accident resulted in personal injury and five accidents resulted in property damage only. The accident type with the highest frequency was rear end collisions (two accidents, 33.3 percent). The intersection accident rate was calculated to be 0.45 accidents/MEV, which is higher than the statewide average accident rate of 0.07 accidents/MEV for intersections with similar geometry and traffic control, although the pure number of accidents per year is low.

Intersection #2, Columbus Avenue (CR64) and Lakeview Avenue

At this signalized intersection, five accidents were reported during the study period. Four accidents resulted in property damage only, and one accident was classified as non-reportable. The accident type with the highest frequency was right-angle collisions (two accidents, 40 percent). The intersection accident rate was 0.35 accidents/MEV, which is higher than the statewide average accident rate of 0.13 accidents/MEV for intersections with similar geometry and traffic control, although the pure number of accidents per year is low.

Intersection #3, Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive

At this unsignalized intersection, two accidents were reported during the study period. One accident resulted in property damage only, and one was classified as non-reportable. One accident was a rear end collision; the other was a right-angle collision. The intersection accident rate was 0.18 accidents/MEV, which is similar to the statewide average accident rate of 0.15 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #4, Walker Road and KEC Eastview Site Driveway

There were no accidents at this unsignalized intersection during the study period.

Intersection #5, Grasslands Road (SR100C) and Old Saw Mill River Road

At this unsignalized intersection, eight accidents were reported during the study period. One accident resulted in personal injury, two accidents resulted in property damage only, and five accidents were classified as non-reportable. There were two accident types with the highest frequency: overtaking collisions and right-angle collisions (two accidents each, 25 percent). The intersection accident rate was calculated to be 0.71 accidents/MEV as compared to the statewide average accident rate of 0.07 accidents/MEV for intersections with similar geometry and traffic control, although the pure number of accidents per year is low.

Intersection #6, Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps

At this unsignalized intersection, one accident was reported during the study period, classified as non-reportable and reported as "other/unknown." The intersection accident rate was calculated to be 0.08 accidents/MEV, approximately the same as the statewide average accident rate of 0.07 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #7, Grasslands Road (SR100C) and Walker Road / Clearbrook Road

At this signalized intersection, nine accidents were reported during the study period. Four accidents resulted in personal injury, three accidents resulted in property damage only, and two accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (four accidents, 44.4 percent). The intersection accident rate was calculated to be 0.45 accidents/MEV, which is more than the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #8, Saw Mill River Road (SR9A) and Old Saw Mill River Road

At this unsignalized intersection, 26 accidents were reported during the study period. Twelve accidents resulted in personal injury, 11 accidents resulted in property damage only, and three accidents were classified as non-reportable. The accident type with the highest frequency

was rear end collisions (14 accidents, 53.8 percent). The intersection accident rate was calculated to be 1.35 accidents/MEV, which is higher than the statewide average accident rate of 0.15 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #9, Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road

At this signalized intersection, 21 accidents were reported during the study period. Six accidents resulted in personal injury, 10 accidents resulted in property damage only, and five accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (seven accidents, 33.3 percent). The intersection accident rate was calculated to be 0.91 accidents/MEV, which is higher than the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #10, Bradhurst Avenue (SR100) and Lakeview Avenue

At this unsignalized intersection, 13 accidents were reported during the study period. Three accidents resulted in personal injury, eight accidents resulted in property damage only, and two accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (six accidents, 46.2 percent). The intersection accident rate was calculated to be 1.85 accidents/MEV, which is higher than the statewide average accident rate of 0.19 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #11, Columbus Avenue (CR64) and Legion Drive (CR29)

At this unsignalized intersection, four accidents were reported during the study period. All four accidents resulted in property damage only. Each of the four accidents were classified as different accident types (25.0 percent each): rear end collisions, overtaking collisions, right-angle collisions, and other/unknown. The intersection accident rate was calculated to be 0.31 accidents/MEV, which is more than the statewide average accident rate of 0.19 accidents/MEV for intersections with similar geometry and traffic control, although the pure number of accidents per year is low.

Intersection #12, Broadway (CR29) and Cleveland Street

At this unsignalized intersection, six accidents were reported during the study period. One accident resulted in personal injury, four accidents resulted in property damage only, and one accident was classified as non-reportable. The accident type with the highest frequency was right-angle collisions (three accidents, 50 percent). The intersection accident rate was calculated to be 0.59 accidents/MEV, which is more than the statewide average accident rate of 0.31 accidents/MEV for intersections with similar geometry and traffic control, although the pure number of accidents per year is low.

Intersection #13, Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)

At this signalized intersection, 46 accidents were reported during the study period. Ten accidents resulted in personal injury, 26 accidents resulted in property damage only, and 10 accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (15 accidents, 32.6 percent). The intersection accident rate was calculated to be 1.94 accidents/MEV, which is higher than the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #14, Grasslands Road (SR100) and Legion Drive (CR29)

At this unsignalized intersection, 15 accidents were reported during the study period. Seven accidents resulted in personal injury, six accidents resulted property damage only, and two accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (six accidents, 40 percent). The intersection accident rate was calculated to be 1.15 accidents/MEV, which is much higher than the statewide average accident rate of 0.13 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #15, Hillside Avenue (SR100) and Virginia Road (CR51)

At this unsignalized intersection, 41 accidents were reported during the study period. Nine accidents resulted in personal injury, 24 accidents resulted in property damage only, and eight accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (26 accidents, 63.4 percent). The intersection accident rate was calculated to be 3.22 accidents/MEV, which is much higher than the statewide average accident rate of 0.19 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #16, Bronx River Parkway and Virginia Road (CR51)

At this signalized intersection, 31 accidents were reported during the study period. Six accidents resulted in personal injury, 21 accidents resulted in property damage only, and four accidents were classified as non-reportable. The accident type with the highest frequency was rear end collisions (13 accidents, 41.9 percent). The intersection accident rate was calculated to be 1.19 accidents/MEV, which is higher than the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #17, New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue

At this signalized intersection, 13 accidents were reported during the study period. Two accidents resulted in personal injury, five accidents resulted in property damage only, and six accidents were classified as non-reportable. The accident type with the highest frequency was

overtaking collisions (seven accidents, 53.8 percent). The intersection accident rate was calculated to be 0.32 accidents/MEV, which is similar to the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

Intersection #18, New Saw Mill River Road (SR9A) and Frontage Street / Williams Street

At this signalized intersection, five accidents were reported during the study period. One accident resulted in personal injury, one accident resulted in property damage only, and three accidents were classified as non-reportable. Two accident types had the highest frequency but with only one accident (20 percent) each: overtaking collisions and left-turn collisions. The other was classified as other/unknown. The intersection accident rate was calculated to be 0.17 accidents/MEV, which is less than the statewide average accident rate of 0.26 accidents/MEV for intersections with similar geometry and traffic control.

3.10.3.4 Parking

Within the study area, parking is primarily provided off-street with the exception of local roadways in residential areas and at two areas near the Kensico Campus. Along the Westlake Drive access road to the Kensico Campus, limited curbside parking is allowed between 7 AM and 7 PM, and curbside parking is allowed along Broadway next to the Valhalla train station. There is no curbside parking allowed along the roadways near the KEC Eastview Site (e.g., Grasslands Road, Walker Road, Dana Road).

3.10.4 FUTURE WITHOUT THE PROPOSED ACTION

3.10.4.1 Detailed Traffic Analysis

Traffic Volumes

An analysis of the future without the Proposed Action establishes the baseline against which potential impacts can be identified. As discussed above, it is anticipated that the peak construction period when traffic would be at its highest overall in the study area would occur in Q3 2029. However, the bulk of the vehicle activity would occur at the KEC Eastview Site at this time and the peak quarter of construction activity at intersections near the Kensico Campus would be during Q4 2027.

The traffic analysis reflects the peak quarter when traffic volumes are highest. During both the AM and PM construction peak hours, the traffic analysis for seven analysis locations reflect Q3 2029 conditions as the construction traffic volume increment would be highest in that quarter, while the remaining 11 intersections reflect Q4 2027 conditions when the construction traffic volume increments are highest at those intersections in that quarter.

Intersections analyzed for Q3 2029 conditions:

- Intersection #4, Walker Road and KEC Eastview Site Driveway
- Intersection #5, Grasslands Road (SR100C) and Old Saw Mill River Road (PM construction peak hour)
- Intersection #7, Grasslands Road (SR100C) and Walker Road / Clearbrook Road
- Intersection #9, Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road
- Intersection #14, Grasslands Road (SR100) and Legion Drive (CR29)
- Intersection #15, Hillside Avenue (SR100) and Virginia Road (CR51)
- Intersection #16, Bronx River Parkway and Virginia Road (CR51)

Intersections analyzed for Q4 2027 conditions:

- Intersection #1, Columbus Avenue (CR64) and Westlake Drive
- Intersection #2, Columbus Avenue (CR64) and Lakeview Avenue
- Intersection #3, Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive
- Intersection #6, Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps
- Intersection #8, Saw Mill River Road (SR9A) and Old Saw Mill River Road
- Intersection #10, Bradhurst Avenue (SR100) and Lakeview Avenue
- Intersection #11, Columbus Avenue (CR64) and Legion Drive (CR29)
- Intersection #12, Broadway (CR29) and Cleveland Street
- Intersection #13, Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)
- Intersection #17, New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue
- Intersection #18, New Saw Mill River Road (SR9A) and Frontage Street / Williams Street

Traffic volumes under the future without the Proposed Action were developed by applying a background growth rate to the 2021 normalized existing traffic volumes. A growth rate of 0.50 percent per year was calculated for the Kensico Campus and the KEC Eastview Site study areas using NYSDOT historical ATR data. However, in order to provide a conservative analysis, a one percent annual growth rate was assumed to project the traffic volumes in Q3 2029 and Q4 2027, similar to recently approved projects in the study area. Therefore, the normalized existing traffic volumes were increased by a total of eight percent for intersections analyzed for 2029 conditions and six percent for intersections analyzed for 2027 conditions to account for general

background traffic growth and future modest developments in the area; and traffic volumes generated by notable background developments in the areas were estimated and incorporated in the future without the Proposed Action analysis. The modest developments included several DEP projects which, once completed, would generate a minimal number of vehicle trips. A portion of the DEP projects would be completed prior to the start of construction of the Proposed Action ~~in 2024~~. However, the following DEP projects would likely overlap with the anticipated construction period of the Proposed Action as follows:

- Construction of the Waterfowl Management Program Building and the Kensico Regional Headquarters at the Kensico Campus would begin in 2023, and various projects at DEL Shaft 18 at the Kensico Campus (electric/HVAC upgrades, floor operator's office improvements, traveling water screens replacement, and spill response shed) are currently under construction. These projects are scheduled to be completed in the 2025 or 2026 timeframe and would involve construction equipment and truck operations during building construction. Each of these projects are expected to generate two to four truck trips per day and three to 20 workers on site from time to time during the construction duration.
- The construction associated with the Manhole Cleanouts for Foundation Drain System project at the KEC Eastview Site is scheduled to occur between 2024 and 2025. The project would involve two to four truck trips per day and four to 20 workers on site from time to time during the construction duration.

The future without the Proposed Action around the Kensico Campus and the KEC Eastview Site would only be slightly affected by these DEP projects when compared to existing conditions. In addition, DEP may also potentially implement a solar project at the KEC Eastview Site consisting of the placement of solar canopies within an existing parking area and on the CDUV Facility roof, but the extent of any additional traffic and potential impacts to traffic in the future without the Proposed Action would be minimal. Given the scale and temporary nature of the construction activities associated with these DEP projects, potential changes to existing traffic in the future without the Proposed Action would be minimal and were therefore accounted for within the background growth rate.

In addition to the background growth rate, traffic volumes from notable background development projects that are likely to be completed before the Build Year for the Proposed Action were incorporated as part of the future without the Proposed Action traffic volumes. **Table 3.10-11** and **Figure 3.10-46** summarize the six projects that are expected to be completed by 2029 and are expected to generate moderate to substantial traffic volumes in the 2027 and 2029 peak analysis years. These projects were incorporated into the analysis. Traffic volume projections for these projects were generally obtained from their respective studies for the commuter peak hours. In order to develop construction traffic peak hour volumes, trips from

these projects were adjusted in accordance with the hour-by-hour temporal distributions of the existing background traffic volumes from the surrounding roadway network.

The future without the Proposed Action traffic volumes are shown on **Figure 3.10-47** through **Figure 3.10-56** for the AM and PM construction traffic peak hours, respectively. As described above, the traffic volumes were projected by increasing the normalized existing traffic volumes by the background growth rate and adding trips generated by significant discrete planned projects in the area that are expected to be built and operational by the end of 2027 and 2029. As noted in existing conditions, the intersection of Grasslands Road and Old Saw Mill River Road (Intersection #5) was under construction during the traffic counts and the south leg of the intersection was closed. As of 2022, the intersection has been reconfigured from a three-legged T-intersection to a roundabout. Traffic volumes were therefore adjusted based on historical traffic count data to account for the reopening of this intersection.

During Q4 2027, when construction activities would be highest for the Kensico Campus, traffic volumes along Columbus Avenue near the Kensico Campus would be expected to increase by approximately 15 and 55 vph during the AM and PM construction traffic peak hours, respectively, due to background development projects. During Q3 2029, when construction activities would be highest for the KEC Eastview Site, traffic volumes along Grasslands Road (SR100C) along the site frontage (east of Walker Road) would be expected to increase by approximately 220 vph during the AM construction traffic peak hour, and 375 vph during the PM construction traffic peak hour due to background development projects. West of Walker Road, Grasslands Road traffic volumes would be expected to increase by approximately 225 and 335 vph during the AM and PM construction traffic peak hours, respectively.

Table 3.10-11. Future without the Proposed Action Background Development Projects (Non-DEP)

No.	Project Name	Development Project	Project Completion Date
1	Baker Residential Development[(1)]	116 residential units	Anticipated to be completed by 2027
2	North 60 Development[(2)]	214,000 sf of retail 400,000 sf of medical office 2,144,000 sf of research and development 100,000 sf of hotel 142,000 sf of community facility	2024
3	Landmark at Eastview North Redevelopment[(3)]	519,140 sf of research and development (382,030 net sf of new buildings)	2026
4	Landmark at Eastview South Parcel D[(4)]	207,000 sf of research and development space	2027
5	Regeneron Greenburgh Expansion[(5)]	1,016,190 sf of research and development	2028
6	211 Saw Mill River Road Warehouse Development[(6)]	136,214 sf of warehouse 16,848 sf of office space	2022

Sources:

(1) *Baker Residential Subdivision FEIS (2017)*
(2) *The North 60 FEIS (2021)*
(3) *The Landmark at Eastview Mount Pleasant Entitlements 2 SFEIS (2016)*
(4) *Loop Road Holdings Traffic Study (2016).* An amended application was submitted and approved in 2021 to allow for development of approximately 207,000 sf of research and development space; the original approved program proposed development of 128,000 sf of research and development space and office space. As the original approved program would be a higher trip generator, this analysis is based on the original approved program to provide a conservative analysis.
(5) *Loop Road Holdings Traffic Study (2016)*
(6) Town of Mount Pleasant Industrial Development Agency

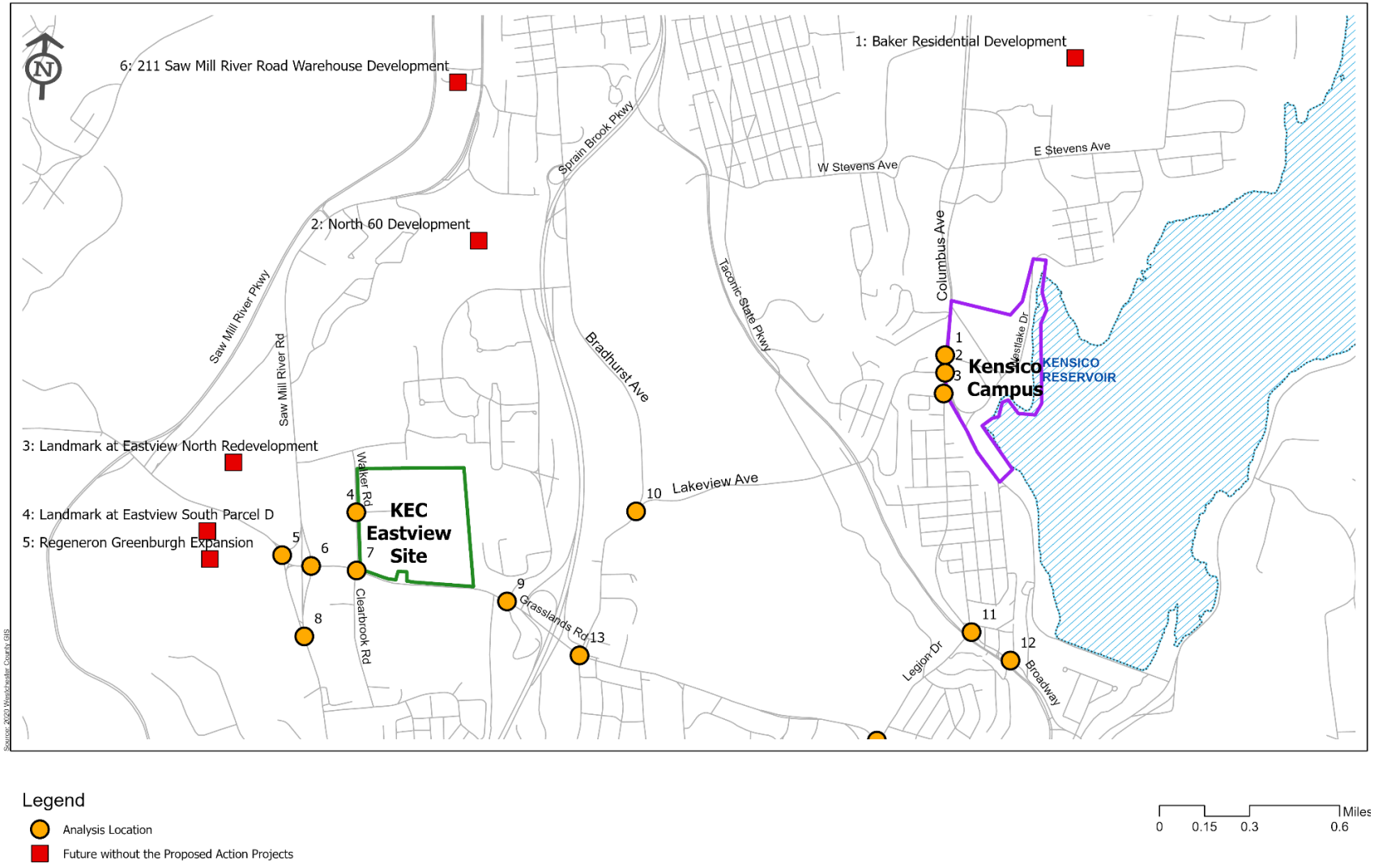


Figure 3.10-46. Future Without the Proposed Action Background Development Projects

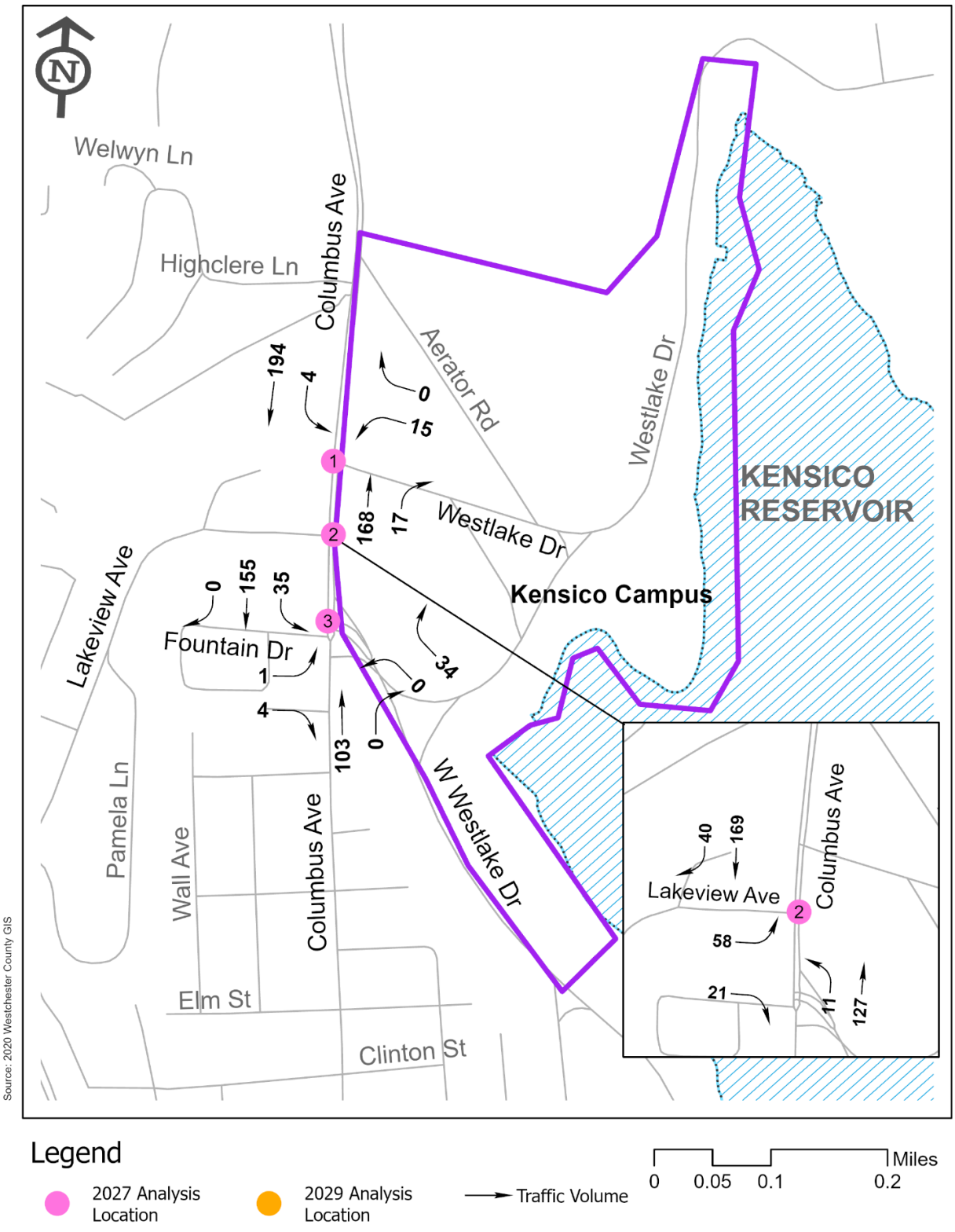


Figure 3.10-47. Inset A – Future Without the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

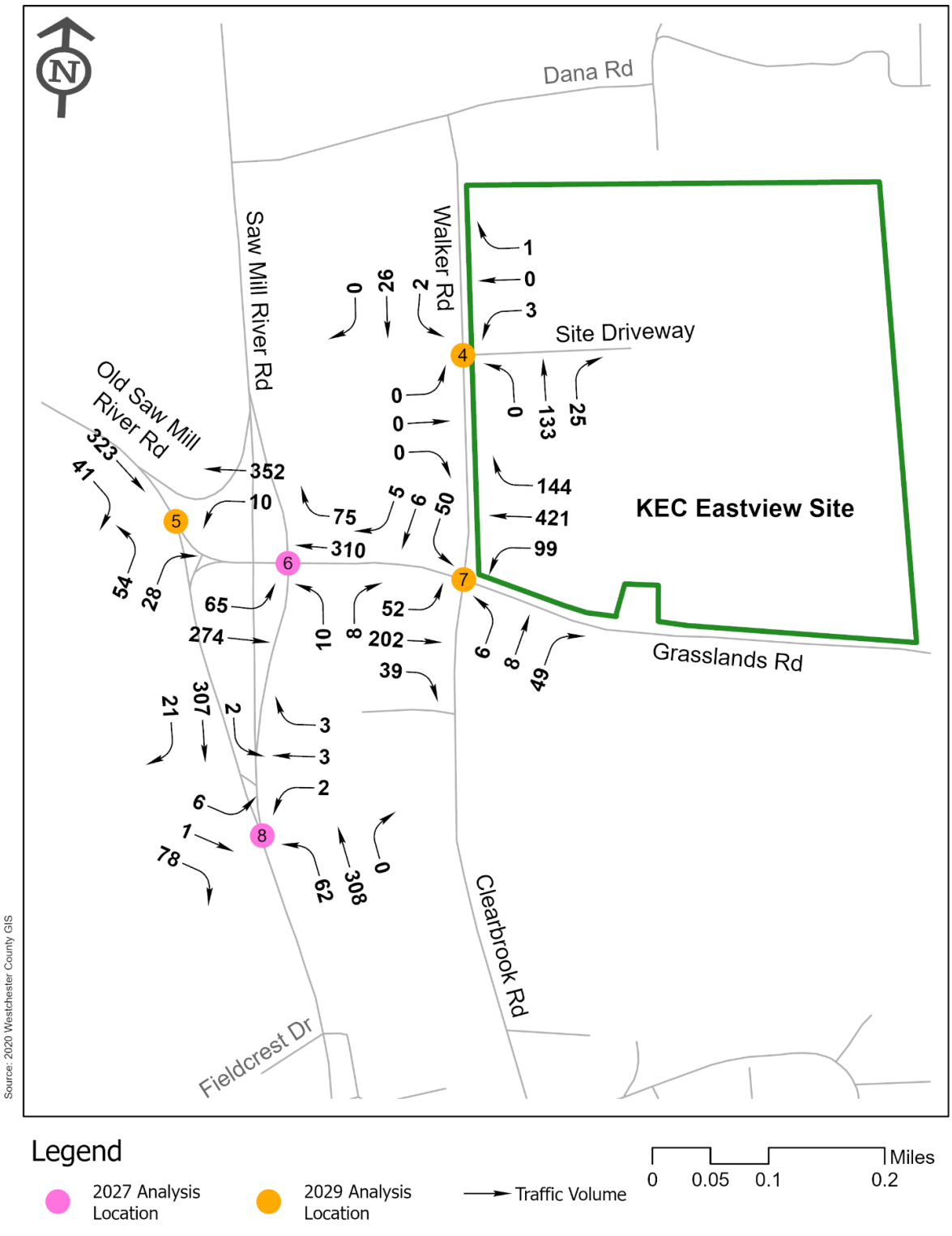


Figure 3.10-48. Inset B – Future Without the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

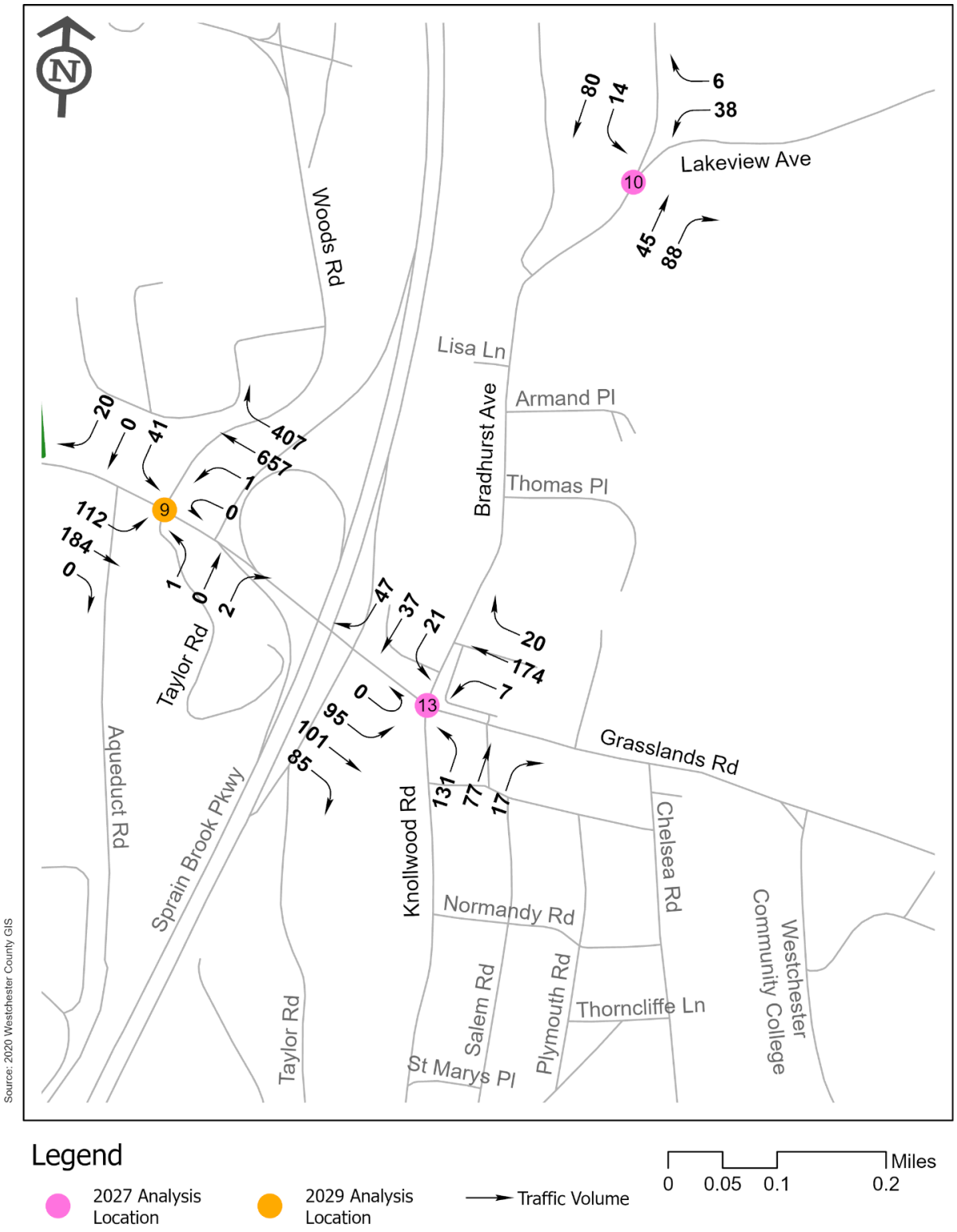


Figure 3.10-49. Inset C – Future Without the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

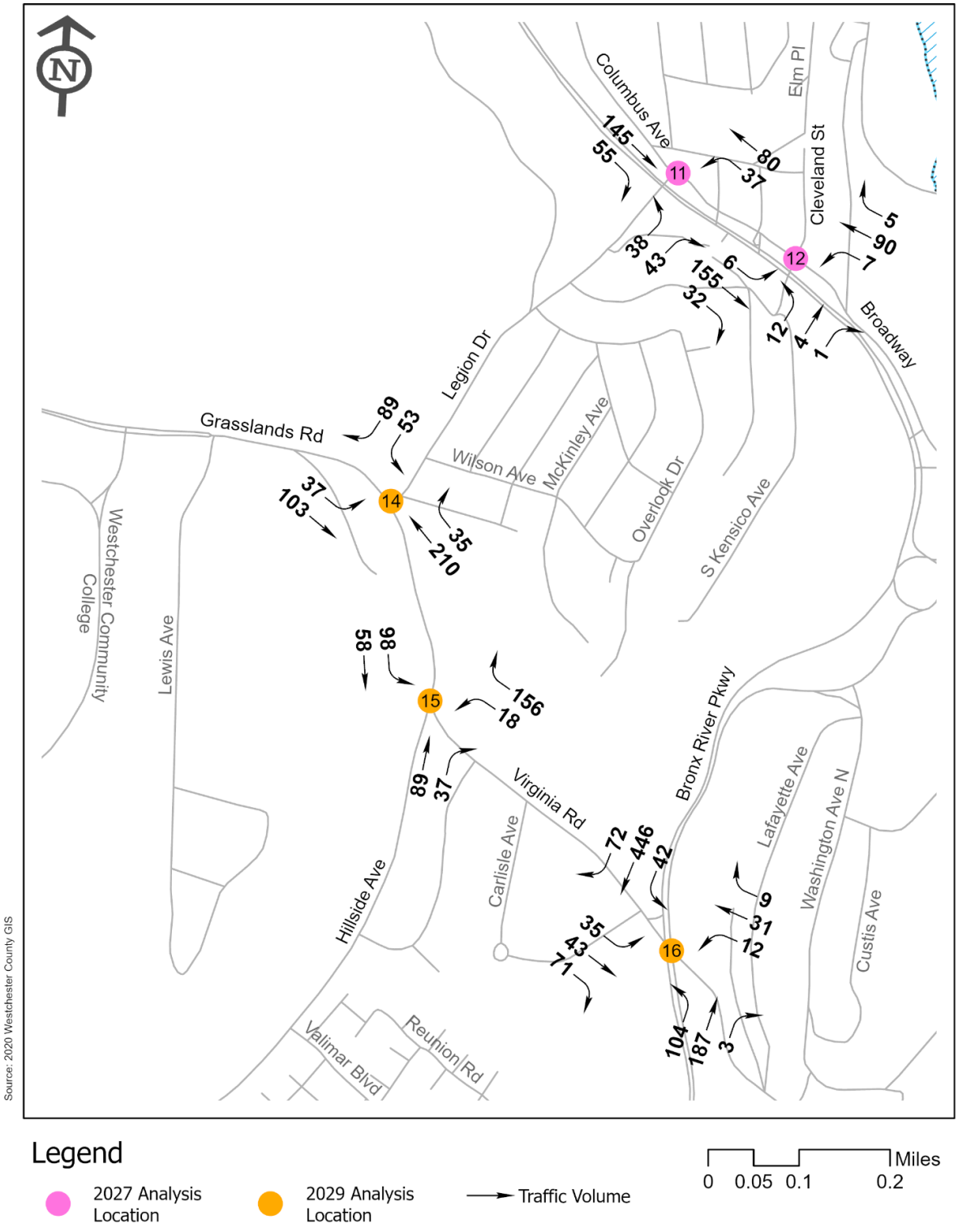


Figure 3.10-50. Inset D – Future Without the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

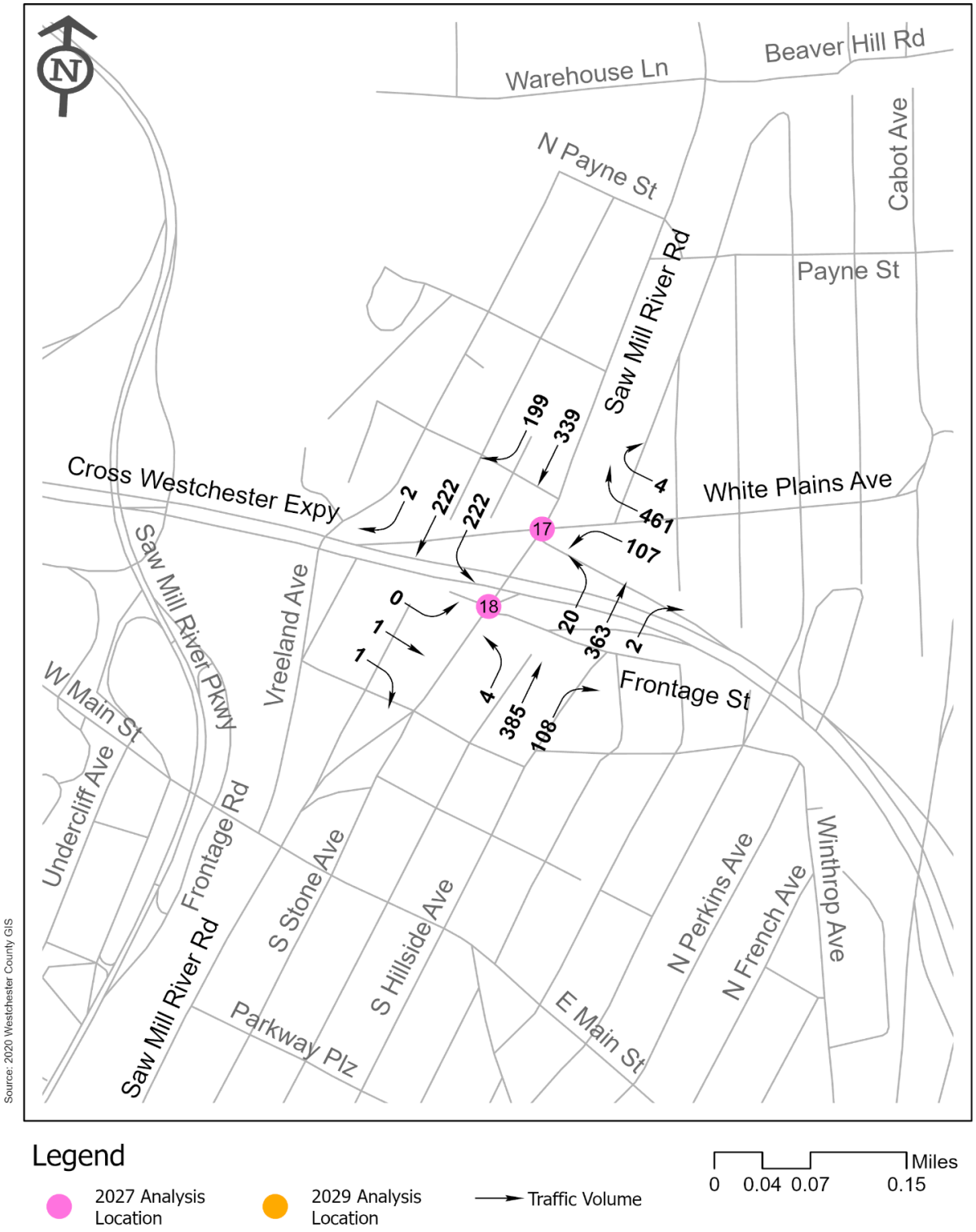


Figure 3.10-51. Inset E – Future Without the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

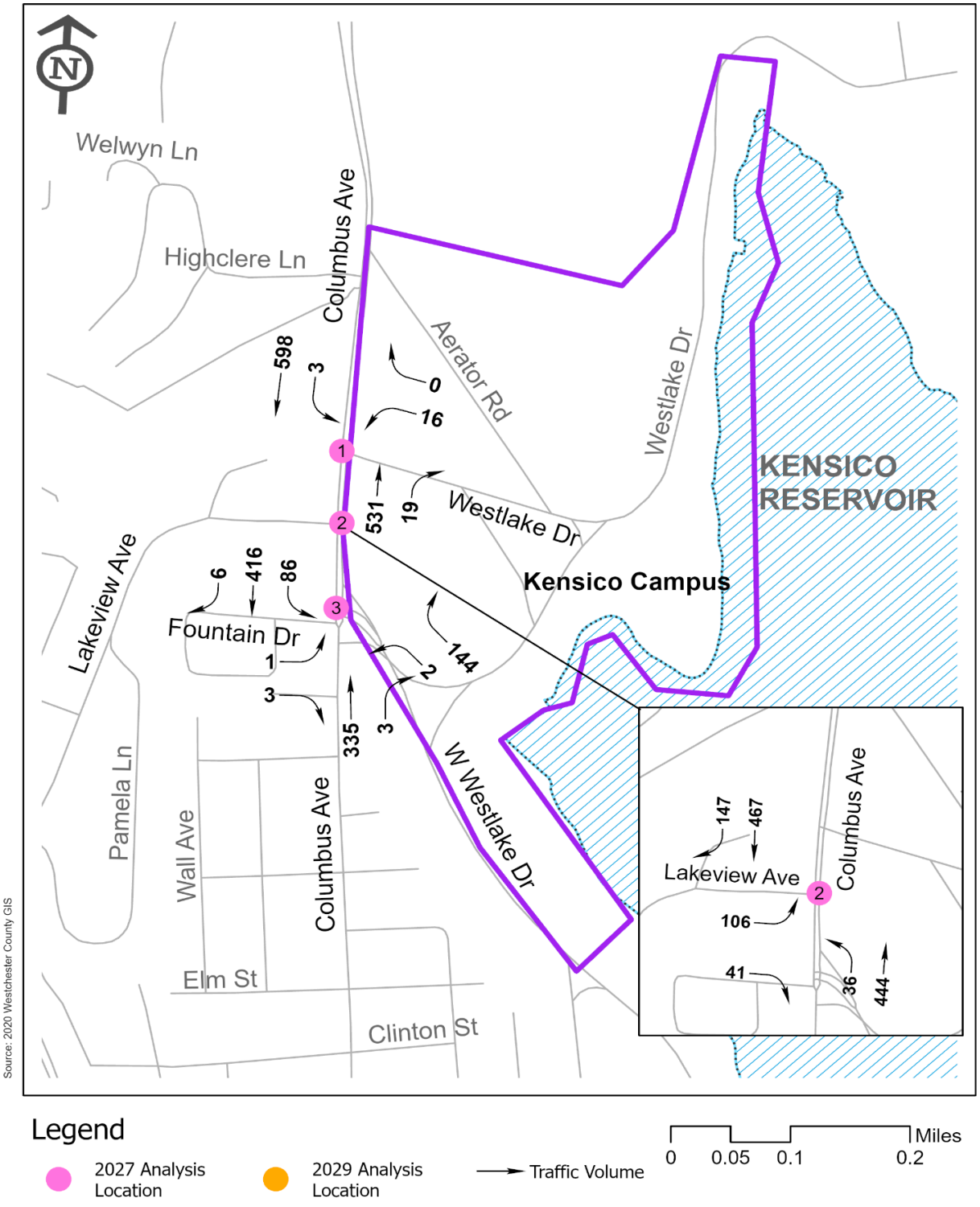


Figure 3.10-52. Inset A – Future Without the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

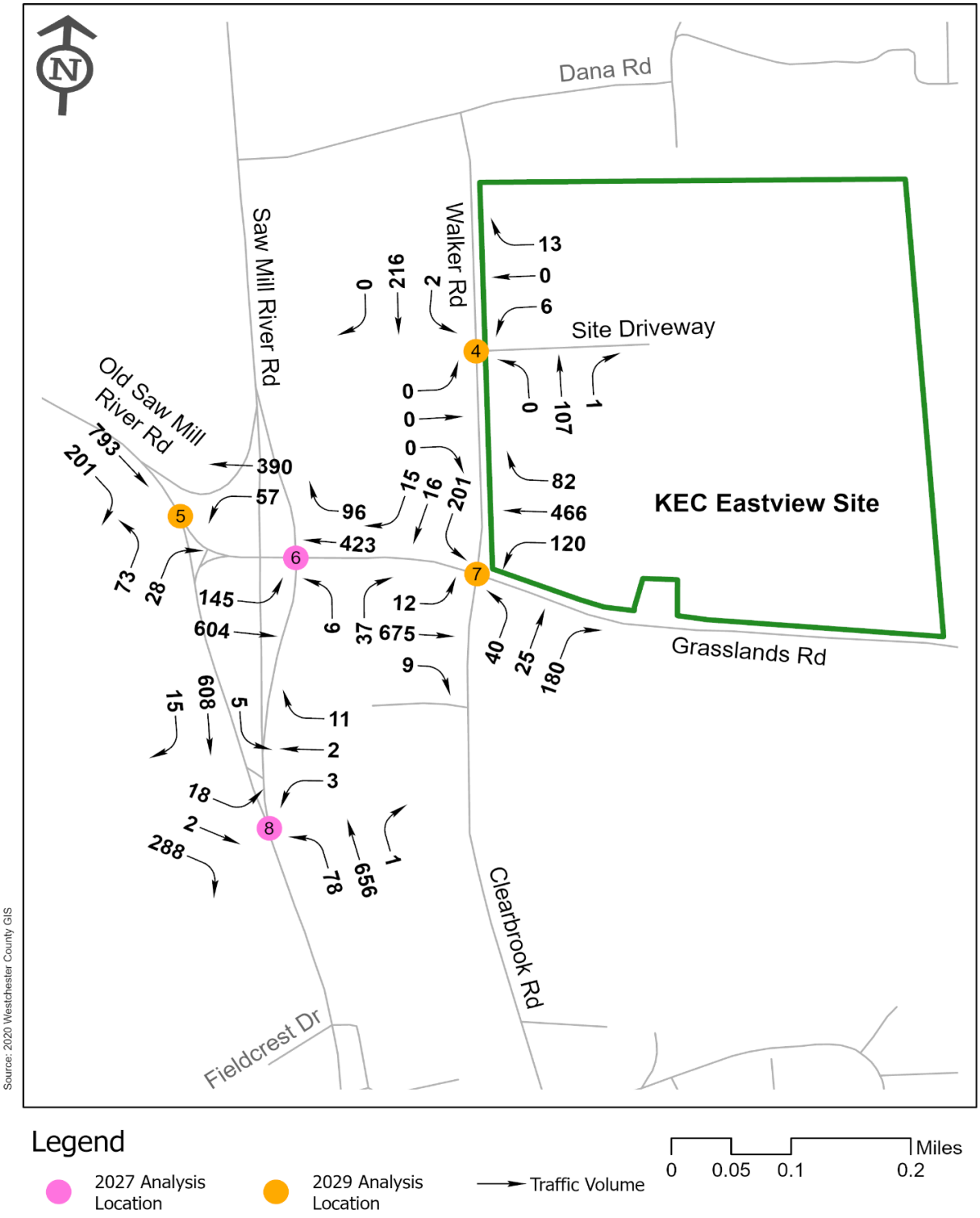


Figure 3.10-53. Inset B – Future Without the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

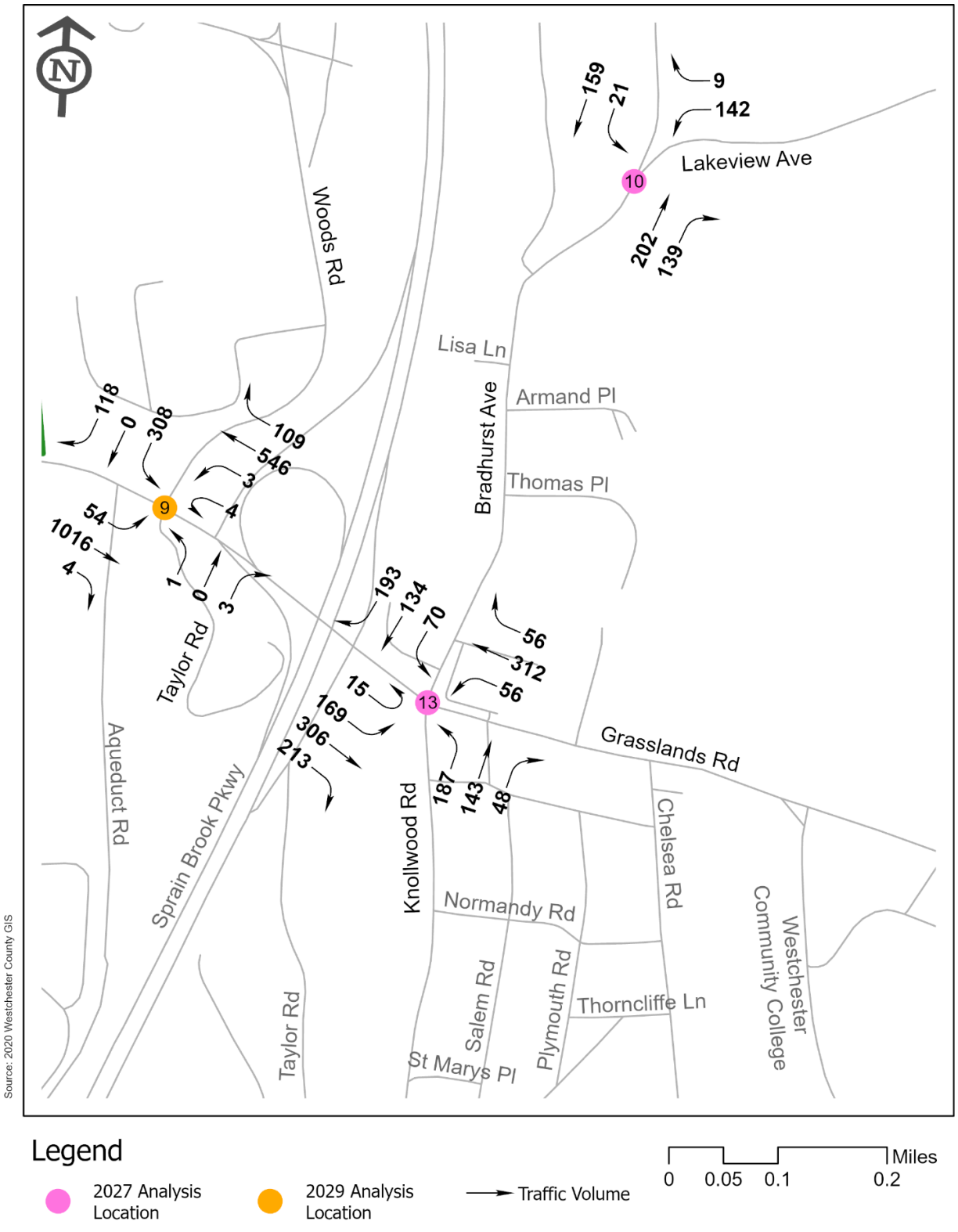


Figure 3.10-54. Inset C – Future Without the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

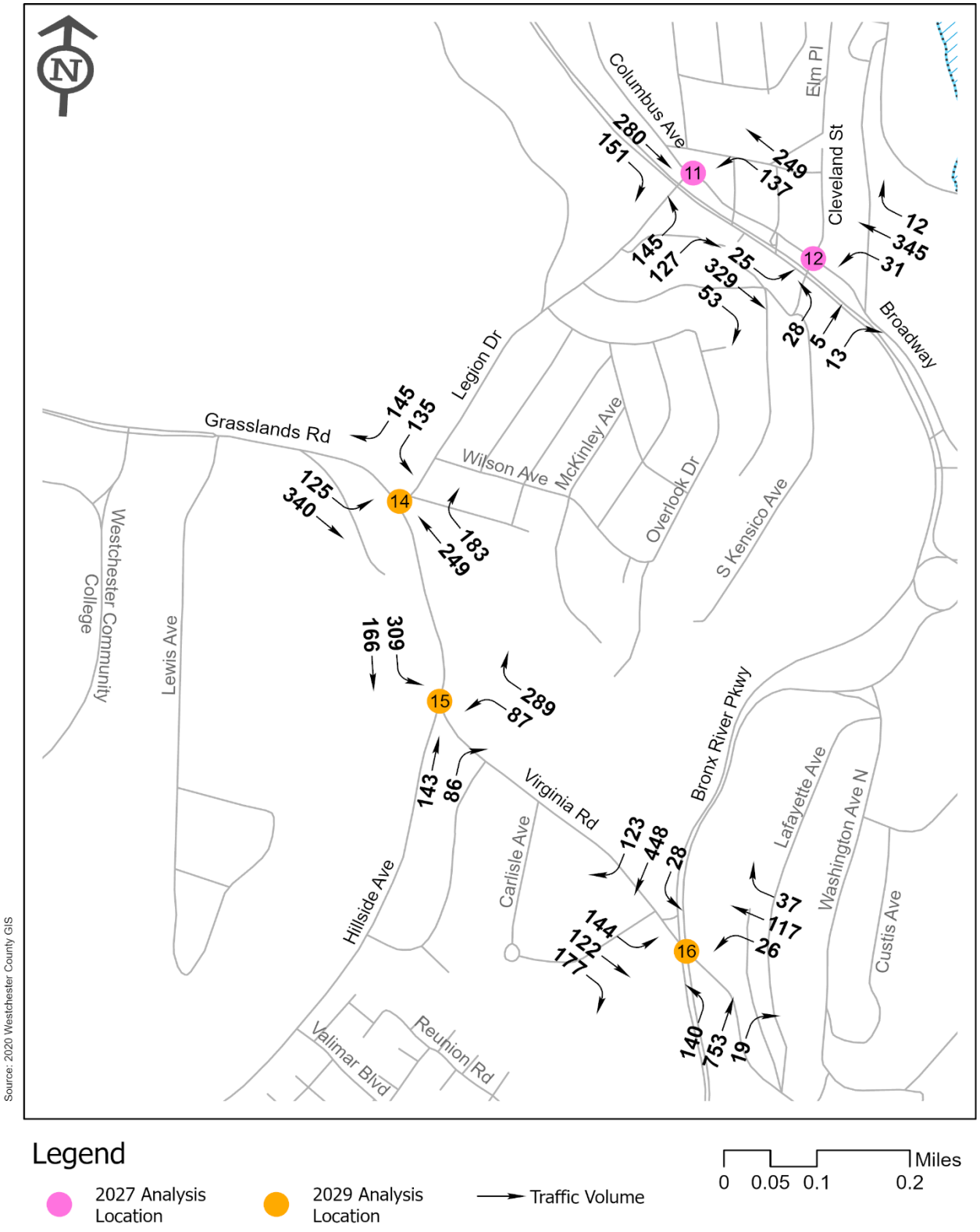


Figure 3.10-55. Inset D – Future Without the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

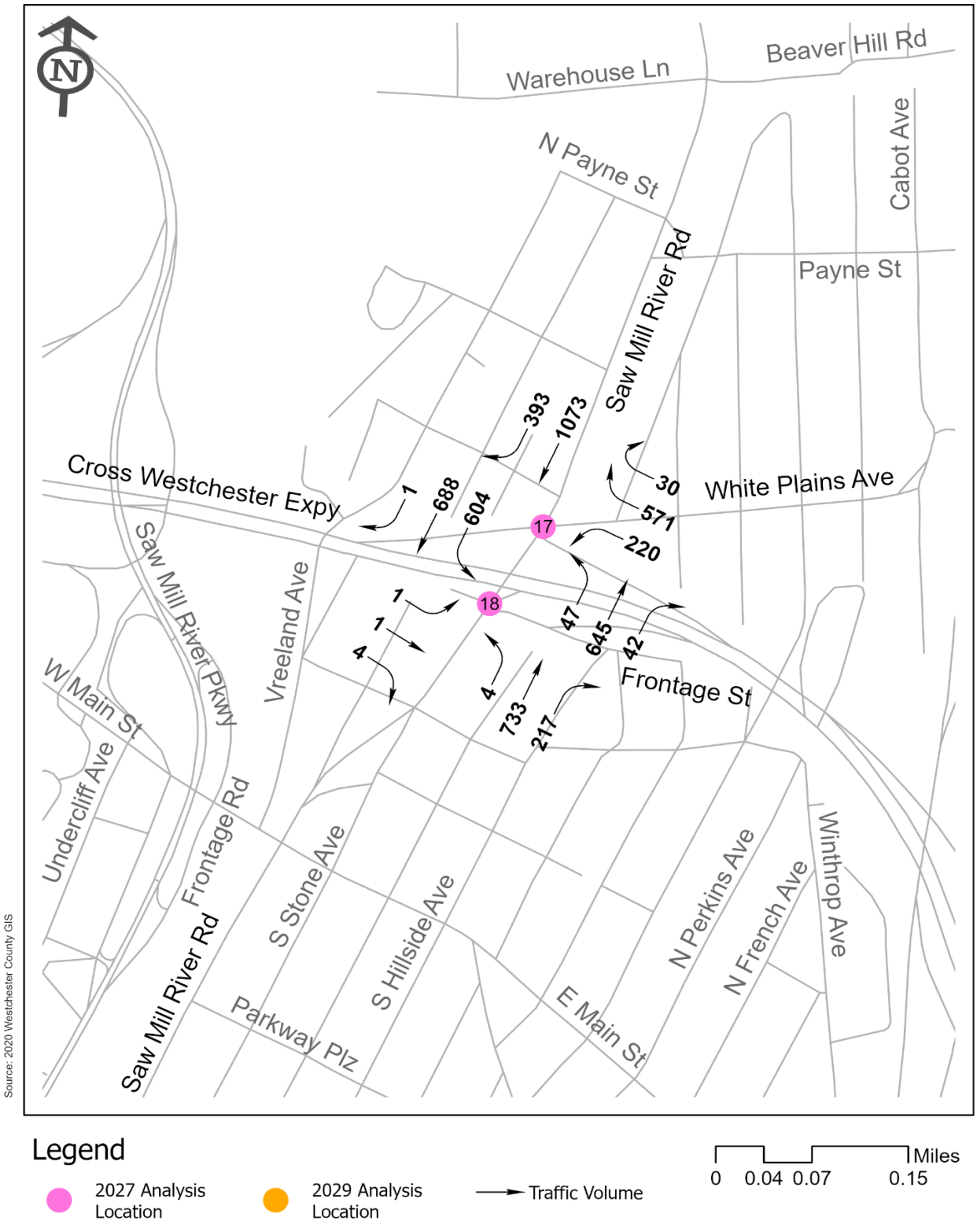


Figure 3.10-56. Inset E – Future Without the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

Traffic Levels of Service

Table 3.10-12 and **Table 3.10-13** provide an overview of the traffic levels of service under the future without the Proposed Action and characterize "overall" intersection conditions and individual traffic movement conditions, respectively, during the AM and PM construction traffic peak hours.

Table 3.10-12. Future Without the Proposed Action Traffic Level of Service (LOS) Summary – Overall Intersections(1)

	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Intersections at Overall LOS A/B/C	18	17
Intersections at Overall LOS D	0	1
Intersections at Overall LOS E	0	0
Intersections at Overall LOS F	0	0

Note:
(1) Includes the 18 analysis intersections (eight signalized; 10 unsignalized). One intersection, Columbus Avenue at Legion Drive, would be newly signalized under the future without the Proposed Action as recommended in the DEP's *Kensico Dam Road Closure EA Traffic Report (2010)*.

Table 3.10-13. Future Without the Proposed Action Traffic Level of Service (LOS) Summary – Traffic Movements(1)

	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Traffic Movements at LOS A/B/C	83	74
Traffic Movements at LOS D	7	13
Traffic Movements at LOS E	2	4
Traffic Movements at LOS F	0	1
Number of Individual Traffic Movements	92	92

Note:
(1) Includes the movements for the 18 analysis intersections (eight signalized; 10 unsignalized). One intersection, Columbus Avenue at Legion Drive, would be newly signalized under the future without the Proposed Action as recommended in the DEP's *Kensico Dam Road Closure EA Traffic Report (2010)*.

Based on the analysis results presented in **Table 3.10-12** and **Table 3.10-13**, the summary overview of the future without the Proposed Action indicates that:

- In the AM construction traffic peak hour, none of the 18 intersections analyzed would operate at overall LOS E or F, similar to existing conditions, and all intersections would operate at LOS A, B, or C. Two individual traffic movements out of the 92 movements

analyzed would operate at unacceptable traffic levels of service compared to three movements under existing conditions.

- In the PM construction traffic peak hour, none of the 18 intersections analyzed would operate at an overall LOS E or F, similar to existing conditions. However, five individual traffic movements out of the 92 movements analyzed would operate at unacceptable traffic levels of service compared to one movement under existing conditions.

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable traffic levels of service under the future without the Proposed Action. The majority of intersections with at least one traffic movement operating at unacceptable traffic levels of service during the peak hours analyzed under existing conditions would continue to do so under the future without the Proposed Action. The following list presents intersections with at least one movement that would operate at unacceptable traffic levels of service under the future without the Proposed Action and during at least one construction traffic peak hour.

- Intersection #13, Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) (signalized) – southbound Bradhurst Avenue through-right turn movement (PM construction traffic peak hour).
- Intersection #14, Grasslands Road (SR100) and Legion Drive (CR29) (unsignalized) – westbound Legion Drive left-turn movement (PM construction traffic peak hour).
- Intersection #15, Hillside Avenue (SR100) and Virginia Road (CR51) (unsignalized) – westbound Virginia Road westbound approach (PM construction traffic peak hour).
- Intersection #16, Bronx River Parkway and Virginia Road (CR51) (signalized) – eastbound Virginia Road left-through movement (AM and PM construction traffic peak hours).
- Intersection #17, New Saw Mill River Road (SR9A) and Cross Westchester Expressway WB On/Off-Ramps / White Plains Avenue (signalized) – westbound Cross Westchester Expressway off-ramp right turn movement (PM construction traffic peak hour).
- Intersection #18, New Saw Mill River Road (SR9A) at Frontage Street / Williams Street (signalized) – eastbound Williams Street approach (AM construction traffic peak hour).

Detailed descriptions of the future without the Proposed Action V/C ratios, average vehicle delays, and levels of service are provided in **Table 3.10-14**.

Table 3.10-14. Future Without the Proposed Action Traffic Levels of Service (LOS)[(1)]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
1. Columbus Avenue (CR64) and Westlake Drive – unsignalized							
Westlake Dr – WB	L	0.03	11.0	B	0.08	20.6	C
	R	0.00	0.0	A	0.00	0.0	A
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	LT	0.00	0.2	A	0.00	0.0	A
Overall Intersection			**0.5**	**A**		**0.4**	**A**
2. Columbus Avenue (CR64) and Lakeview Avenue – signalized							
Lakeview Ave – EB	LR	0.31	22.2	C	0.48	24.5	C
Columbus Ave – NB	LT	0.08	4.2	A	0.32	6.5	A
Columbus Ave – SB	TR	0.12	3.6	A	0.39	6.3	A
Overall Intersection			**7.3**	**A**		**8.5**	**A**
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive – unsignalized							
Fountain Dr – EB	LTR	0.01	9.7	A	0.01	14.9	B
W. Westlake Dr – WB	L	0.00	0.0	A	0.02	28.3	D
	R	0.04	8.8	A	0.21	10.7	B
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	L	0.03	7.5	A	0.09	8.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**1.8**	**A**		**2.4**	**A**
4. Walker Road and KEC Eastview Site Driveway – unsignalized							
Driveway – EB	LR	0.00	0.0	A	0.00	0.0	A
Eastview Dwy – WB	LTR	0.01	9.7	A	0.03	9.8	A
Walker Rd – NB	L	0.00	0.0	A	0.00	0.0	A
	TR	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	L	0.00	7.6	A	0.00	7.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.3**	**A**		**0.6**	**A**
5. Grasslands Road (SR100C) and Old Saw Mill River Road – unsignalized							
Grasslands Rd – WB	LR	0.36	6.3	A	0.42	7.2	A
Old Saw Mill River Road – NB	T	0.08	4.7	A	0.18	9.5	A
	R	0.04	4.3	A	0.07	8.0	A
Old Saw Mill River Road – SB	L	0.30	5.4	A	0.77	15.5	C
	T	0.03	0.0	A	0.13	0.0	A
Overall Intersection			**5.4**	**A**		**10.6**	**B**
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps – unsignalized							
Grasslands Rd – EB	L	0.08	8.7	A	0.19	9.6	A
	T	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – WB	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Road Ramp – NB	L	0.04	15.8	C	0.05	32.1	D
	R	0.02	10.3	B	0.11	14.8	B
Overall Intersection			**1.1**	**A**		**1.7**	**A**

Table 3.10-14. Future Without the Proposed Action Traffic Levels of Service (LOS)[(1)]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road – signalized							
Grasslands Rd – EB	L	0.09	9.8	A	0.03	23.7	C
	TR	0.15	10.3	B	0.55	24.3	C
Grasslands Rd – WB	L	0.13	5.2	A	0.30	24.2	C
	T	0.53	14.8	B	0.75	30.6	C
	R	0.09	9.9	A	0.06	17.1	B
Clearbrook Rd – NB	LT	0.10	33.8	C	0.71	44.6	D
	R	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	LT	0.42	36.4	D	0.74	38.9	D
	R	0.00	0.0	A	0.00	26.9	C
Overall Intersection			**13.6**	**B**		**28.8**	**C**
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road – unsignalized							
Old Saw Mill River Rd – EB	LTR	0.13	10.0	B	0.55	16.2	C
Hotel Driveway – WB	LTR	0.03	15.9	C	0.12	29.3	D
Saw Mill River Rd – NB	L	0.07	8.5	A	0.11	9.7	A
	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd – SB	LTR	0.00	0.0	A	0.00	0.1	A
Overall Intersection			**1.9**	**A**		**4.1**	**A**
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road – signalized							
Grasslands Rd – EB	L	0.42	7.5	A	0.22	13.4	B
	TR	0.10	2.8	A	0.65	16.9	B
Grasslands Rd – WB	UL	0.00	10.0	A	0.07	23.7	C
	TR	0.66	12.9	B	0.57	23.3	C
Taylor Rd – NB	LTR	0.02	0.0	A	0.02	0.0	A
Woods Rd – SB	LT	0.38	38.4	D	0.81	38.0	D
	R	0.11	0.9	A	0.23	4.2	A
Overall Intersection			**11.7**	**B**		**21.0**	**C**
10. Bradhurst Avenue (SR100) and Lakeview Avenue – unsignalized							
Lakeview Ave – WB	LR	0.07	10.3	B	0.39	17.1	C
Bradhurst Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Bradhurst Ave – SB	LT	0.00	1.1	A	0.00	1.0	A
Overall Intersection			**2.1**	**A**		**4.3**	**A**
11. Columbus Avenue (CR64) and Legion Drive (CR29) – signalized							
Legion Dr – EB	LR	0.41	17.2	B	0.76	31.5	C
Columbus Ave – NB	LT	0.12	3.8	A	0.57	13.7	B
Columbus Ave – SB	TR	0.20	3.7	A	0.49	10.4	B
Overall Intersection			**6.5**	**A**		**16.9**	**B**
12. Broadway (CR29) and Cleveland Street – unsignalized							
Cleveland St – EB	LTR	0.03	10.8	B	0.18	19.2	C
Broadway – NB	LTR	0.00	0.5	A	0.00	0.7	A
Broadway – SB	LTR	0.00	0.2	A	0.00	0.5	A
Overall Intersection			**0.9**	**A**		**1.6**	**A**

Table 3.10-14. Future Without the Proposed Action Traffic Levels of Service (LOS)[(1)]

		AM Construction Traffic Peak Hour			PM Construction Traffic Peak Hour		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) – signalized							
Grasslands Rd – EB	UL	0.30	13.5	B	0.69	26.1	C
	T	0.20	15.3	B	0.53	27.1	C
	R	0.13	2.1	A	0.29	2.4	A
Grasslands Rd – WB	L	0.03	11.4	B	0.19	14.3	B
	TR	0.63	30.9	C	0.88	51.2	D
Knollwood Rd – NB	L	0.36	17.6	B	0.73	40.1	D
	TR	0.20	21.1	C	0.52	37.1	D
Bradhurst Ave – SB	L	0.08	15.8	B	0.22	23.7	C
	TR	0.35	19.1	B	0.98	75.6	E
Overall Intersection			**18.9**	**B**		**38.8**	**D**
14. Grasslands Road (SR100) and Legion Drive (CR29) – unsignalized							
Legion Dr – WB	L	0.13	13.1	B	0.61	40.0	E
	R	0.15	10.6	B	0.22	11.5	B
Grasslands Rd – NB	TR	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – SB	LT	0.01	2.2	A	0.04	2.4	A
Overall Intersection			**3.7**	**A**		**6.9**	**A**
15. Hillside Avenue (SR100) and Virginia Road (CR51) – unsignalized							
Virginia Rd – WB	LR	0.25	10.7	B	0.92	52.4	F
Hillside Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Hillside Ave – SB	LT	0.05	4.9	A	0.19	5.9	A
Overall Intersection			**5.8**	**A**		**21.4**	**C**
16. Bronx River Parkway and Virginia Road (CR51) – signalized							
Virginia Rd – EB	LT	0.50	56.8	E	0.81	55.0	E
	R	0.27	46.2	D	0.38	34.3	C
Virginia Rd – WB	LTR	0.31	54.9	D	0.41	37.0	D
Bronx River Pkwy – NB	L	0.18	4.1	A	0.31	12.5	B
	TR	0.09	5.1	A	0.43	17.8	B
Bronx River Pkwy – SB	L	0.06	3.9	A	0.10	13.9	B
	T	0.20	5.8	A	0.26	17.1	B
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**15.1**	**B**		**25.2**	**C**
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue – signalized							
Cross Westchester Expressway Ramp – WB	L	0.34	39.0	D	0.66	53.8	D
	R	0.70	45.2	D	0.90	62.3	E
New Saw Mill River Rd – NB	LTR	0.27	8.7	A	0.58	12.1	B
New Saw Mill River Rd – SB	TR	0.40	8.4	A	0.76	13.6	B
Overall Intersection			**22.0**	**C**		**25.1**	**C**

Table 3.10-14. Future Without the Proposed Action Traffic Levels of Service (LOS)[1]

Approach	Lane Group	AM Construction Traffic Peak Hour V/C Ratio	AM Delay (sec)	AM LOS	PM Construction Traffic Peak Hour V/C Ratio	PM Delay (sec)	PM LOS
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street – signalized							
Williams St – EB	LTR	0.19	55.2	E	0.15	52.7	D
New Saw Mill River Rd – NB	L	0.17	53.2	D	0.10	52.5	D
	TR	0.41	21.9	C	0.69	29.0	C
New Saw Mill River Rd – SB	L	0.29	23.7	C	0.56	27.1	C
	TR	0.20	2.7	A	0.55	4.5	A
Overall Intersection			**17.9**	**B**		**21.1**	**C**

Notes:
(1) Includes the 18 analysis intersections (eight signalized; 10 unsignalized). One intersection, Columbus Avenue at Legion Drive, would be newly signalized under the future without the Proposed Action as recommended in the DEP's *Kensico Dam Road Closure EA Traffic Report (2010)*.
MVT = Movement
V/C Ratio = volume-to-capacity ratio
Sec = seconds
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound.
L = Left; T = Thru; R = Right; U = U-turns
Dr = Drive; Ave = Avenue; St = Street; Rd = Road; Pkwy = Parkway

3.10.5 FUTURE WITH THE PROPOSED ACTION

3.10.5.1 Detailed Traffic Analysis

Traffic Volumes

The analysis of the future with the Proposed Action assesses the peak quarter of construction traffic and the potential for significant traffic impacts. As described above, seven intersections were analyzed for Q3 2029, which is the overall traffic peak quarter for the Proposed Action construction and when activities at the KEC Eastview Site would be highest, and 11 intersections were analyzed for Q4 2027 based on higher projected construction traffic at selected locations near the Kensico Campus.

Overall, the Proposed Action would not result in significant traffic impacts during the AM construction traffic peak hour for either Q3 2029 or Q4 2027. In the PM construction traffic peak hour, significant traffic impacts were identified at three intersections. As construction activities would occur over an extended period of time, the anticipated duration of potential traffic impacts at these three intersections are also discussed below. Chapter 9, "Mitigation," identifies proposed improvements needed to mitigate these impacts.

Construction-related vehicles destined for the KEC Eastview Site would access the site from the site's entrance off of Walker Road between Grasslands Road (SR100C) and Dana Road. For the Kensico Campus, access would be provided at the intersection of Columbus Avenue and

Westlake Drive. Under the future with the Proposed Action, Westlake Drive would be closed to the public and access would only be provided to DEP staff and construction-related vehicles. A new roadway (the relocated Westlake Drive) would be constructed to the north and would connect Columbus Avenue with the existing section of Westlake Drive along Kensico Reservoir. The relocated Westlake Drive would be expected to be constructed and opened to the public in 2025 prior to the analysis peak quarters. Local emergency services vehicles (e.g., fire, police, EMS) would continue to have access to existing Westlake Drive until the relocated roadway is completed. The traffic volumes that would be diverted during the roadway closure are modest and would not be expected to result in traffic volumes exceeding the CEQR screening thresholds; therefore, significant traffic impacts are not anticipated due to the roadway closure and relocation. In addition, a new temporary driveway would be constructed along the east leg of the intersection of Columbus Avenue and Lakeview Avenue (Intersection #2) to provide dedicated access for some of DEP's operations staff during proposed construction; DEP's operations staff currently use Westlake Drive to access the Kensico Campus.

The future with the Proposed Action traffic volumes were developed by adding construction-related vehicle trips to future without the Proposed Action traffic volumes. The future with the Proposed Action traffic volumes for the AM and PM construction traffic peak hours are shown on **Figure 3.10-57** through **Figure 3.10-66**.

During Q4 2027, construction activities would add approximately 95 vehicle trips along Columbus Avenue south of the Kensico Campus site entrance at Westlake Drive and approximately 20 vehicle trips north of the site's entrance during the AM and PM construction traffic peak hours.

During Q3 2029, approximately 100 to 110 construction-related vehicles would be expected to travel along Grasslands Road (SR100C) east of Walker Road during both the AM and PM construction traffic peak hours. West of Walker Road, Grasslands Road traffic volumes would be expected to increase by approximately 55 to 70 vehicles during each analysis peak hour. The majority of these trips would be traveling to and from the KEC Eastview Site.

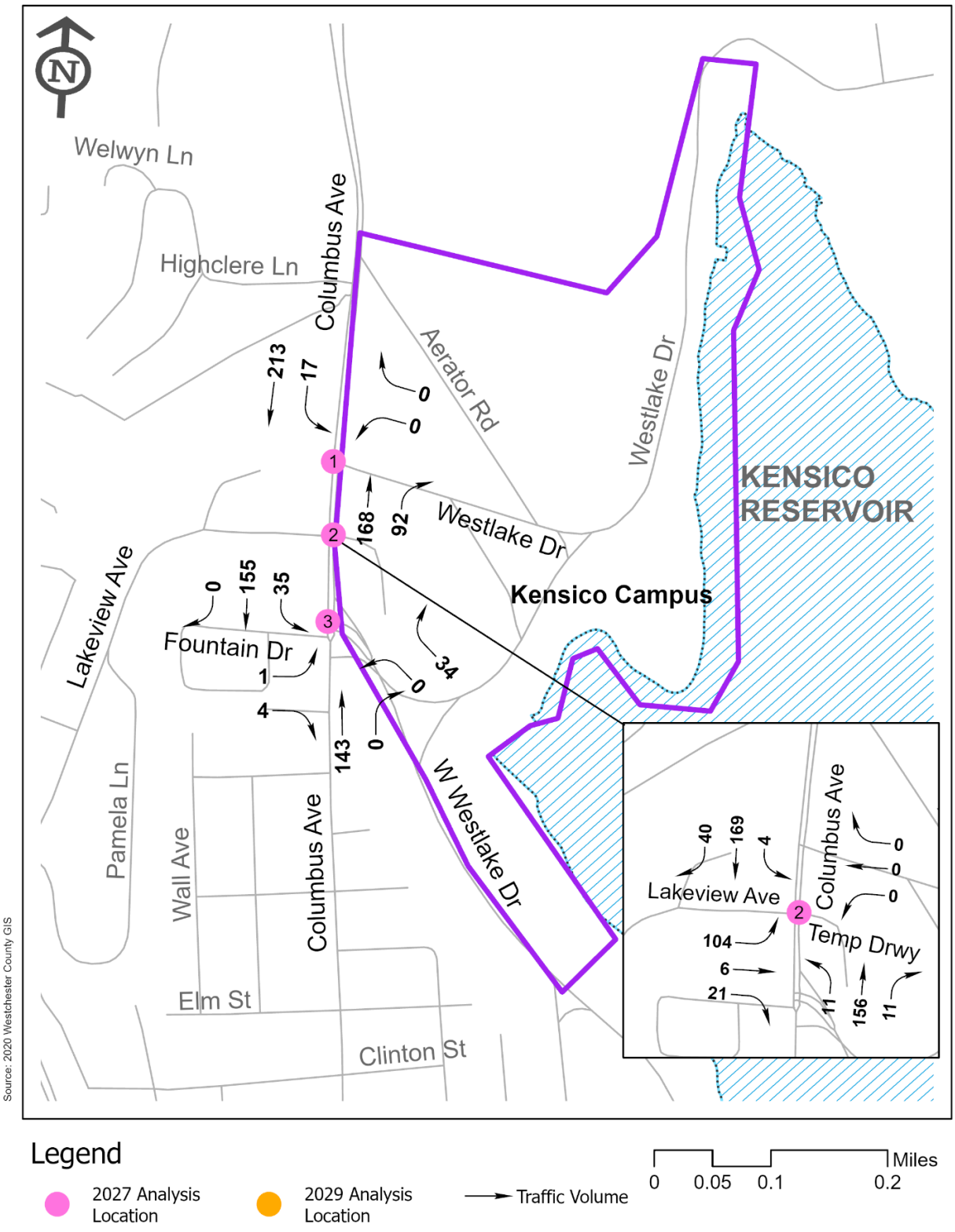


Figure 3.10-57. Inset A – Future With the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

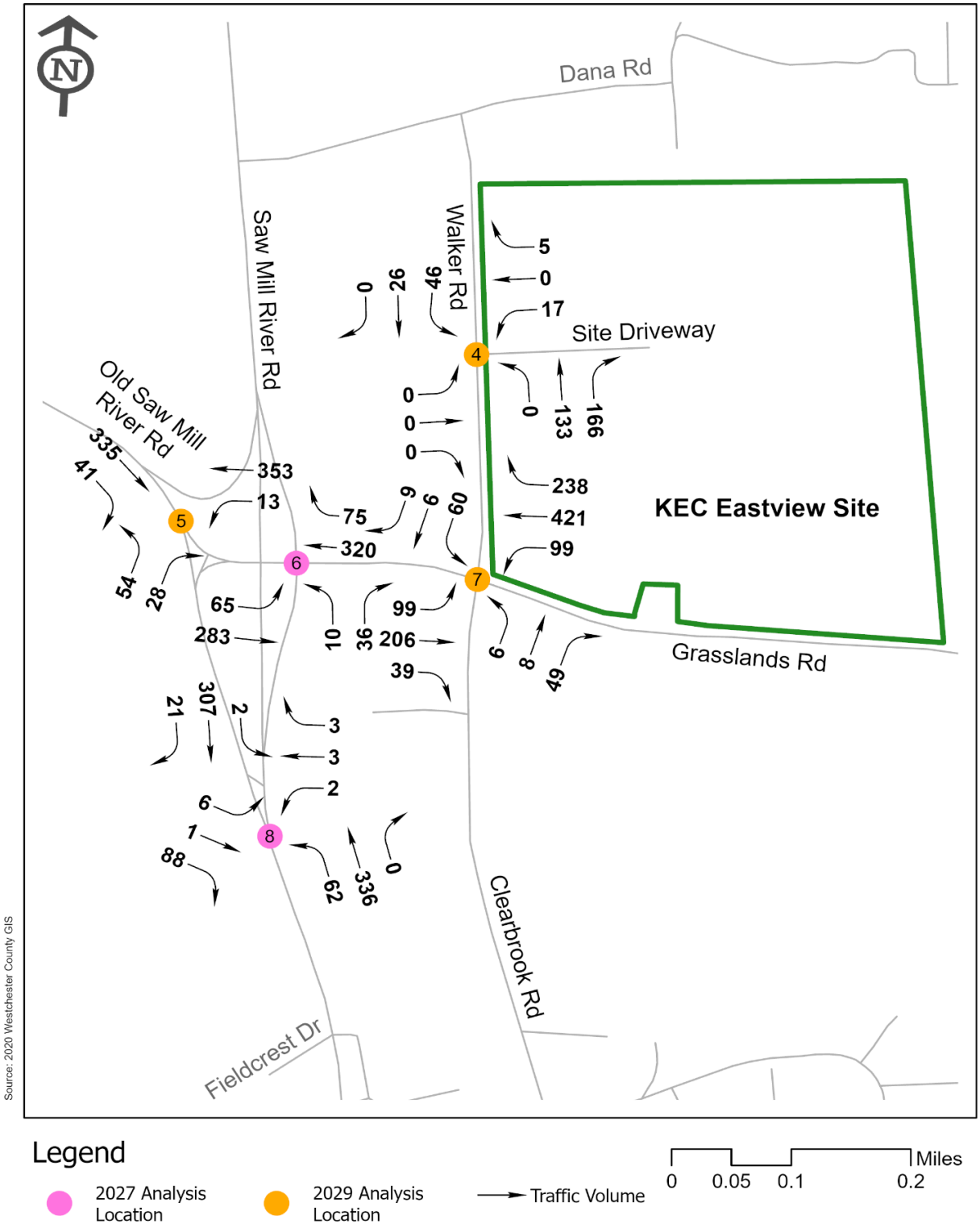


Figure 3.10-58. Inset B – Future With the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

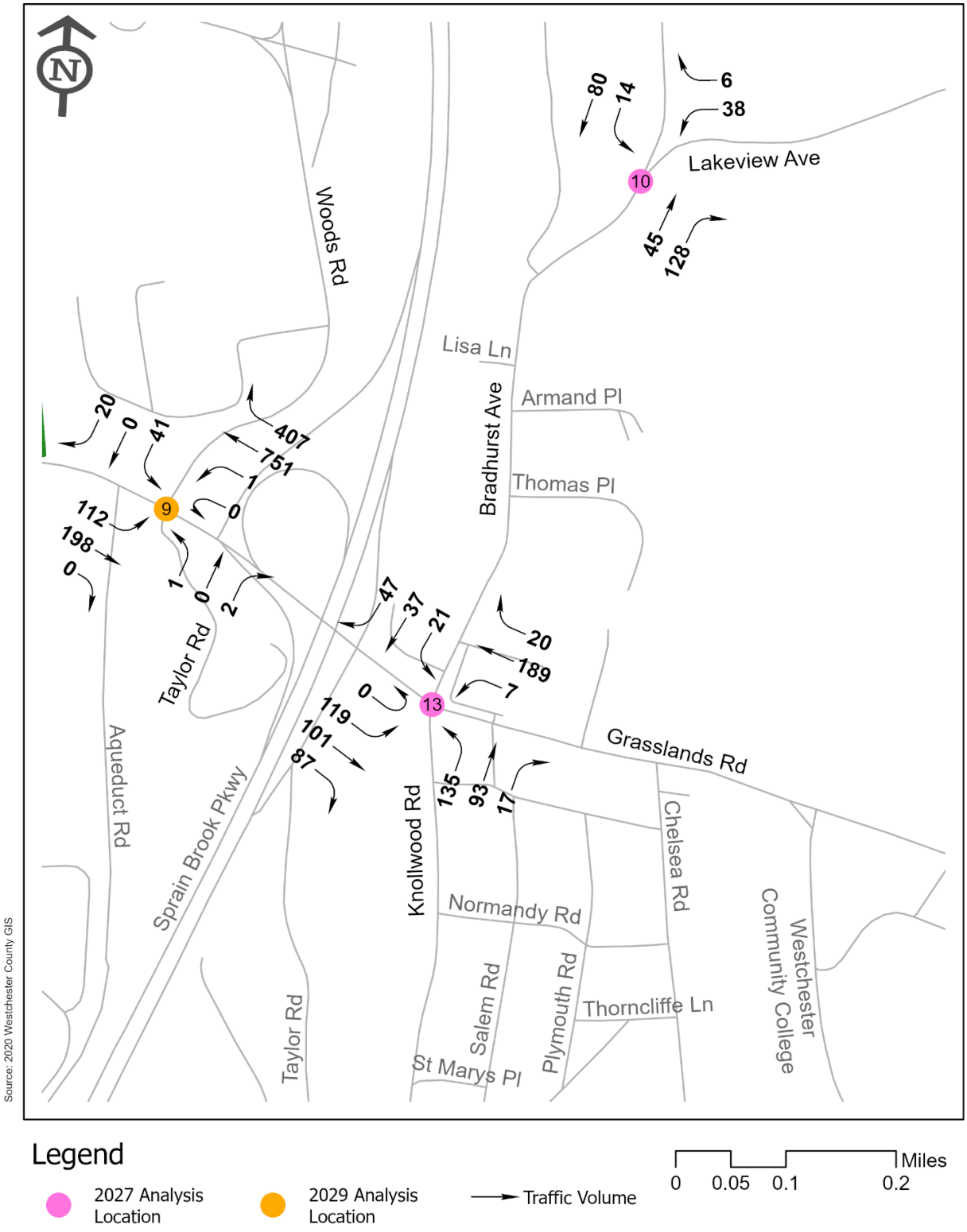


Figure 3.10-59. Inset C – Future With the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

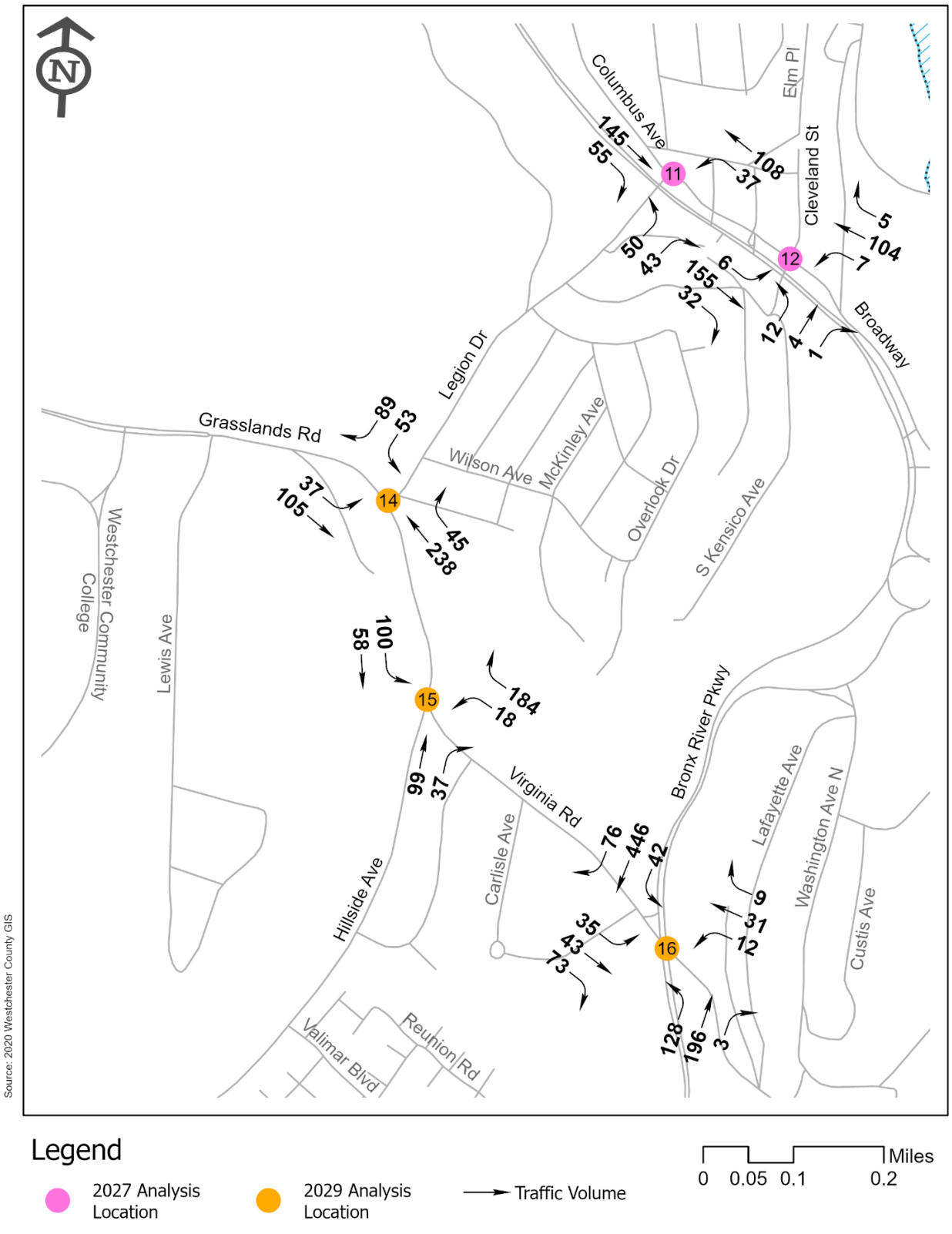


Figure 3.10-60. Inset D – Future With the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

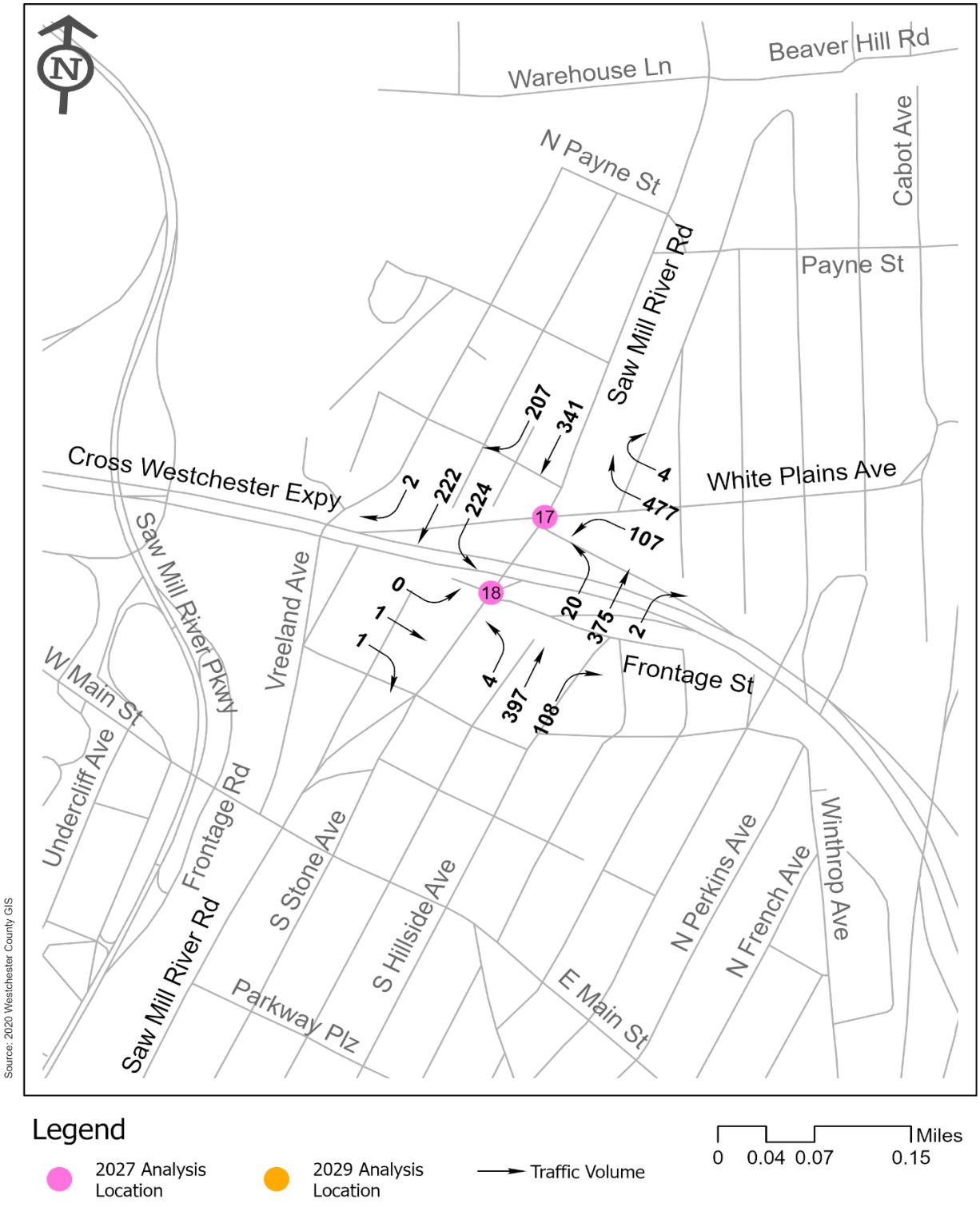


Figure 3.10-61. Inset E – Future With the Proposed Action Traffic Volumes – AM Construction Traffic Peak Hour

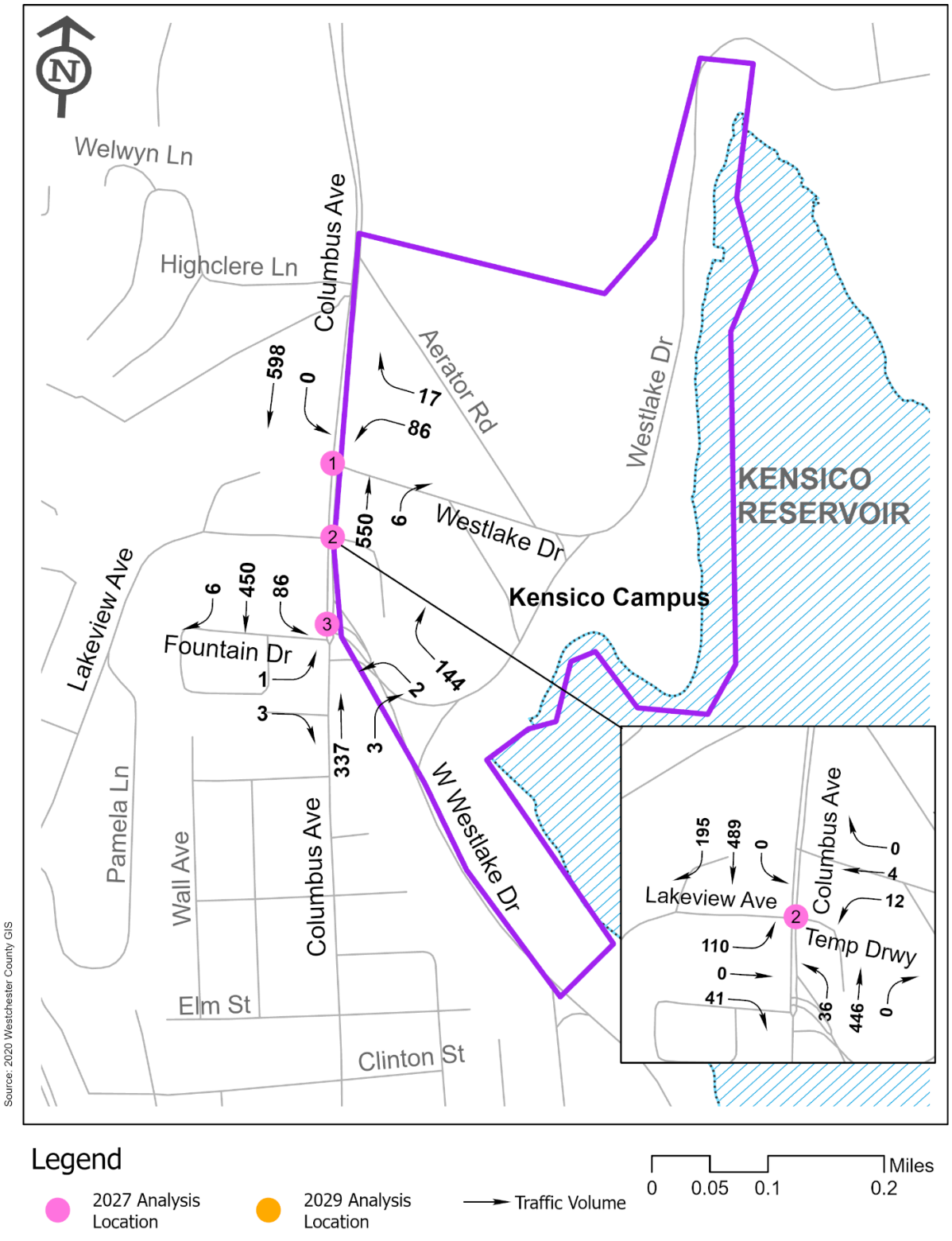


Figure 3.10-62. Inset A – Future With the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

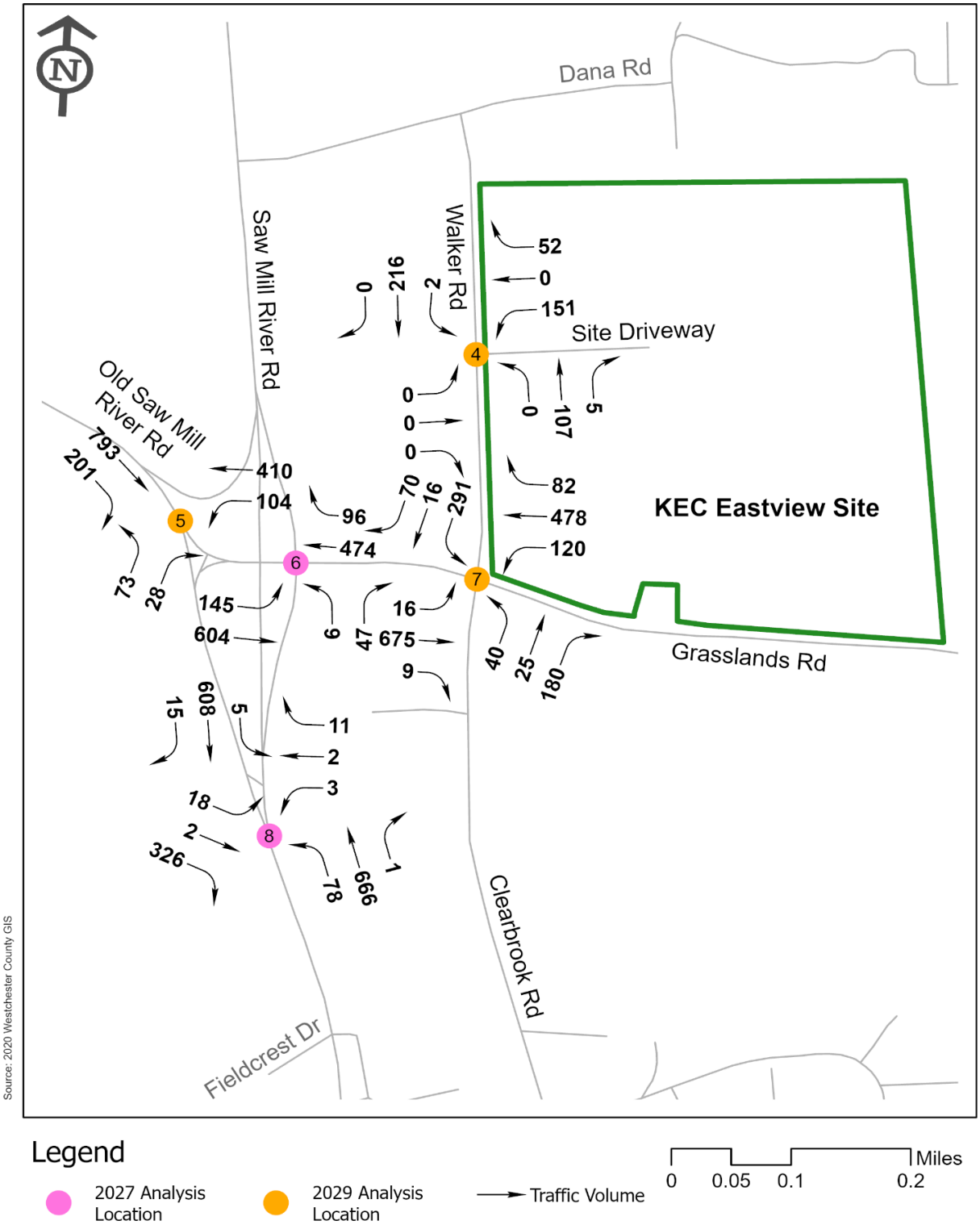


Figure 3.10-63. Inset B – Future With the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

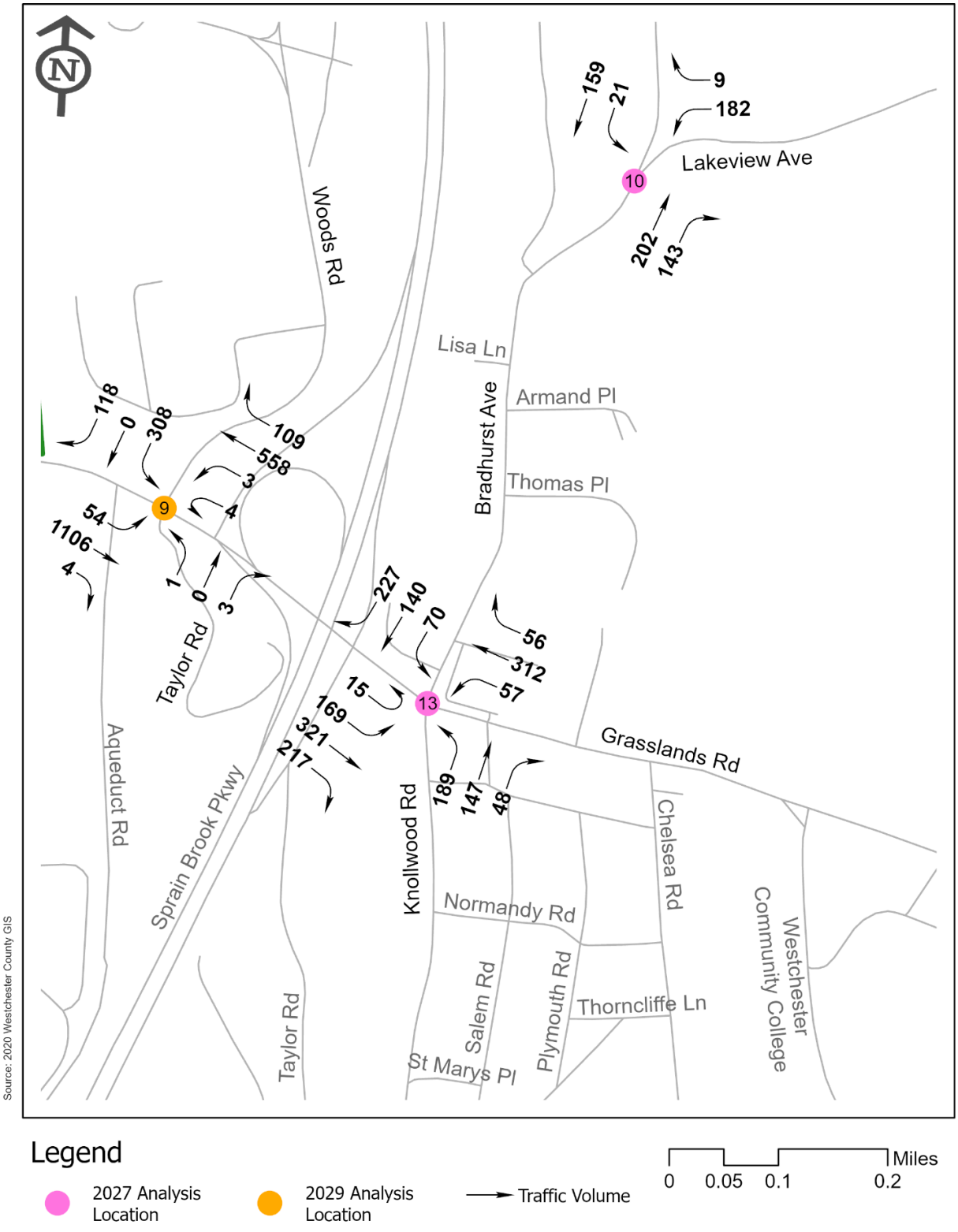


Figure 3.10-64. Inset C – Future With the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

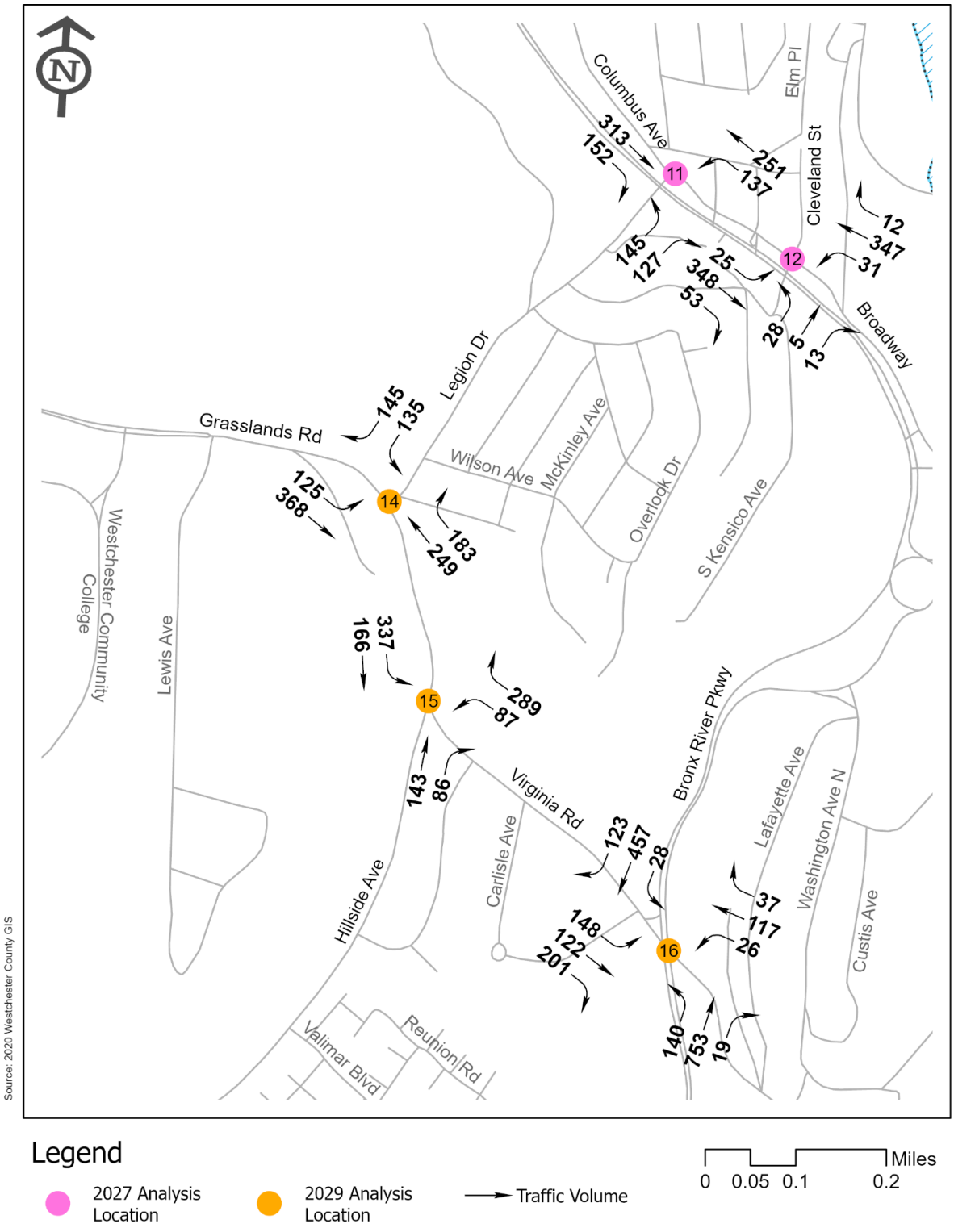


Figure 3.10-65. Inset D – Future With the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

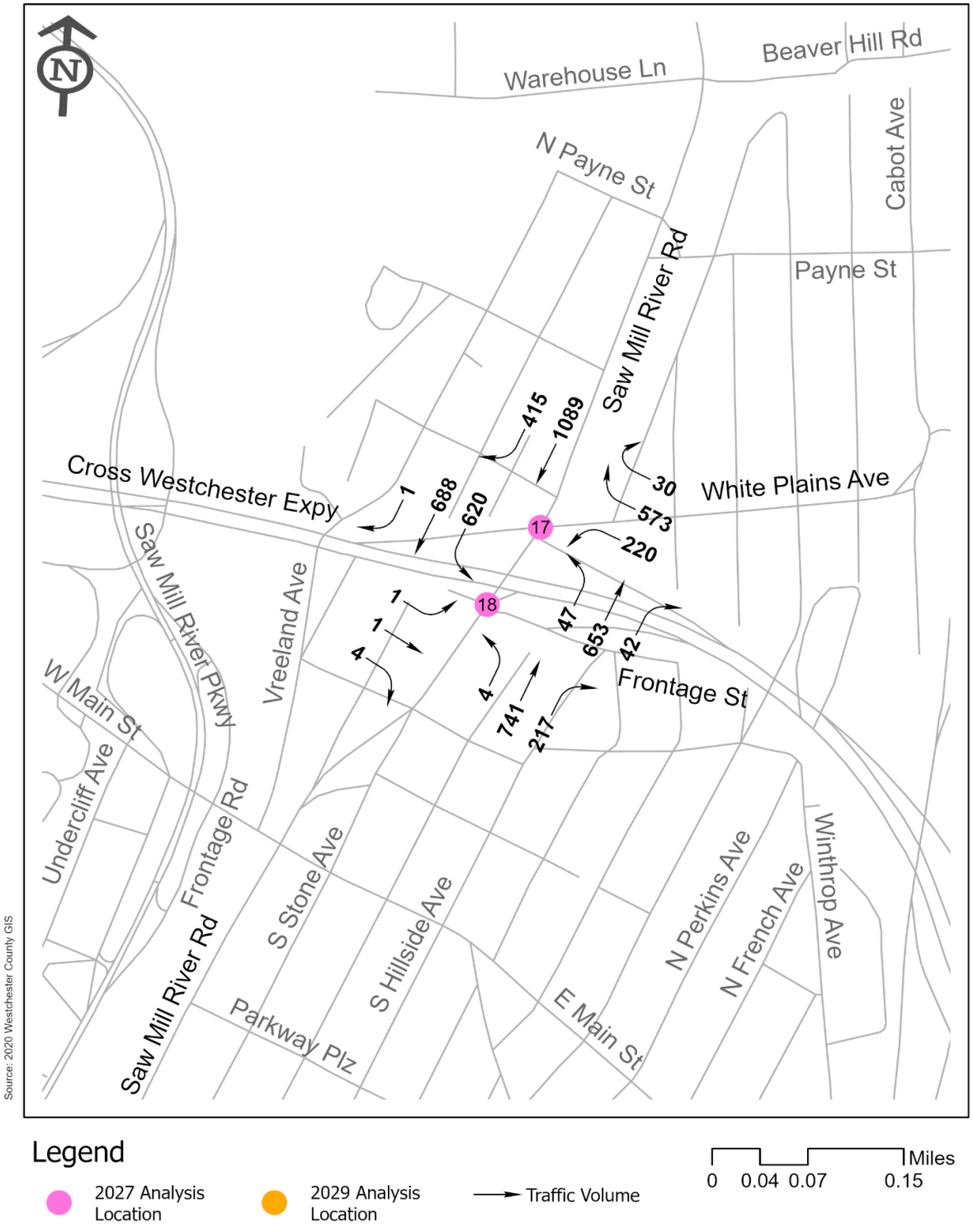


Figure 3.10-66. Inset E – Future With the Proposed Action Traffic Volumes – PM Construction Traffic Peak Hour

Traffic Levels of Service

Table 3.10-15 and **Table 3.10-16** provide an overview of the traffic levels of service under the future with the Proposed Action and characterize "overall" intersection conditions and individual traffic movements, respectively, during the AM and PM construction traffic peak hours.

Table 3.10-15. Future With the Proposed Action Traffic Level of Service (LOS) Summary – Overall Intersections

	Future without the Proposed Action		Future with the Proposed Action	
	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Intersections at Overall LOS A/B/C	18	17	18	16
Intersections at Overall LOS D	0	1	0	2
Intersections at Overall LOS E	0	0	0	0
Intersections at Overall LOS F	0	0	0	0
Intersections with Significant Impacts	-	-	0	3
Note: Includes 18 analysis intersections (8 signalized; 10 unsignalized).				

Table 3.10-16. Future With the Proposed Action Traffic Level of Service (LOS) Summary – Traffic Movements

	Future without the Proposed Action		Future with the Proposed Action	
	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour	AM Construction Traffic Peak Hour	PM Construction Traffic Peak Hour
Traffic Movements at LOS A/B/C	83	74	84	73
Traffic Movements at LOS D	7	13	7	13
Traffic Movements at LOS E	2	4	2	4
Traffic Movements at LOS F	0	1	0	3
Number of Individual Traffic Movements	92	92	93	93
Traffic Movements Significantly Impacted	-	-	0	4
Note: Includes 18 analysis intersections (8 signalized; 10 unsignalized).				

Based on the analysis results presented in **Table 3.10-15** and **Table 3.10-16**, the summary overview of the future with the Proposed Action indicates that:

- In the AM construction traffic peak hour, all 18 intersections analyzed would be expected to operate at overall acceptable levels of service, similar to the future without the Proposed Action. Two individual traffic movements out of the 93 movements analyzed would operate at unacceptable levels of service, similar to the future without the Proposed Action.
- In the PM construction traffic peak hour, all 18 intersections analyzed would be expected to operate at overall acceptable levels of service, similar to the future without the Proposed Action. Seven individual traffic movements of the 93 movements analyzed would operate at unacceptable levels of service compared to five movements under the future without the Proposed Action.

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable levels of service under the future with the Proposed Action. Traffic movements that would operate at unacceptable levels of service under the future without the Proposed Action would continue to do so under the future with the Proposed Action; additional movements that would operate at unacceptable levels of service under the future with the Proposed Action are listed below when compared to the Proposed Action.

- Intersection #7, Grasslands Road (SR100C) and Walker Road / Clearbrook Road (signalized) – northbound Clearbrook Road left-through turn movement (PM construction traffic peak hour) and southbound Walker Road left-through turn movement (PM construction traffic peak hour)

The future with the Proposed Action would not result in significant traffic impacts during the AM construction traffic peak hour. Significant traffic impacts would be expected during the PM construction traffic peak hour at three intersections (four movements). The impacted movements and expected duration of the impacts based on projected construction-related trips and future traffic conditions are listed below:

- Intersection #7, Grasslands Road (SR100C) and Walker Road / Clearbrook Road (signalized) – northbound Clearbrook Road left-through turn movement and southbound Walker Road left-through turn movement. These potential impacts would be a result of construction-related vehicles exiting the KEC Eastview Site and, in addition to the Q3 2029 analysis quarter, traffic impacts would be expected during the first and second quarters of 2025 (Q1 2025 and Q2 2025), the period between Q2 2027 and third quarter of 2030 (Q3 2030), the period between the fourth quarter of 2031 (Q4 2031) and the fourth quarter of 2032 (Q4 2032), and the third quarter of 2033 (Q3 2033).

- Intersection #13, Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) (signalized) – southbound Bradhurst Avenue through-right turn movement. The analysis determined that due to the traffic generated by future without the Proposed Action background development projects, the critical southbound Bradhurst Avenue through-right turn movement would operate at an unacceptable LOS E, and a modest number of additional trips due to the Proposed Action (an increase of approximately seven vehicle trips) would result in significant traffic impacts at this intersection. Significant traffic impacts are anticipated at this intersection during the period between the second quarter of 2024 (Q2 2024) and second quarter of 2028 (Q2 2028), and between Q4 2028 and the first quarter of 2032 (Q1 2032).
- Intersection #15, Hillside Avenue (SR100) and Virginia Road (CR51) (unsignalized) – westbound Virginia Road approach. This potential impact would be a result of construction-related vehicles exiting the KEC Eastview Site. In addition to the Q3 2029 analysis quarter, traffic impacts would be expected during the period between the third quarter of 2027 (Q3 2027) and Q1 2030, and Q1 2032.

Detailed descriptions of the future with the Proposed Action V/C ratios, average vehicle delays, and levels of service are provided in **Table 3.10-17** and **Table 3.10-18**.

3.10.5.2 Parking

The Kensico Campus and the KEC Eastview Site would provide on-site parking to accommodate the parking demand generated by construction of the Proposed Action. The parking demand at the Kensico Campus and the KEC Eastview Site would vary based on the activities being performed.

As noted previously, in order to provide a conservative assessment of potential impacts due to the Proposed Action, a conceptual construction schedule that includes an overlap of activities at the KEC Eastview Site was used to represent a reasonable worst-case scenario. However, the current anticipated construction schedule would not include these overlaps. The analysis assumes these overlaps in order to provide a more conservative assessment of the potential for impacts. Potential impacts based upon the current anticipated construction schedule would therefore result in lower impacts than those assessed as part of the reasonable worse-case scenario. Based upon this worst-case scenario, the overlapping construction activities at the KEC Eastview Site would result in the need for 292 parking spaces during the Q3 2029 peak quarter. This peak parking demand would occur between 2:30 to 3:30 PM when workers from the 7 AM to 3:30 PM shift are still on site while workers for the 3 to 11:30 PM shift are beginning to arrive. The KEC Eastview Site would provide a minimum of 245 parking spaces but would provide sufficient parking supply for the peak quarter of parking demand by reconfiguring the area south of the secured entrance. In addition, the construction activities occurring in the existing stockpile area would be greatly reduced by this peak quarter, thereby providing additional space for parking north of the secured entrance should overflow parking be required.

Table 3.10-17. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – AM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (secs)**	**LOS**	**V/C Ratio**	**Delay (secs)**	**LOS**
1. Columbus Avenue (CR64) and Westlake Drive – unsignalized							
Westlake Dr – WB	L	0.03	11.0	B	0.00	0.0	A
	R	0.00	0.0	A	0.00	0.0	A
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	LT	0.00	0.2	A	0.00	0.7	A
Overall Intersection			**0.5**	**A**		**0.3**	**A**
2. Columbus Avenue (CR64) and Lakeview Avenue – signalized							
Lakeview Ave – EB	LTR	0.31	22.2	C	0.52	26.3	C
Temporary Driveway – WB	LTR	-	-	-	0.00	0.0	A
Columbus Ave – NB	LTR	0.08	4.2	A	0.13	5.5	A
Columbus Ave – SB	LTR	0.12	3.6	A	0.14	5.0	A
Overall Intersection			**7.3**	**A**		**10.5**	**B**
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive – unsignalized							
Fountain Dr – EB	LTR	0.01	9.7	A	0.01	9.7	A
W. Westlake Dr – WB	L	0.00	0.0	A	0.00	0.0	A
	R	0.04	8.8	A	0.04	8.9	A
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	L	0.03	7.5	A	0.03	7.6	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**1.8**	**A**		**1.7**	**A**
4. Walker Road and KEC Eastview Site Driveway – unsignalized							
Driveway – EB	LTR	0.00	0.0	A	0.00	0.0	A
Eastview Dwy – WB	LTR	0.01	9.7	A	0.05	11.6	B
Walker Rd – NB	L	0.00	0.0	A	0.00	0.0	A
	TR	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	L	0.00	7.6	A	0.05	8.2	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.3**	**A**		**1.6**	**A**
5. Grasslands Road (SR100C) and Old Saw Mill River Road – unsignalized							
Grasslands Rd – WB	LR	0.36	6.3	A	0.36	6.3	A
Old Saw Mill River Rd – NB	T	0.08	4.7	A	0.08	4.7	A
	R	0.04	4.3	A	0.04	4.4	A
Old Saw Mill River Rd – SB	L	0.30	5.4	A	0.31	5.6	A
	T	0.03	0.0	A	0.03	0.0	A
Overall Intersection			**5.4**	**A**		**5.5**	**A**

Table 3.10-17. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – AM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (secs)**	**LOS**	**V/C Ratio**	**Delay (secs)**	**LOS**
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps – unsignalized							
Grasslands Rd – EB	L	0.08	8.7	A	0.08	8.8	A
	T	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – WB	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd Ramp – NB	L	0.04	15.8	C	0.04	16.1	C
	R	0.02	10.3	B	0.07	10.7	B
Overall Intersection			**1.1**	**A**		**1.5**	**A**
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road – signalized							
Grasslands Rd – EB	L	0.09	9.8	A	0.20	17.0	B
	TR	0.15	10.3	B	0.16	10.9	B
Grasslands Rd – WB	L	0.13	5.2	A	0.19	13.5	B
	T	0.53	14.8	B	0.54	15.6	B
	R	0.09	9.9	A	0.16	11.0	B
Clearbrook Rd – NB	LT	0.10	33.8	C	0.09	33.2	C
	R	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	LT	0.42	36.4	D	0.46	36.4	D
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**13.6**	**B**		**15.6**	**B**
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road – unsignalized							
Old Saw Mill River Rd – EB	LTR	0.13	10.0	B	0.14	10.1	B
Hotel Driveway – WB	LTR	0.03	15.9	C	0.03	16.5	C
Saw Mill River Rd – NB	L	0.07	8.5	A	0.07	8.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd – SB	LTR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**1.9**	**A**		**2.0**	**A**
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road – signalized							
Grasslands Rd – EB	L	0.42	7.5	A	0.45	10.2	A
	TR	0.10	2.8	A	0.11	2.8	A
Grasslands Rd – WB	UL	0.00	10.0	A	0.00	9.0	A
	TR	0.66	12.9	B	0.71	14.5	B
Taylor Rd – NB	LTR	0.02	0.0	A	0.02	0.0	A
Woods Rd – SB	LT	0.38	38.4	D	0.39	38.9	D
	R	0.11	0.9	A	0.11	0.9	A
Overall Intersection			**11.7**	**B**		**13.1**	**B**
10. Bradhurst Avenue (SR100) and Lakeview Avenue – unsignalized							
Lakeview Ave – WB	LR	0.07	10.3	B	0.08	10.5	B
Bradhurst Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Bradhurst Ave – SB	LT	0.00	1.1	A	0.00	1.1	A
Overall Intersection			**2.1**	**A**		**1.8**	**A**

Table 3.10-17. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – AM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (secs)**	**LOS**	**V/C Ratio**	**Delay (secs)**	**LOS**
11. Columbus Avenue (CR64) and Legion Drive (CR29) – signalized							
Legion Dr – EB	LR	0.41	17.2	B	0.46	18.8	B
Columbus Ave – NB	LT	0.12	3.8	A	0.15	4.1	A
Columbus Ave – SB	TR	0.20	3.7	A	0.20	3.9	A
Overall Intersection			**6.5**	**A**		**7.1**	**A**
12. Broadway (CR29) and Cleveland Street – unsignalized							
Cleveland St – EB	LTR	0.03	10.8	B	0.03	10.9	B
Broadway – NB	LTR	0.00	0.5	A	0.00	0.5	A
Broadway – SB	LTR	0.00	0.2	A	0.00	0.2	A
Overall Intersection			**0.9**	**A**		**0.9**	**A**
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) – signalized							
Grasslands Rd – EB	UL	0.30	13.5	B	0.37	14.6	B
	T	0.20	15.3	B	0.20	15.0	B
	R	0.13	2.1	A	0.13	2.1	A
Grasslands Rd – WB	L	0.03	11.4	B	0.02	11.3	B
	TR	0.63	30.9	C	0.69	33.8	C
Knollwood Rd – NB	L	0.36	17.6	B	0.40	19.3	B
	TR	0.20	21.1	C	0.25	22.7	C
Bradhurst Ave – SB	L	0.08	15.8	B	0.09	17.0	B
	TR	0.35	19.1	B	0.37	20.3	C
Overall Intersection			**18.9**	**B**		**20.3**	**C**
14. Grasslands Road (SR100) and Legion Drive (CR29) – unsignalized							
Legion Dr – WB	L	0.13	13.1	B	0.14	13.7	B
	R	0.15	10.6	B	0.15	10.9	B
Grasslands Rd – NB	TR	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – SB	LT	0.01	2.2	A	0.01	2.2	A
Overall Intersection			**3.7**	**A**		**3.5**	**A**
15. Hillside Avenue (SR100) and Virginia Road (CR51) – unsignalized							
Virginia Rd – WB	LR	0.25	10.7	B	0.30	11.0	B
Hillside Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Hillside Ave – SB	LT	0.05	4.9	A	0.06	4.9	A
Overall Intersection			**5.8**	**A**		**6.1**	**A**

Table 3.10-17. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – AM Construction Traffic Peak Hour(1)

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (secs)**	**LOS**	**V/C Ratio**	**Delay (secs)**	**LOS**
16. Bronx River Parkway and Virginia Road (CR51) – signalized							
Virginia Rd – EB	LT	0.50	56.8	E	0.50	56.8	E
	R	0.27	46.2	D	0.27	45.9	D
Virginia Rd – WB	LTR	0.31	54.9	D	0.31	54.9	D
Bronx River Pkwy – NB	L	0.18	4.1	A	0.23	4.2	A
	TR	0.09	5.1	A	0.09	5.1	A
Bronx River Pkwy – SB	L	0.06	3.9	A	0.06	4.0	A
	T	0.20	5.8	A	0.20	6.0	A
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**15.1**	**B**		**14.8**	**B**
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue – signalized							
I-287 Ramp – WB	L	0.34	39.0	D	0.32	37.8	D
	R	0.70	45.2	D	0.70	44.1	D
New Saw Mill River Rd – NB	LTR	0.27	8.7	A	0.28	9.4	A
New Saw Mill River Rd – SB	TR	0.40	8.4	A	0.41	8.9	A
Overall Intersection			**22.0**	**C**		**22.0**	**C**
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street – signalized							
Williams St – EB	LTR	0.19	55.2	E	0.19	55.2	E
New Saw Mill River Rd – NB	L	0.17	53.2	D	0.17	53.2	D
	TR	0.41	21.9	C	0.42	22.1	C
New Saw Mill River Road – SB	L	0.29	23.7	C	0.29	23.8	C
	TR	0.20	2.7	A	0.20	2.7	A
Overall Intersection			**17.9**	**B**		**18.1**	**B**

Notes:
(1) Includes the 18 analysis intersections (eight signalized; 10 unsignalized).
MVT = Movement
V/C Ratio = volume-to-capacity ratio
Sec = seconds
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound.
L = Left; T = Thru; R = Right; U = U-turns
Dr = Drive; Ave = Avenue; St = Street; Rd = Road; Pkwy = Parkway; Dwy = Driveway

Table 3.10-18. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – PM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
1. Columbus Avenue (CR64) and Westlake Drive – unsignalized							
Westlake Dr – WB	L	0.08	20.6	C	0.43	29.7	D
	R	0.00	0.0	A	0.03	10.4	B
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	LT	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.4**	**A**		**2.3**	**A**
2. Columbus Avenue (CR64) and Lakeview Avenue – signalized							
Lakeview Ave – EB	LTR	0.48	24.5	C	0.56	27.0	C
Temporary Driveway – WB	LTR	-	-	-	0.06	17.0	B
Columbus Ave – NB	LTR	0.32	6.5	A	0.34	7.5	A
Columbus Ave – SB	LTR	0.39	6.3	A	0.45	7.4	A
Overall Intersection			**8.5**	**A**		**9.7**	**A**
3. Columbus Avenue (CR64) and West Westlake Drive / Fountain Drive – unsignalized							
Fountain Dr – EB	LTR	0.01	14.9	B	0.01	15.6	C
W. Westlake Dr – WB	L	0.02	28.3	D	0.02	30.1	D
	R	0.21	10.7	B	0.21	10.7	B
Columbus Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Columbus Ave – SB	L	0.09	8.5	A	0.09	8.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**2.4**	**A**		**2.3**	**A**
4. Walker Road and KEC Eastview Site Driveway – unsignalized							
Driveway – EB	LTR	0.00	0.0	A	0.00	0.0	A
Eastview Dwy – WB	LTR	0.03	9.8	A	0.41	14.7	B
Walker Rd – NB	L	0.00	0.0	A	0.00	0.0	A
	TR	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	L	0.00	7.5	A	0.00	7.5	A
	TR	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**0.6**	**A**		**5.7**	**A**
5. Grasslands Road (SR100C) and Old Saw Mill River Road – unsignalized							
Grasslands Rd – WB	LR	0.42	7.2	A	0.48	8.2	A
Old Saw Mill River Rd – NB	T	0.18	9.5	A	0.18	9.5	A
	R	0.07	8.0	A	0.07	8.0	A
Old Saw Mill River Rd – SB	L	0.77	15.5	C	0.81	18.9	C
	T	0.13	0.0	A	0.13	0.0	A
Overall Intersection			**10.6**	**B**		**12.5**	**B**

Table 3.10-18. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – PM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
6. Grasslands Road (SR100C) and Saw Mill River Road (SR9A) NB On/Off-Ramps – unsignalized							
Grasslands Rd – EB	L	0.19	9.6	A	0.20	9.9	A
	T	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – WB	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd Ramp – NB	L	0.05	32.1	D	0.06	34.8	D
	R	0.11	14.8	B	0.14	15.1	C
Overall Intersection			**1.7**	**A**		**1.8**	**A**
7. Grasslands Road (SR100C) and Walker Road / Clearbrook Road – signalized							
Grasslands Rd – EB	L	0.03	23.7	C	0.05	29.3	C
	TR	0.55	24.3	C	0.58	28.0	C
Grasslands Rd – WB	L	0.30	24.2	C	0.32	29.0	C
	T	0.75	30.6	C	0.81	37.5	D
	R	0.06	17.1	B	0.06	19.5	B
Clearbrook Rd – NB	LT	0.71	44.6	D	1.05	159.8	F
	R	0.00	0.0	A	0.00	0.0	A
Walker Rd – SB	LT	0.74	38.9	D	0.94	67.7	E
	R	0.00	26.9	C	0.02	25.6	C
Overall Intersection			**28.8**	**C**		**42.8**	**D**
8. Saw Mill River Road (SR9A) and Old Saw Mill River Road – unsignalized							
Old Saw Mill River Rd – EB	LTR	0.55	16.2	C	0.62	18.2	C
Hotel Driveway – WB	LTR	0.12	29.3	D	0.13	32.7	D
Saw Mill River Rd – NB	L	0.11	9.7	A	0.11	9.7	A
	TR	0.00	0.0	A	0.00	0.0	A
Saw Mill River Rd – SB	LTR	0.00	0.1	A	0.00	0.1	A
Overall Intersection			**4.1**	**A**		**4.8**	**A**
9. Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road – signalized							
Grasslands Rd – EB	L	0.22	13.4	B	0.22	13.4	B
	TR	0.65	16.9	B	0.71	18.1	B
Grasslands Rd – WB	UL	0.07	23.7	C	0.09	24.7	C
	TR	0.57	23.3	C	0.58	23.5	C
Taylor Rd – NB	LTR	0.02	0.0	A	0.02	0.0	A
Woods Rd – SB	LT	0.81	38.0	D	0.81	38.2	D
	R	0.23	4.2	A	0.23	4.3	A
Overall Intersection			**21.0**	**C**		**21.6**	**C**
10. Bradhurst Avenue (SR100) and Lakeview Avenue – unsignalized							
Lakeview Ave – WB	LR	0.39	17.1	C	0.49	19.5	C
Bradhurst Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Bradhurst Ave – SB	LT	0.00	1.0	A	0.00	1.0	A
Overall Intersection			**4.3**	**A**		**5.6**	**A**

Table 3.10-18. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – PM Construction Traffic Peak Hour[(1)]

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
11. Columbus Avenue (CR64) and Legion Drive (CR29) – signalized							
Legion Dr – EB	LR	0.76	31.5	C	0.76	31.5	C
Columbus Ave – NB	LT	0.57	13.7	B	0.60	14.8	B
Columbus Ave – SB	TR	0.49	10.4	B	0.53	11.1	B
Overall Intersection			**16.9**	**B**		**17.3**	**B**
12. Broadway (CR29) and Cleveland Street – unsignalized							
Cleveland St – EB	LTR	0.18	19.2	C	0.19	19.8	C
Broadway – NB	LTR	0.00	0.7	A	0.00	0.7	A
Broadway – SB	LTR	0.00	0.5	A	0.00	0.5	A
Overall Intersection			**1.6**	**A**		**1.6**	**A**
13. Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A) – signalized							
Grasslands Rd – EB	UL	0.69	26.1	C	0.69	26.1	C
	T	0.53	27.1	C	0.56	27.8	C
	R	0.29	2.4	A	0.29	2.4	A
Grasslands Rd – WB	L	0.19	14.3	B	0.20	14.4	B
	TR	0.88	51.2	D	0.88	51.2	D
Knollwood Rd – NB	L	0.73	40.1	D	0.83	52.0	D
	TR	0.52	37.1	D	0.53	37.3	D
Bradhurst Ave – SB	L	0.22	23.7	C	0.22	23.7	C
	TR	0.98	75.6	E	1.09	103.7	F
Overall Intersection			**38.8**	**D**		**45.7**	**D**
14. Grasslands Road (SR100) and Legion Drive (CR29) – unsignalized							
Legion Dr – WB	L	0.61	40.0	E	0.64	43.4	E
	R	0.22	11.5	B	0.22	11.5	B
Grasslands Rd – NB	TR	0.00	0.0	A	0.00	0.0	A
Grasslands Rd – SB	LT	0.04	2.4	A	0.04	2.3	A
Overall Intersection			**6.9**	**A**		**7.1**	**A**
15. Hillside Avenue (SR100) and Virginia Road (CR51) – unsignalized							
Virginia Rd – WB	LR	0.92	52.4	F	0.99	67.8	F
Hillside Ave – NB	TR	0.00	0.0	A	0.00	0.0	A
Hillside Ave – SB	LT	0.19	5.9	A	0.21	6.1	A
Overall Intersection			**21.4**	**C**		**26.5**	**C**

Table 3.10-18. Future With the Proposed Action vs. Future Without the Proposed Action Traffic Levels of Service (LOS) – PM Construction Traffic Peak Hour(1)

		Future without the Proposed Action			Future with the Proposed Action		
Approach	**Lane Group**	**V/C Ratio**	**Delay (sec)**	**LOS**	**V/C Ratio**	**Delay (sec)**	**LOS**
16. Bronx River Parkway and Virginia Road (CR51) – signalized							
Virginia Rd – EB	LT	0.81	55.0	E	0.82	55.4	E
	R	0.38	34.3	C	0.43	34.6	C
Virginia Rd – WB	LTR	0.41	37.0	D	0.41	36.7	D
Bronx River Pkwy – NB	L	0.31	12.5	B	0.31	12.7	B
	TR	0.43	17.8	B	0.44	18.1	B
Bronx River Pkwy – SB	L	0.10	13.9	B	0.10	14.2	B
	T	0.26	17.1	B	0.27	17.5	B
	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection			**25.2**	**C**		**25.6**	**C**
17. New Saw Mill River Road (SR9A) and Cross Westchester Expressway (I-287) WB On/Off-Ramps / White Plains Avenue – signalized							
I-287 Ramp – WB	L	0.66	53.8	D	0.66	53.8	D
	R	0.90	62.3	E	0.90	62.7	E
New Saw Mill River Rd – NB	LTR	0.58	12.1	B	0.59	12.5	B
New Saw Mill River Rd – SB	TR	0.76	13.6	B	0.78	14.3	B
Overall Intersection			**25.1**	**C**		**25.5**	**C**
18. New Saw Mill River Road (SR9A) and Frontage Street / Williams Street – signalized							
Williams St – EB	LTR	0.15	52.7	D	0.15	52.7	D
New Saw Mill River Rd – NB	L	0.10	52.5	D	0.10	52.5	D
	TR	0.69	29.0	C	0.69	29.2	C
New Saw Mill River Rd – SB	L	0.56	27.1	C	0.58	27.3	C
	TR	0.55	4.5	A	0.55	4.5	A
Overall Intersection			**21.1**	**C**		**21.3**	**C**

Notes:
(1) Includes the 18 analysis intersections (eight signalized; 10 unsignalized).
Gray highlighted cell denote movement would be significantly impacted due to the Proposed Action.
MVT = Movement
V/C Ratio = volume-to-capacity ratio
Sec = seconds
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound.
L = Left; T = Thru; R = Right; U = U-turns
Dr = Drive; Ave = Avenue; St = Street; Rd = Road; Pkwy = Parkway

For the Kensico Campus, the peak parking demand would occur during Q4 2027. The peak hour parking demand of 176 parking spaces would also occur between 2:30 to 3:30 PM when there is a shift overlap and would be accommodated by the approximately 206 surface parking spaces provided on the Kensico Campus.

As part of the Proposed Action, Westlake Drive would be closed to the public. The closure is expected to begin in early 2025, however access to the roadway would be maintained for construction-related vehicles and emergency vehicles. Construction of the relocated Westlake Drive would be expected to be completed in 2025 and would include a new 30-space parking lot that would replace a comparable number of curbside spaces that are currently used along Westlake Drive. If there is a demand for parking above this level, parking spaces would be available on-street nearby. Therefore, the Proposed Action is not expected to result in a parking shortfall.

3.10.5.3 Safety Conditions

The Proposed Action would result in an increase in traffic volumes within the study area roadway network during the construction period. As discussed in Section 3.10.3.3, "Safety Conditions," 12 of the 18 analysis intersections reported on average less than five accidents per year which is typically the basis for identifying an accident trend. An assessment of the safety conditions at the remaining six intersections is provided below, along with measures that could potentially reduce the number of accidents at these intersections. As the Proposed Action would result in an increase in traffic volumes of no more than nine percent during the construction traffic peak hours (which are earlier than the commuter traffic peak hours when traffic volumes are higher) at the intersections discussed below, traffic volumes in the future with the Proposed Action would not be expected to contribute materially to the frequency of accidents; therefore, improvements would not be required as part of the Proposed Action. Furthermore, the traffic increases discussed are based on the peak quarter of construction activities and would be lower during all other periods of construction.

Intersection #8, Saw Mill River Road (SR9A) and Old Saw Mill River Road

The Proposed Action would result in an increase of 38 vehicles during the AM construction traffic peak hour and 48 vehicles during the PM construction traffic peak hour during the peak quarter of construction activity at this unsignalized intersection (Q4 2027). This would result in approximately five percent and three percent increases, respectively, in traffic volumes from the future without the Proposed Action. Based on a review of the accident data, the most frequently reported accidents were rear-end crashes along Saw Mill River Road. Measures that could help improve traffic safety at this intersection could include installation of signage to inform motorists of this upcoming intersection, particularly along southbound Saw Mill River Road as motorists approaching from this direction have less time to react to a stopped vehicle ahead due to the physical geometry of the intersection. However, as the traffic volume increment is modest and

would not exceed the *CEQR Technical Manual* thresholds for traffic analysis, the Proposed Action would not be expected to materially contribute to accidents at this intersection.

Intersection #9, Grasslands Road (SR100C) and Woods Road (CR300) / Taylor Road

The Proposed Action would result in an increase of 108 vehicles during the AM construction traffic peak hour and 102 vehicles during the PM construction traffic peak hour at this signalized intersection (Q3 2029). This would result in approximately eight percent and five percent increases, respectively, in traffic volumes from the future without the Proposed Action. The additional vehicles would travel along Grasslands Road. Based on a review of the accident data, the most frequently reported accidents were rear-end crashes with most of these crashes occurring along the eastbound Grasslands Road approach. As there is no immediate upstream traffic signal along eastbound Grasslands Road, a measure that could potentially improve traffic safety at this intersection could include installation of signage to inform motorists of the upcoming traffic signal at this intersection.

Intersection #13, Grasslands Road (SR100C/SR100) and Bradhurst Avenue (SR100) / Knollwood Road (SR100A)

The Proposed Action would result in an increase of 61 vehicles during the AM construction traffic peak hour and 66 vehicles during the PM construction traffic peak hour at this signalized intersection (Q4 2027). This would result in approximately eight percent and three percent increases, respectively, in traffic volumes from the future without the Proposed Action. Based on a review of the accident data, the two most frequent types of accidents at this intersection were rear-end and overtaking crashes. These accidents may be attributed to the number of turn lanes and decision points along the eastbound Grasslands Road and northbound Knollwood Road approaches, and the lack of an immediate upstream traffic signal along the westbound Grasslands Road approach. Measures to potentially improve traffic safety at this intersection could include installation of signage along eastbound Grasslands Road in advance of the intersection detailing the destinations for each of the three travel lanes, installation of signage along northbound Knollwood Road to detail the turn lane designation in advance of the intersection, and installation of signage along the westbound Grasslands Road approach to inform motorists of the upcoming traffic signal at this intersection.

Intersection #14, Grasslands Road (SR100) and Legion Drive (CR29)

The Proposed Action would result in an increase of 40 vehicles during the AM construction traffic peak hour and 28 vehicles during the PM construction traffic peak hour at this unsignalized intersection (Q3 2029). This would result in approximately eight percent and two percent increases, respectively, in traffic volumes from the future without the Proposed Action. Based on a review of the accident data, the most frequently reported accidents were rear-end crashes along Grasslands Road. Signage is provided along both Grasslands Road

approaches warning motorists of the intersection. Installation of additional signage warning motorists to watch for stopped traffic ahead along both Grasslands Road approaches could potentially improve traffic safety at this intersection. However, as the traffic volume increment is modest and would not exceed the *CEQR Technical Manual* thresholds for traffic analysis, the Proposed Action would not be expected to materially contribute to accidents at this intersection.

Intersection #15, Hillside Avenue (SR100) and Virginia Road (CR51)

The Proposed Action would result in an increase of 40 vehicles during the AM construction traffic peak hour and 28 vehicles during the PM construction traffic peak hour at this unsignalized intersection (Q3 2029). This would result in approximately nine percent and three percent increases, respectively, in traffic volumes from the future without the Proposed Action. Based on a review of the accident data, the most frequently reported accidents were rear-end crashes along the westbound Virginia Road approach as approaching vehicles collide with an unexpected, stopped vehicle ahead trying to find a gap to make a right or left turn. Measures to potentially improve traffic safety at this intersection could include installation of signage informing motorists to watch for stopped traffic ahead. However, as the traffic volume increment is modest and would not exceed the *CEQR Technical Manual* thresholds for traffic analysis, the Proposed Action would not be expected to materially contribute to accidents at this intersection.

Intersection #16, Bronx River Parkway and Virginia Road (CR51)

The Proposed Action would result in an increase of 39 vehicles during the AM construction traffic peak hour and 37 vehicles during the PM construction traffic peak hour at this signalized intersection (Q3 2029). This would result in approximately four percent and two percent increases, respectively, in traffic volumes from the future without the Proposed Action. Based on a review of the accident data, the most frequently reported accidents were rear-end crashes with most of these crashes occurring along the northbound and southbound Bronx River Parkway approaches. As there is no immediate upstream traffic signal along the northbound approach, a measure that could potentially improve traffic safety at this intersection could include installation of signage to inform motorists of the upcoming traffic signal at this intersection. However, as the traffic volume increment is modest and would not exceed the *CEQR Technical Manual* thresholds for traffic analysis, the Proposed Action would not be expected to materially contribute to accidents at this intersection.

3.10.5.4 Emergency Vehicles

The Proposed Action is not expected to generate a substantial volume of traffic nor an amount of vehicular delay that would have a significant effect on emergency vehicle access within the street network analyzed. As described earlier in Section 3.10.2.4, “Screening Assessment,” the Proposed Action is expected to generate approximately 284 vehicle trips during the AM

construction traffic peak hour and 270 vehicle trips during the PM construction traffic peak hour, and distributed between the Kensico Campus and the KEC Eastview Site. The construction peak hours are earlier than the commuter peak hours and have lower existing background traffic; construction-related traffic during the commuter peak hours are substantially lower than during the construction traffic peak hours. The construction-related vehicle trips, composed of both construction worker trips by car and construction-related truck trips, would be distributed from their various origins to the Kensico Campus and the KEC Eastview Site and would not be fully concentrated along any specific routes or any one intersection.

As discussed in Section 3.2, "Community Facilities and Services," emergency services are located near the Kensico Campus and the KEC Eastview Site and emergency vehicles would use the same routes as construction-related traffic.

Kensico Campus

Emergency services near the Kensico Campus are provided primarily along Columbus Avenue including the Mount Pleasant Police Department at Stevens Avenue to the north of the construction site and the Valhalla Fire Department which has two fire companies near the construction site – one north of the construction site and one to the south at Legion Drive. The Valhalla Volunteer Ambulance Corporation, which provides services as part of the Valhalla EMS, is located on West Westlake Drive to the east of Columbus Avenue.

The future with the Proposed Action assessments presented above do not identify significant traffic impacts during the AM construction traffic peak hour at the 18 analysis intersections. During the PM construction traffic peak hour, none of the traffic impacts identified were along the Columbus Avenue corridor. Furthermore, the traffic movements analyzed along Columbus Avenue, which would be the main roadway used by emergency vehicles, would be expected to operate at LOS A and LOS B conditions in the future with the Proposed Action (similar to the future without the Proposed Action). Traffic movements at intersections with acceptable levels of service operate with very low delays and most vehicles do not stop at all. Therefore, the Proposed Action would not have significant effects on emergency vehicle movements in this area.

In addition, emergency vehicles always have priority access over all other non-emergency traffic. Emergency vehicles, with lights flashing and horns blaring, have the ability to go around traffic slowing or stopped in front of them or to use adjacent lanes to expeditiously reach their destination.

KEC Eastview Site

The emergency services near the KEC Eastview Site include the Grasslands Fire Brigade located on Dana Road to the northwest of the construction site, the Westchester County Police Academy

located to the west of the construction site, the DEP Police located within the southwest corner of the KEC Eastview Site, and the Westchester County Medical Center to the northeast of the construction site.

The future with the Proposed Action analyses presented above do not identify any significant traffic impacts during the AM construction traffic peak hour at the 18 analysis intersections, signifying that the increase in traffic delays resulting from the Proposed Action would not significantly affect traffic operations. During the PM construction traffic peak hour, significant traffic impacts were identified at three intersections along Grasslands Road and along Hillside Avenue which Grasslands Road transitions to east of the KEC Eastview Site. However, these significant impacts were identified for the minor street, i.e., not along Grasslands Road, or in the non-peak direction of travel for responding emergency vehicles. One of the impacts was identified at the southbound Walker Road shared left-through movement and may be used by fire and police emergency services. Traffic improvement measures identified in Chapter 9, "Mitigation," are proposed to improve traffic conditions along this approach during construction. Under the future with the Proposed Action, traffic movements along the Grasslands Road and Saw Mill River Road approaches would operate at acceptable traffic levels of service similar to the future without the Proposed Action, and most vehicles traveling along these corridors would be able to pass through the intersections without stopping. Therefore, the Proposed Action would not have significant effects on emergency vehicle movements in this area.

3.11 AIR QUALITY

3.11.1 INTRODUCTION

The purpose of this section is to examine the potential effects of the Proposed Action on local and regional air quality. The analysis focuses on potential air quality impacts due to and during the construction of the Proposed Action. The potential air quality impacts once construction of the Proposed Action is completed and the proposed facilities are operational are discussed in Chapter 2, "Analytical Framework."

The construction of the Proposed Action requires the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment typically includes equipment operating on a site such as cranes, front-end loaders, excavators, and bulldozers. On-road vehicles include construction delivery trucks, dump trucks, and worker vehicles arriving to and departing from the Kensico Campus and KEC Eastview Site, as well as operating on site. Emissions from on-site construction equipment operation and on-road construction vehicles traveling to and from the Kensico Campus and KEC Eastview Site have the potential to affect air quality. In addition, emissions from dust-generating construction activities (i.e., truck loading and unloading operations) also have the potential to affect air quality.

A quantitative analysis consistent with the *CEQR Technical Manual* and other applicable requirements was completed in order to assess the potential for significant adverse impacts due to air emissions generated as part of the construction of the Proposed Action. The analyses summarized in this section are based on the projected construction equipment and the volume of construction worker and truck trips during the peak quarter of construction activities at both the Kensico Campus and KEC Eastview Site. The analysis included evaluating consistency with federal, State, county, and local regulations. This section includes a description of the pollutants of concern, emissions estimation and modeling approaches, data and assumptions used in the analyses, and estimated pollutant concentrations in the future without and with the Proposed Action.

3.11.2 METHODOLOGY

The air quality analyses applied for the Proposed Action primarily follow the overall procedures and methodologies found in the *CEQR Technical Manual*.

In order to provide a conservative assessment of potential impacts due to the Proposed Action, a construction schedule that includes an overlap of activities at the KEC Eastview Site was used to represent a reasonable worst-case scenario. While the currently anticipated construction schedule would not include these overlaps, the analysis assumes these overlaps in order to provide a more conservative assessment of the potential for impacts. Potential impacts based upon the current anticipated construction schedule would therefore result in less potential impacts than those assessed as part of the reasonable worse-case scenario discussed herein.

3.11.2.1 Pollutants of Concern

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed sources are referred to as stationary source emissions. Pollutants of concern are those for which national ambient air quality standards (NAAQS) have been established. The Clean Air Act (CAA) required that the EPA establish NAAQS for six pollutants considered to be harmful to public health and the environment. The six contaminants referred to as criteria pollutants (Title 40 Code of Federal Regulations [CFR] Part 50) are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) which includes both PM_{10} and $PM_{2.5}$, and sulfur dioxide (SO_2), as described below.

During construction, much of the heavy equipment is powered by diesel engines which can produce relatively high levels of nitrogen oxides (NO_x) and PM emissions, primarily $PM_{2.5}$. $PM_{2.5}$ consists of particles with an aerodynamic diameter of less than or equal to 2.5 micrometers (µm). Dust generated by construction activities is also a source of PM emissions, primarily PM_{10}. PM_{10} consists of particles with an aerodynamic diameter of less than or equal to 10 µm. Similarly, gasoline engines produce relatively high levels of CO. As a result,

the primary air pollutants of concern for construction activities include CO, NO_2 (the component of NO_x that is a regulated pollutant), PM_{10} and $PM_{2.5}$.

Carbon Monoxide (CO)

Ambient concentrations of CO, a colorless and odorless gas, are produced in an urban environment primarily by the incomplete combustion of gasoline and other fossil fuels from mobile source emissions. Gasoline engines produce relatively high levels of CO. CO concentrations can disperse quickly over relatively short distances; therefore, elevated concentrations are usually limited to locations near crowded intersections and along heavily traveled and congested roadways. Consequently, CO concentrations are generally analyzed on a local "microscale" basis. For projects with combustion sources (both stationary and mobile), such as the Proposed Action, it is appropriate to examine the potential impact on CO concentrations.

Lead (Pb)

Lead emissions are primarily associated with industrial sources and gasoline containing lead additives. Use of leaded gasoline in on-road vehicles has been banned since 1996 and motor vehicle-related lead emissions have ceased to be a concern. The Proposed Action would not produce significant new sources of lead, and therefore no further analysis is warranted.

Nitrogen Oxides (NO_x)

NO_x are emitted from mobile and stationary sources. The NO_x mobile emissions are related to vehicle miles traveling through the New York metropolitan region and require a regional microscale analysis.

NO_2, a component of NO_x, is mostly formed from the transformation of nitric oxide (NO) in the atmosphere. NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source; therefore, NO_2 has generally been of concern downwind from large stationary point sources, and not a local concern from mobile sources.

In general, much of the heavy equipment used in construction is powered by diesel engines which can produce relatively high levels of NO_x. As a result, for projects with combustion sources such as the Proposed Action, it is appropriate to examine the potential impact on NO_2 concentrations.

Ozone (O_3) and Its Precursors (Hydrocarbons and Nitrogen Oxides)

NO_x and hydrocarbons (volatile organic compounds [VOCs]) are precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Elevated ozone levels are often found miles from the sources of NO_x and

VOCs because the reactions are slow and occur as the pollutants are transported downwind. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any proposed action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM is emitted into the atmosphere from a variety of sources. The primary respirable particles of concern are $PM_{2.5}$ and PM_{10}. Due to its small diameter, $PM_{2.5}$ is extremely persistent in the atmosphere. It also has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that may adsorb to the surfaces of these particles.

Gasoline and diesel-powered vehicles, especially heavy-duty trucks and equipment used in construction which use diesel fuel, are significant sources of respirable PM, most of which is $PM_{2.5}$. Dust generated by construction activities is also a source of PM emissions, primarily PM_{10}. The primary air pollutants of concern for construction activities therefore include PM_{10} and $PM_{2.5}$.

Sulfur Dioxide (SO_2)

Emissions of SO_2 are associated mainly with the combustion of oil and coal at stationary sources. The EPA implemented a major reduction in the sulfur content of diesel fuel with full compliance attained in 2010. Ultra-low-sulfur diesel (ULSD) fuel with a maximum sulfur content of 15 parts per million (ppm) is now used for all diesel engines, so the concentration of sulfur oxides (SO_x) potentially emitted from construction activities would be negligible. No significant SO_2 emissions would occur due to construction activities associated with the Proposed Action and therefore no further analysis is warranted.

Non-Criteria Pollutants

Non-criteria pollutants are pollutants for which the EPA has no established standards. The NYSDEC publishes maximum allowable guideline concentrations for non-criteria pollutants (NYSDEC 2016). Guidelines are provided as Annual and Short-term Guidance Concentrations (asts and SGCs), respectively for potentially toxic or carcinogenic air contaminants. Non-criteria pollutants result mostly from industrial processes. As air quality emissions for the Proposed Action would be associated with construction, rather than any industrial process, there would be no significant non-criteria pollutant emissions and therefore no further analysis is warranted.

3.11.2.2 Air Quality Standards, Regulations, and Guidance Thresholds

National and State Ambient Air Quality Standards (NAAQS)

The NAAQS are comprised of primary and secondary standards, as shown in **Table 3.11-1**. The primary standards were established to protect human public health. Typical sensitive land uses and associated sensitive receptors protected by the primary standards include publicly accessible areas, such as residences, hospitals, libraries, churches, parks, playgrounds, and schools. The secondary standards were established to protect the environment, including plants and animals, from adverse effects associated with pollutants in the ambient air. As shown, NAAQS for CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and SO_2 are provided based on short-term averaging times (i.e., 1-hour, 3-hour, 8-hour, and 24-hour). NAAQS based on long-term averaging times (i.e., 3 month and annual) are also provided for Pb, NO_2, and $PM_{2.5}$.

When measured concentrations of regulated pollutants exceed standards established by the NAAQS, an area could be designated as a nonattainment area (NAA) for a regulated pollutant. The number of exceedances and the pollutant concentrations determine the nonattainment classification of an area.

The NAAQS for CO, annual NO_2, and 3-hour SO_2 have also been adopted as the ambient air quality standards for New York State, but are defined on a running 12-month basis rather than by calendar year. New York State also has standards for total suspended particles, settleable particles, non-methane hydrocarbons (NMHC), 24-hour and annual SO_2, and O_3 that correspond to federal standards that have since been revoked or replaced (Title 6 New York Codes, Rules and Regulations [NYCRR] Part 257).

The federal and State air quality standards listed in **Table 3.11-1** have also been adopted for use in the assessment of potential impacts resulting from proposed actions by the DEP as provided in the *CEQR Technical Manual*.

Table 3.11-1. National and New York State Air Quality Standards for Criteria Pollutants

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	1-hour	35 ppm	Not to be exceeded more than once per year
			8-hour	9 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3-month average	0.15 $\mu g/m^3$(1)	Not to be exceeded
Nitrogen Dioxide (NO_2)		Primary	1-hour	100 ppb	98th percentile, averaged over 3 years
		Primary and Secondary	Annual	53 ppb(2)	Annual mean
Ozone (O_3)		Primary and Secondary	8-hour	0.070 ppm(3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate Matter (PM)	$PM_{2.5}$	Primary and Secondary	24-hour	35 $\mu g/m^3$	98th percentile, averaged over 3 years
		Primary	Annual	12 $\mu g/m^3$	Annual mean, averaged over 3 years
		Secondary	Annual	15 $\mu g/m^3$	Annual mean, averaged over 3 years
	PM_{10}	Primary and Secondary	24-hour	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1-hour	75 ppb(4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Notes:

ppm = parts per million; ppb = parts per billion; $\mu g/m^3$=micrograms per cubic meter.

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 $\mu g/m^3$ as a calendar quarter average) also remain in effect.

(2) The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of a clearer comparison to the 1-hour standard of 100 ppb.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet one year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a State Implementation Plan (SIP) call under the previous SO_2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a State to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.

Sources: USEPA 2021a, NYSDEC 2021.

NAAQS Attainment and State Implementation Plan

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

The CAA requires that air pollution emissions from federal actions do not contribute to State air quality violations. Conformity is defined as conformity to the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving the expeditious attainment of such standards, and ensuring that the federal action will not: (1) cause or contribute to any new violation of any standard in any area; (2) increase the frequency or severity of any existing violation of any standard in any area; or (3) delay the timely attainment of any standard or any interim emission reductions or other milestones in any area (Section 176(c) of CAA).

The EPA has promulgated criteria and procedures to determine the conformity of federal projects and ascertain whether a proposed project would interfere with the goals stipulated in the SIP. Federal assistance is prohibited to projects that are not in conformance with the SIP. These criteria and procedures are referred to as "general conformity" rules (40 CFR Part 93 Subpart B). The general conformity requirements only apply to areas that are in nonattainment or maintenance for criteria pollutants.

The location of the Proposed Action is in the Town of Mount Pleasant, Westchester County. Westchester County as part of the New York metropolitan area is designated by the EPA as a serious nonattainment area for the 2008 8-hour O_3 NAAQS, a moderate nonattainment area for the 2015 8-hour O_3 NAAQS, and a maintenance area (former nonattainment area) for CO and $PM_{2.5}$.

General Conformity Rule (GCR) Applicability Analysis

The EPA published final rules on general conformity (40 CFR Parts 51 and 93) in the Federal Register on November 30, 1993, and subsequently revised the rules on March 24, 2010. The rules apply to federal actions in nonattainment or maintenance areas for any of the applicable criteria pollutants. The rules specify *de minimis* emission levels by pollutant to determine the applicability of conformity requirements for a project on a local level.

A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. The GCR would apply to the Proposed Action because project elements, such as removal of accumulated sediments, would require an approval from the USACE and the Proposed Action would take place in an area

currently designated as a nonattainment area for O_3 and a maintenance area for CO and $PM_{2.5}$. The pollutants of concern per the GCR are CO, $PM_{2.5}$, and the O_3 precursors, NO_x and VOCs.

The GCR requires that potential emissions generated by an activity associated with the above elements be determined on an annual basis and compared to the annual *de minimis* levels for those pollutants (or their precursors) for which the area is designated as nonattainment or maintenance. If estimated annual emissions are below the respective *de minimis* threshold, potential air quality impacts are deemed to be less than significant and a formal GCR determination is not required. Because Westchester County is within the New York metropolitan area that has been classified as a serious nonattainment area for the 2008 8-hour O_3, a moderate nonattainment area for the 2015 8-hour O_3 NAAQS, and a maintenance area for CO and $PM_{2.5}$ NAAQS, the de minimis levels are 50 tons for VOCs or NO_x, and 100 tons each for CO and $PM_{2.5}$. However, Westchester County is also included in a severe nonattainment area for the prior (revoked) 1-hour O_3 NAAQS, and therefore is subject to a lower general conformity threshold of 25 tons/year due to CAA anti-backsliding requirements.

Air Quality Impact Thresholds

The SEQRA regulations and the *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large, or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.

The *CEQR Technical Manual* (Chapter 22) provides the criteria for evaluation of impacts due to construction lasting longer than two years. In order to maintain ambient concentrations below the NAAQS in attainment areas or to ensure that concentrations will not be significantly increased in nonattainment areas, threshold levels (*de minimis* criteria), as described below, have been defined for certain pollutants.

De Minimis Criteria

In addition to the NAAQS, for CO from mobile sources and $PM_{2.5}$, the *CEQR Technical Manual de minimis* criteria were used as screening thresholds for construction impacts. Additional detailed modeling was required if these thresholds are exceeded. The significance of the construction impacts is determined based on the duration, magnitude, and affected area of the construction impacts.

The predicted $PM_{2.5}$ concentrations were compared with the following *de minimis* criteria:

- Predicted 24-hour maximum $PM_{2.5}$ concentration increase of more than half the difference between the 24-hour background concentration and the 24-hour standard;

- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.1 µg/m3 at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or for mobile sources, at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood-scale monitoring stations); and
- Predicted annual average $PM_{2.5}$ concentration increments greater than 0.3 µg/m3 at any receptor location for stationary sources.

In addition, for CO from mobile sources increases less than the following would be considered *de minimis* and insignificant:

- An increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted future without the Proposed Action 8-hour concentration is equal to 8 ppm or between 8 ppm and 9 ppm; or
- An increase of more than half the difference between baseline (i.e., future without the Proposed Action) concentrations and the 8-hour standard, when future without the Proposed Action concentrations are below 8 ppm.

3.11.2.3 Stationary Sources

In order to determine the peak air emissions that would be potentially generated by the Proposed Action, a detailed projection of construction activities was developed for each quarter of the construction period. Construction of the Proposed Action would be initiated ~~in~~ around January 2024 and is anticipated to be completed in 2033. Start-up and commissioning for the Proposed Action would commence towards the end of construction and would last approximately 13 months. The phases, duration, and overlap of construction activities and construction equipment usage were identified for each quarter of construction at the Kensico Campus and KEC Eastview Site.

Peak Construction Period

On-site construction activities are considered stationary source activities. These included stationary equipment, such as cranes, generators and compressors, as well as on-site moving equipment or vehicles such as excavators and trucks. As these construction activities would occur over multiple years, the reasonable worst-case periods for the pollutants of concern (CO, NO_2, and PM) were determined throughout the duration of construction on an 'annual average' and a 'peak day' basis. The $PM_{2.5}$ worst-case periods were used to represent $PM_{2.5}$, CO, and annual NO_2, with PM_{10} and NO_2 short-term averaging periods evaluated separately. $PM_{2.5}$ was selected for determining the worst-case periods for CO and annual NO_2 because the ratio of predicted $PM_{2.5}$ incremental concentrations due to on-site construction activities is considered

higher than for the other pollutants. CO and NO_2 would generally have similar emissions patterns to $PM_{2.5}$ based on the equipment type and size used for construction. The list of non-electrical equipment to be used at the construction sites in various construction phases is provided in **Table 3.11-2**.

The methodology to estimate construction monthly peak and annual emissions rates consisted of:

- Estimating construction equipment engine emission factors for each future model year from 2024 through 2031 (the period when the majority of activities occur) using EPA's Motor Vehicle Emission Simulator (MOVES), version MOVES2014b (EPA 2018), in association with Westchester County input parameters provided by NYSDEC.
- Conservatively applying emission factors estimated for 2031 for the years 2032 and 2034, the last construction year which would have limited activities that would not be sensitive in determining the short-term and long-term peak periods.
- Multiplying the emission factors by equipment horsepower, load factor (average power load as compared to rated power), time usage factors (fraction of the hours each equipment engine would be expected to work based on currently available design information) if available, and the quantity/number to be utilized on site for each aboveground equipment type.

Based on the predicted NO_2, $PM_{2.5,}$ and PM_{10} emission rate profiles, the construction peak periods that were selected for detailed stationary dispersion modeling are listed below. As previously stated, the NAAQS for CO, NO_2, PM_{10}, and $PM_{2.5}$ are provided based on short-term averaging times (i.e., 1-hour, 8-hour, and 24-hour). NAAQS based on long-term averaging times (i.e., annual) are also provided for $NO_{2,}$ and $PM_{2.5}$. Therefore, construction peak periods for both short-term and long-term averaging times were identified. Note that the peak monthly emission rates used for modeling of short-term averaging times may occur in a different year than the year with the peak annual emission rate. Differences can occur as a result of one year having a high monthly emission rate but over the course of the 12 months in that year, resulting in a lower annual average as compared to another year.

Kensico Campus

- Short-term (NO_2): December 2026
- Short-term (CO, $PM_{2.5}$, PM_{10}): November 2027
- Long-term: 2027

KEC Eastview Site

- Short-term (PM_{10}): October 2029
- Short-term (CO, $PM_{2.5}$, NO_2): June 2029
- Long-term: 2029

Stationary Source Analysis

The proposed on-site construction activities would generate pollutant emissions from sources including, but not limited to, excavators, front-end loaders, cranes, conveyors, generators, soil stockpiles, dump trucks, and material handling processes.

The following on-site emission sources were considered in the analysis:

- Diesel engine exhaust from trucks and non-road construction equipment (see **Table 3.11-2**).
- Surface fugitive dust resulting from the movement of trucks and non-road equipment.
- Dust from material handling activities, including soil stockpiles.

For construction activities, the air quality effects of stationary source emissions were analyzed through a dispersion modeling analysis using the EPA AERMOD model (Version 22112). The analysis considered the applicable criteria air pollutants modeled concentrations in comparison to NAAQS and *de minimis* criteria and the duration of the potential impacts. As previously discussed, the criteria pollutants analyzed for the construction of the Proposed Action consisted of CO, NO_2, PM_{10}, and $PM_{2.5}$. The model-predicted concentrations of criteria pollutants during construction activities were added to the most recent NYSDEC measured background concentrations to estimate total concentrations in the future with the Proposed Action for comparison with the NAAQS for these pollutants. In addition, where applicable, the model-predicted concentrations of criteria pollutants during construction activities were compared to the *de minimis* criteria. The magnitude and duration of the potential impacts were considered when determining if the potential impacts were considered significant. EPA's recommended method of using multi-year averages of the 98^{th} percentile of the available background concentrations by season and hour-of-day were implemented in the total 1-hour NO_2 assessment.

Table 3.11-2. Typical On-Site Construction Equipment List[1]

Equipment	Estimated Horsepower	Fuel	Load Factor[2]	Typical Time Usage Factor	
				Peak Daily Average Use[3]	Long-term Average Use[4]
Articulated Dump Truck	447	Diesel	0.59	80%	95%
Compressors - Surface Tools	275	Diesel	0.43	75%	100%
Combination Roller	123	Diesel	0.59	75%	75%
Concrete Pump - General	250	Diesel	0.43	50%	100%
Concrete Pump - Tunnel Grout	630	Diesel	0.43	100%	60%
Crane - All-Terrain (80 tons)	175	Diesel	0.43	50%	95%
Crane - Crawler (100 tons)	603	Diesel	0.43	50%	100%
Bulldozer	215	Diesel	0.59	80%	95%
Drill Rig	38	Diesel	0.43	100%	100%
Dump Truck	300	Diesel	0.59	100%	100%
Excavator - Long Reach, Tracked	203	Diesel	0.59	75%	100%
Excavator - Mini-Excavator	84	Diesel	0.59	80%	95%
Front-End Loader - Wheeled, mid-size	197	Diesel	0.59	75%	100%
Generator (110 hp)	110	Diesel	0.43	100%	50%
Generator (60 hp)	60	Diesel	0.43	40%	80%
Generator (10 hp)	10	Diesel	0.43	40%	80%
Grinder	1,200	Diesel	0.43	50%	50%
Grout Mixer and Pump	7	Diesel	0.43	100%	100%
Jet Grout - Drill Rig	256	Diesel	0.43	35%	100%
Jet Grout - High Pressure Pump	540	Diesel	0.43	35%	100%
Paver	142	Diesel	0.59	75%	90%
Pile Driving Hammer	21	Diesel	0.43	80%	95%
Pneumatic Roller	133	Diesel	0.59	75%	90%
Pump - General, Water	8	Gasoline	0.43	100%	100%
Shotcrete Pump	197	Diesel	0.43	35%	100%
Skid Steer	74	Diesel	0.21	85%	75%
Telescopic Boom - Self-Propelled	75	Diesel	0.21	50%	100%
Telescopic Forklift Handler	101	Diesel	0.63	80%	95%
Vibratory Hammer	595	Diesel	0.43	50%	75%
6-inch Diver Operated Dredger (DAE Pump)	100	Diesel	0.43	100%	100%
Booster Pump	125	Diesel	0.43	100%	100%
Sludge Pump	125	Diesel	0.43	100%	100%
Light Tower	11	Diesel	0.43	100%	100%
Light Tower - Generators	75	Diesel	0.43	100%	100%

Notes:

(1) This equipment list includes anticipated combustion sources that would be used on the sites during construction based upon the currently anticipated design. Electrical equipment are not listed.

(2) The "Load Factor" represents the estimated percentage of time that the piece of equipment would be utilized at full load or maximum (rated) power. The factors are based on Appendix A of "Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling," July 2010, EPA-420-R-10-016.

(3) The "Peak Daily Average Use" represents the estimated percentage of time that the piece of equipment is in use during an average peak day or construction shift.

(4) The "Long-term Average Use" represents the estimated percentage of time that the piece of equipment is in use during the entire duration of the construction project that was further applied to the peak daily average use to determine the overall long-term average use.

AERMOD Model Inputs

Meteorological Data

NYSDEC provided meteorological data processed specifically for modeling (AERMOD) purposes. The meteorological data set consists of five years of meteorological data from the most recent surface data collected at Westchester County Airport (2017–2021) and concurrent upper air data collected at Brookhaven, Suffolk County, New York. NYSDEC prepared the meteorological data using the AERMET program which is part of the EPA's AERMOD modeling system (EPA 2021b).

Engine Emissions

Emissions data for the construction stationary analysis were based on the Proposed Action's peak stationary construction periods, previously identified. Emission factors for CO, NO_x, PM_{10}, and $PM_{2.5}$ from on-site construction engines from both non-road equipment and trucks were estimated using MOVES2014b. The emission factors were then multiplied by the horsepower rated capacity for each piece of equipment and a load factor to obtain grams per hour emission rates.

Under New York City's Local Law 77, signed in 2003 by Mayor Michael Bloomberg, any non-road diesel-powered vehicle rated at 50 horsepower or more, and used on behalf of a City agency, must utilize best available technology (BAT) for reducing emissions. DEP has determined that diesel particulate filters or diesel oxidation catalysts, and Tier 4 engines constitute BAT for purposes of this law, therefore construction equipment working on the Proposed Action would comply with the BAT requirement to the extent practicable. It was determined that using Tier 4 engines for the majority of construction equipment is the most practicable BAT approach to reduce emissions of pollutants of concern associated with the Proposed Action. As a result, the emission factors for CO, PM_{10}, and $PM_{2.5}$ output from the MOVES NONROAD module were further reduced for vehicles and equipment that were predicted to emit greater than Tier 4 engine emission factors to account for Tier 4 engine performance standards, as applicable.

For the five-year period of modeled meteorological data, the construction equipment emissions were assumed to take place over 16 hours per day. During the peak stationary construction periods, excavation of tunnels and shafts would take place during two working shifts from 7 AM to 3:30 PM and 3 to 11:30 PM at both the Kensico Campus and KEC Eastview Site, seven days a week. A third shift (11 PM to 7:30 AM next day) would also occur at the KEC Eastview Site for underground tunnel boring activities (electric-powered TBM excavation), associated tunnel lining, and ECC exterior and site work**.**

Daily emission rates were simulated in the dispersion modeling by using the hourly emission rate scalar option. The scalar option used in this case allows the emission rates to be varied by hour

of the day and by day of week. Therefore, heavy construction equipment emissions were turned on for only the hours of 7 AM to 11:30 PM, with some equipment at the KEC Eastview Site additionally turned on for hours 11 PM to 7:30 AM.

On-Site Fugitive Dust

Road dust (PM_{10} and $PM_{2.5}$) emissions from trucks moving on unpaved roads within the construction sites were calculated based on EPA procedures provided in AP 42, 13.2.2 (EPA 2011). Average weights of anticipated on-site truck and construction equipment and conservative on-site travel distances were considered in the emissions analysis.

One of the key inputs to the fugitive dust formula is the silt loading factor. Based on AP-42 guidance (EPA 2011), an unpaved road silt content of 8.5 percent was used for unpaved areas.

Fugitive dust levels are inversely affected by frequency of precipitation. Based on national precipitation measurement data contained in AP-42 (EPA 2011), 130 days of precipitation per year in the New York downstate area inclusive of Westchester County was assumed for the long-term peak period (annual) calculations. Fugitive dust emissions from construction operations (e.g., excavation, transferring of excavated materials into dump trucks) were calculated based on EPA procedures provided in AP-42 (EPA 2011).

Soil and excavated material stockpiles were assumed to be uncovered because of the need for frequent material transfer into or out of storage. The movement of trucks and loading equipment in the stockpile areas is a substantial source of dust that was considered in the analysis. Total dust emissions from stockpiles and material transport processes were also estimated according to EPA procedures provided in AP-42 (EPA 2011). Dust emissions would result from the following distinct source activities within the storage process:

- Loading of soil or excavated materials onto stockpiles (batch or continuous drop operations).
- Equipment traffic in stockpile areas.
- Wind erosion of stockpile surfaces and ground areas around stockpiles.
- Load out of materials for transport (batch or continuous drop operations).

Appropriate control measures (i.e., routine watering) would be implemented for the control of on-site construction-related dust emissions from unpaved roadways, excavated material stockpiles, and shaft working areas. Standard control measures would reduce PM emissions from construction operations by 50 percent and were considered in the estimation of PM emissions.

Off-Site Fugitive Dust

For the off-site paved roads around the Kensico Campus and KEC Eastview Site, a standard fleet average vehicle weight of 6,000 pounds was used for estimating PM emissions from on-road traffic. The AP-42 Table 13.2.1-2 provides silt factors that were used for paved roads as applicable: 0.10 gram per square meter (g/m^2) for principal and minor arterials and 0.4 g/m^2 for paved roads with fewer than 5,000 average daily traffic volumes. In order to account for the suspension of fugitive road dust in air from vehicular traffic in the microscale analysis, $PM_{2.5}$ emission rates included fugitive road dust. In accordance with the DEP $PM_{2.5}$ interim guidance criteria, emission rates were determined with fugitive road dust to account for their impacts in the local microscale analysis. However, as DEP considers fugitive road dust to have an insignificant contribution to the ambient level on a neighborhood scale based on EPA and Federal Highway Administration (FHWA) study results[31], fugitive road dust was not included in the neighborhood-scale $PM_{2.5}$ analyses.

Modeling and Receptors

The refined dispersion model (EPA AERMOD) was used to predict the reasonable worst-case condition for CO, NO_2, and PM concentrations during the peak stationary construction periods.

A temporary construction site is considered a non-major stationary source as a major source is defined as cogeneration facilities, asphalt and concrete plants, or power generating plants per the *CEQR Technical Manual*. For a non-major stationary source, a 400-foot study area is typically used

The discrete receptors within the Kensico Campus and KEC Eastview Site study areas were identified at residences, schools, institutions, etc., around the Kensico Campus and KEC Eastview Site and were included in the model. Additional sensitive receptors beyond this 400-foot radius were also considered to ensure that potential worst-case effects were captured. The Kensico Campus and KEC Eastview Site, the entire ground level and elevated receptor grid, and nearby building windows on each façade particularly facing the Kensico Campus and KEC Eastview Site included in the AERMOD analysis are shown on **Figure 3.11.1** and **Figure 3.11.2** for the Kensico Campus and KEC Eastview Site, respectively.

The on-site construction source emissions for moving equipment or vehicles such as excavators, trucks, etc., were averaged over the area where construction activity would occur and modeled as ground level area sources. The AERMOD analysis conservatively included a smaller stockpile area; however, this area could potentially extend more to the west. Stationary equipment such as cranes, generators, compressors, etc. were modeled as point sources for the short-term peak period during a given day. For the long-term peak period analysis because all sources are

[31] https://www3.epa.gov/ttnchie1/conference/ei13/mobile/hodan.pdf

Figure 3.11.1. Emission Sources and Sensitive Receptors/Grid Modeled – Kensico Campus

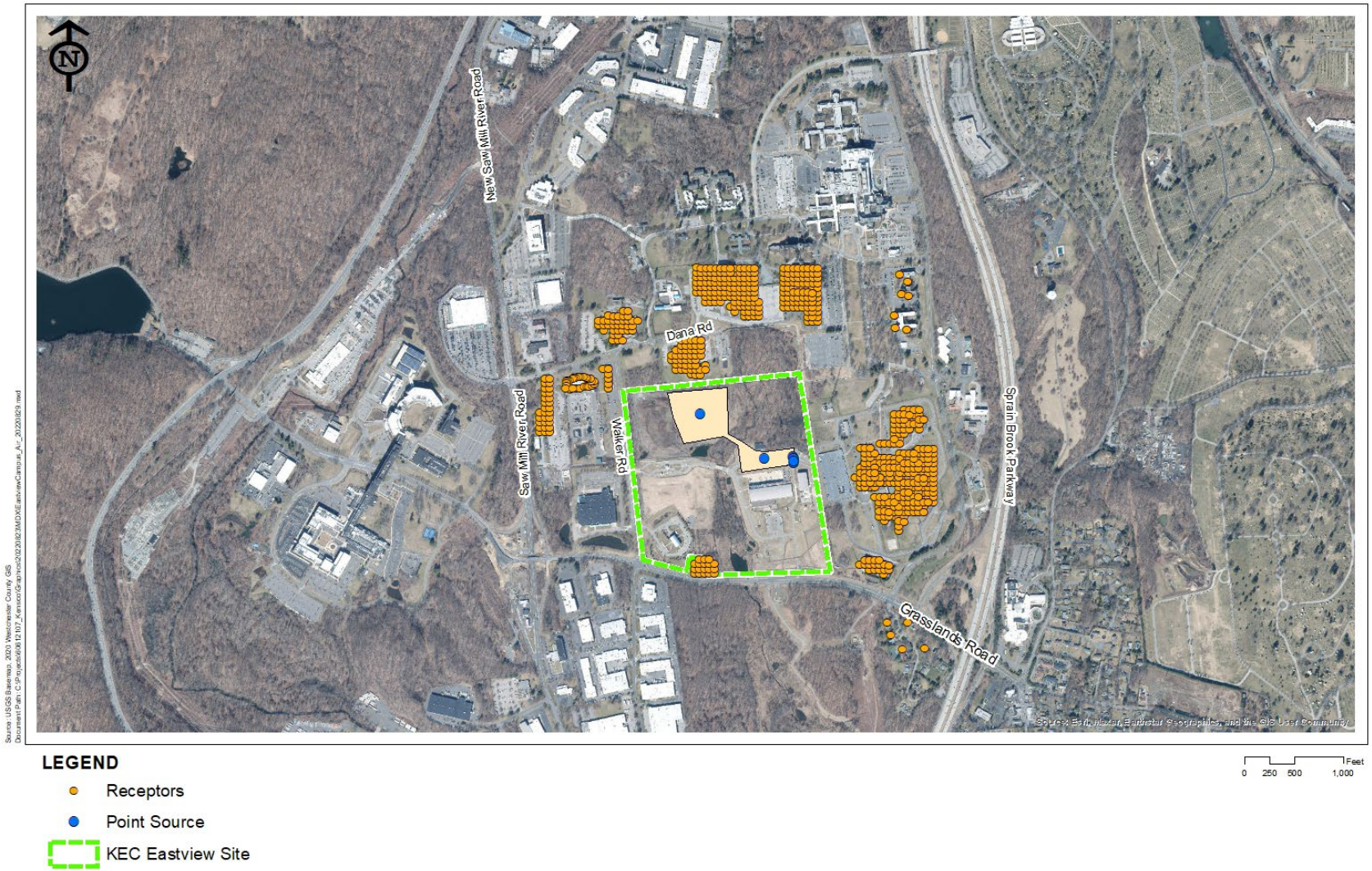


Figure 3.11.2. Emission Sources and Sensitive Receptors/Grid Modeled – KEC Eastview Site

anticipated to move around the Kensico Campus and KEC Eastview Site throughout the year, these sources were simulated as area sources in the model. An area source is typically a fugitive source or sources of emissions that occur within a specific area such as the area of the KEC Screen Chamber, shafts, etc. Since these sources would be at or below grade, it is anticipated that the receptors closest to these components would experience the greatest potential air quality effects.

To predict potential NO_2 impacts based on MOVES2014b estimated NO_x emission factors, the Tier 2 Ambient Ratio Method 2 (ARM2), based on an evaluation of the ratios of NO_2/NO_x from EPA's Air Quality System record of air quality data, was selected in AERMOD. EPA guidance on 1-hour NO_2 modeling using AERMOD (EPA 2011) was utilized including an assessment of cumulative impact with the seasonal hourly NO_2 monitoring background levels available and collected at the background location closest to the Proposed Action (NYSDEC Pfizer Lab Site – New York Botanical Garden, Bronx, New York).

An analysis of the potential for impacts from the Proposed Action on annual average levels of $PM_{2.5}$ on a neighborhood scale (annual neighborhood) was warranted if $PM_{2.5}$ annual average concentrations were predicted to exceed 0.1 $\mu g/m^3$. For the $PM_{2.5}$ annual neighborhood modeling, a refined receptor grid over an area of approximately 1 square kilometer using a 25-meter grid spacing, centered on the location of the maximum modeled $PM_{2.5}$ annual average concentration, was developed to determine the average modeled annual concentration.

General Conformity Rule (GCR) Analysis

As stated previously stated in this section, the GCR would apply to the Proposed Action because project elements, such as removal of accumulated sediments, would require an approval from the USACE and the Proposed Action would take place in an area currently designated as a nonattainment area for O_3, and a maintenance area for CO and $PM_{2.5}$. The pollutants of concern per the GCR are CO, $PM_{2.5}$, and the O_3 precursors, NO_x and VOCs. Emissions associated with those activities that require federal approvals would, as an example include those emitted from on-site and in reservoir equipment related to removal of accumulated sediments. The same detailed projection of construction activities was developed for each quarter of the expected sediment removal activities that would occur from the fourth quarter of 2027 (Q4 2027) to the first quarter of 2028 (Q1 2028), The number and type of equipment and their associated operational hours were estimated and used for further emissions estimates. The emission factors for non-road equipment and trucks were estimated using the MOVES2014b emission factor model with the County-specific inputs provided by NYSDEC. The predicted annual nonattainment and maintenance criteria pollutant emissions were then compared to the applicable *de minimis* thresholds to determine whether a formal GCR determination is required.

3.11.2.4 Mobile Sources

In order to determine the peak air emissions that would be potentially generated by the Proposed Action, a detailed projection of construction activities was developed for each quarter of the construction period. The phases, duration, and overlap of construction activities and average daily worker and truck estimates were identified for each quarter of construction at the Kensico Campus and KEC Eastview Site.

Peak Construction Period

Construction would occur starting ~~in~~ around January 2024 with expected completion in 2034 inclusive of commissioning and start-up activities and would generate trips from construction workers traveling to and from the Kensico Campus and KEC Eastview Site, as well as construction trucks delivering materials and equipment and removing solid waste and debris. These would be considered mobile emission sources resulting from the Proposed Action. As discussed in Section 3.10, "Traffic and Transportation" it is anticipated that the peak construction period when traffic would be at its highest would occur during Q4 2027 and the third quarter of 2029 (Q3 2029). Both traffic peak construction periods were used for the mobile source air quality analysis.

Screening Assessment

The *CEQR Technical Manual* recommends a two-step approach – an air quality mobile source screening assessment followed by a detailed air quality mobile source dispersion analysis, if necessary. An air quality mobile source screening assessment was conducted for CO and $PM_{2.5}$, in accordance with the *CEQR Technical Manual*, at major construction vehicle convergence points that would experience the highest volume of construction-generated traffic, to determine if the Proposed Action would exceed the *CEQR Technical Manual* screening thresholds.

The screening assessment was conducted for Q4 2027 and Q3 2029 at each of the 35 intersections identified within Section 3.10, "Traffic and Transportation" as shown on **Figure 3.11.3**. The 35 intersections represent potential traffic analysis locations along primary routes leading to and from the Kensico Campus and KEC Eastview Site. The construction-generated traffic volumes for Q4 2027 and Q3 2029 were used to compare to the applicable CEQR screening thresholds. These CEQR screening thresholds include:

- For CO screening: 170 or more auto trips per hour as a result of the Proposed Action, and
- For $PM_{2.5}$ screening: the number of equivalent heavy-duty diesel vehicle (HDDV) trips per hour applicable for various roadway types.

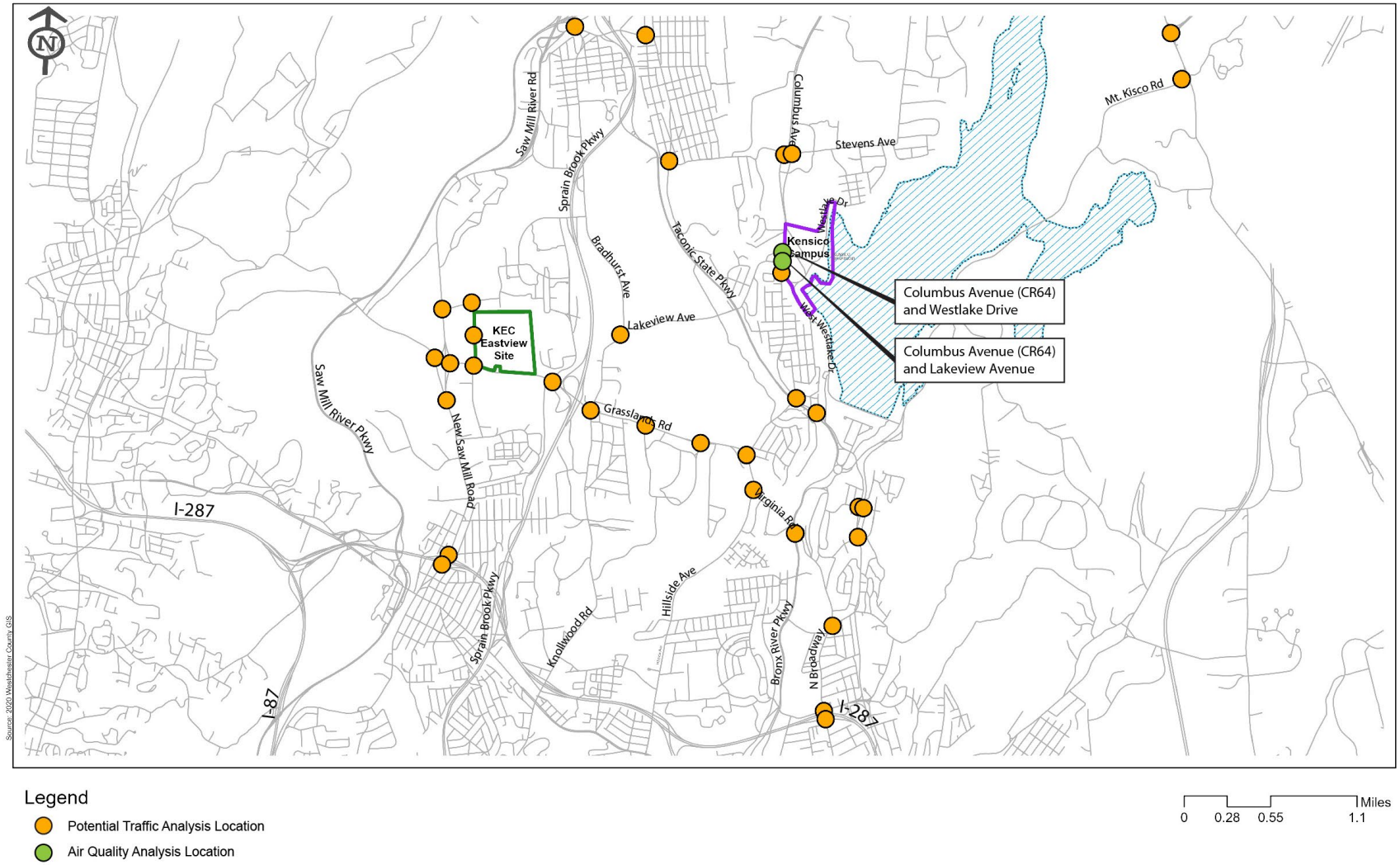


Figure 3.11.3. Intersections Selected for Air Quality Microscale Analysis

Based on the screening assessment, four of the 35 intersections exceeded the $PM_{2.5}$ screening threshold for both Q4 2027 and Q3 2029, with three near the KEC Eastview Site and one near Kensico Campus. However, since no sensitive receptors such as sidewalks are present near each of the three intersections around the KEC Eastview Site, only the intersection of Columbus Avenue (CR64) and Westlake Drive at Kensico Campus was considered the worst-case intersection selected for further $PM_{2.5}$ microscale modeling. Due to the close proximity of the intersection of Columbus Avenue and Lakeview Avenue to the selected intersection, both intersections were considered in the $PM_{2.5}$ microscale modeling analysis. Although the screening did not warrant a CO analysis nor is applicable for PM_{10}, these two intersections were also analyzed for CO and PM_{10} since they are typical pollutants of concern associated with mobile sources. The intersections selected for microscale modeling are listed in **Table 3.11-3**. The modeling results at these selected intersections were further used for the cumulative impact analysis at both Kensico Campus and KEC Eastview sites discussed in Section 3.11.2.5, "Cumulative Sources."

Since Q4 2027 would experience the greater project resulting incremental traffic, the traffic during this quarter was considered the worst-case traffic condition for further microscale CO and PM impact modeling analysis.

Table 3.11-3. Intersections Selected for Microscale Analysis

Screening Pollutant	Analysis Intersection
$PM_{2.5}$ and CO(1), (3)	Columbus Avenue (CR64) and Westlake Drive
$PM_{2.5}$ and CO(2), (3)	Columbus Avenue (CR64) and Lakeview Avenue

Notes:
(1) Although CO at this location did not warrant analysis, it was considered.
(2) Although CO and $PM_{2.5}$ at this location did not warrant analysis, it was considered given its close proximity to the intersection that failed the screening.
(3) This location was also analyzed for PM_{10} since it is a typical pollutant of concern associated with mobile sources.

Mobile Source Analysis

Carbon Monoxide (CO)

An air quality mobile source analysis was conducted at representative intersections for CO and PM in accordance with the *CEQR Technical Manual.* The model-predicted concentrations of criteria pollutants during construction activities were added to the background concentrations to estimate total concentrations in the future with the Proposed Action for comparison with the NAAQS for these pollutants. In addition, where applicable, the model-predicted concentrations of criteria pollutants during construction activities were compared to the *de minimis* criteria. The

magnitude and duration of the potential impacts were considered when determining if the potential impacts were considered significant.

At each representative worst-case intersection for which a microscale CO analysis was warranted, an analysis was conducted using EPA's CAL3QHC model Version 2.0. The CAL3QHC model employs a Gaussian (normal distribution) dispersion assumption and includes an algorithm for estimating vehicular queue lengths at signalized intersections.

CAL3QHC calculates emissions and dispersion of CO from idling and moving vehicles. The queuing algorithm includes site-specific traffic parameters, such as signal timing and delay (from the 2000 *Highway Capacity Manual* [TRB 2000] traffic forecasting model), saturation flow rate, vehicle arrival type, and signal actuation (i.e., pre-timed or actuated signal) characteristics to project the number of idling vehicles.

CAL3QHC computations were performed using a wind speed of one meter per second, source height of zero meters (for at-grade roadways), mixing height set at 1,000 meters, and the neutral atmospheric stability Class D, a condition that neither enhances nor suppresses atmospheric turbulence. In order to ensure that the reasonable worst-case was used in estimating impacts, CO concentrations were calculated for all wind directions and used an assumed surface roughness of 3.21 meters. The 8-hour average CO concentrations were estimated from the predicted 1-hour average CO concentrations using a factor of 0.7 to account for persistence of meteorological conditions and fluctuations in traffic volumes. Receptors were placed along the sidewalks around each intersection as noted in **Table 3.11-3**.

Particulate Matter (PM_{10} and $PM_{2.5}$)

For representative intersection locations warranting a PM analysis, CAL3QHCR was used to calculate maximum contributions from vehicular emissions to PM_{10} and $PM_{2.5}$ concentrations adjacent to each intersection analyzed. This refined version of the model can utilize hourly traffic and meteorology data and is therefore more appropriate for calculating the 24-hour and annual average concentrations required to address the time scales of the PM NAAQS. For the computation of $PM_{2.5}$ concentrations, the CAL3QHCR model includes the modeling of hourly concentrations based on peak quarter hourly traffic data and five years of monitored hourly meteorological data. Twenty-four hours were modeled, and the highest predicted concentration for each averaging period is presented. The same five years of meteorological data used for stationary source modeling was also used in the CAL3QHCR refined modeling.

The CAL3QHCR Tier II refined approach as defined in the *CEQR Technical Manual* and established by EPA was implemented in the analysis. Seasonal and off-peak hourly emission factors were prepared using additional runs of the MOVES model to capture the effect of temperature differences over four seasons, as well as changing hourly vehicular volume and

classifications in off-peak hours. The detailed hourly traffic profiles and additional MOVES runs were developed for the Tier II approach at the two intersections listed in **Table 3.11-3**.

A 24-hour time profile was developed using existing ATR counts. **Table 3.11-4** presents the analysis time periods modeled. The peak-hour traffic for each time period was applied to all hours within the respective time frame, which is conservative.

Table 3.11-4. Analysis Time Periods Modeled

Analysis Period	Representative Time Frame
Morning Peak (AM)	6 AM to 10 AM
Midday (MD)	10 AM to 2 PM
Evening Peak (PM)	2 PM to 10 PM
Nighttime (NT)	10 PM to 6 AM

The contribution of disturbed road surface dust from traveling vehicles to PM_{10} concentrations, as presented in the PM_{10} SIP, is considered to be significant; therefore, the PM_{10} estimates include both exhaust and road dust. $PM_{2.5}$ emission rates were determined with fugitive road dust to account for their impacts in the local microscale analyses. However, fugitive road dust was not included in the neighborhood-scale $PM_{2.5}$ microscale analyses because DEP considers it to have an insignificant contribution on that scale. Road dust emission factors were calculated according to the latest procedure delineated by EPA and the *CEQR Technical Manual*.

The intersections, travel links, localized and neighborhood-scale receptors considered for further microscale impact modeling analysis are depicted on **Figure 3.11.4**.

3.11.2.5 Cumulative Sources

For locations that would potentially be affected by both stationary and mobile construction sources, the potential impacts from the combination of stationary and mobile sources were determined. For each considered pollutant with a respective averaging period, the cumulative analysis was conservatively performed at each site by adding the maximum predicted construction stationary concentration to the maximum predicted construction on-road mobile concentration at the worst-case intersection that failed the screening and was selected for microscale model with the highest reported construction mobile concentration. For the annual neighborhood average $PM_{2.5}$ cumulative analysis, the maximum annual neighborhood average $PM_{2.5}$ concentration for the mobile analysis at the intersection was added to the maximum annual neighborhood average $PM_{2.5}$ concentration for the stationary analysis.

Figure 3.11.4. Sources and Receptor Locations Modeled at Intersections along Columbus Avenue (CR64)

Where applicable, the cumulative concentrations during construction activities were added to the background concentrations to estimate total cumulative construction concentrations in the future with the Proposed Action for comparison with the NAAQS. In addition, where applicable, the cumulative concentrations during construction activities were compared to the *de minimis* annual neighborhood average $PM_{2.5}$ criteria. The magnitude and duration of the potential effects were considered when determining if the potential effects were significant.

3.11.3 EXISTING CONDITIONS

3.11.3.1 Background Concentrations

The existing air quality condition in the vicinity of the Kensico Campus and KEC Eastview Site can be described by the attainment status for Westchester County. Currently, the County is within the New York metropolitan area that has been classified as a serious nonattainment area for the 2008 8-hour O_3 NAAQS and a maintenance area for CO and $PM_{2.5}$ NAAQS. The latest available 3-year period (2019-2021) measured ambient air quality conditions for the criteria pollutants assessed for the Proposed Action are presented in **Table 3.11-5**. These background concentrations are all below the listed NAAQS.

Table 3.11-5. NYSDEC Monitored Background Concentrations

Pollutant (units)	Averaging Period	Monitoring Location	Background Concentration	NAAQS Primary Criteria
CO (ppm)	1-hr	Bronx Botanical Garden	2.1	35(1)
	8-hr	Bronx Botanical Garden	1.5	9(1)
NO_2 (ppb)	1-hr	Bronx Botanical Garden	48.6	100(2)
	Annual		12.8	53(3)
$PM_{2.5}$ ($\mu g/m^3$)	24-hr	Bronx Botanical Garden	19.1	35(4)
	Annual		7.0	12(5)
PM_{10} ($\mu g/m^3$)	24-hr	IS 52 (Manhattan)	38.0	150(6)

Notes:
(1) Value is 3-year (2019-2021) maximum high concentration.
(2) Value is 3-year (2019-2021) average of the 98th percentile concentration.
(3) Value is 3-year (2019-2021) maximum annual average concentration.
(4) Value is 3-year (2019-2021) average of the 98th percentile daily concentration.
(5) Value is 3-year (2019-2021) average annual average concentration.
(6) Value is 3-year (2019-2021) maximum of high second high concentration.
Source: EPA AirData [https://www.epa.gov/outdoor-air-quality-data]

3.11.3.2 Vehicular Traffic

Existing traffic volumes used for the air quality analyses were derived from the traffic analysis for the Proposed Action. As discussed in Section 3.10, "Traffic and Transportation" traffic counts were conducted in March 2021, during the COVID-19 pandemic. With guidance from NYSDOT and in consultation with DEP, these traffic counts were adjusted upward to "normalize" the traffic counts based on NYSDOT's ATR count data collected within the past five-year period to reflect pre-pandemic levels.

3.11.4 FUTURE WITHOUT THE PROPOSED ACTION

Several DEP projects would be implemented in the future without the Proposed Action, primarily at the Kensico Campus. Construction of future DEP projects would likely overlap with construction of the Proposed Action as follows:

- Construction of the Waterfowl Management Program Building and the Kensico Regional Headquarters at Kensico Campus would begin in 2023 and various projects at DEL Shaft 18 at the Kensico Campus (electric/HVAC upgrades, floor operator's office improvements, traveling water screens replacement, and spill response shed) are currently under construction. These projects are scheduled to be completed in the 2025 or 2026 timeframe and would involve construction equipment and truck operations during building construction.
- The construction associated with the Manhole Cleanouts for Foundation Drain System project at the KEC Eastview Site is scheduled to occur between 2024 and 2025.

Conditions in the future without the Proposed Action would be slightly affected by these DEP projects when compared to existing conditions. In addition, DEP may also potentially implement a solar project at the KEC Eastview Site consisting of the placement of solar canopies within an existing parking area and on the CDUV Facility roof, but the extent of any additional traffic and potential effects to air quality in the future without the Proposed Action would be minimal.

In addition to the background growth rate, traffic generated by notable future development projects during operation were incorporated as discussed in Section 3.10, "Traffic and Transportation." Six non-DEP projects are expected to be completed by 2029 and would generate moderate to substantial traffic volumes in the 2027 and 2029 peak analysis years. These projects were incorporated into the analysis.

Based upon an assessment of the anticipated construction and operational activities associated with these DEP and non-DEP projects, potential changes to air quality under the future without the Proposed Action would be minimal.

3.11.5 FUTURE WITH THE PROPOSED ACTION

3.11.5.1 Stationary Sources

The dispersion of pollutants during the construction stationary short-term peak periods was modeled using the EPA AERMOD dispersion model to predict the resulting maximum concentration increments from proposed construction activities and the total concentrations (including background concentrations as applicable) in the surrounding area. As modeled results are based on construction scenarios for peak stationary periods, incremental increases in pollutant concentrations during other construction periods would be expected to result in lower construction emissions due to reduced levels of activities when compared to peak construction periods.

Kensico Campus

The maximum predicted emissions from construction at the Kensico Campus are presented in **Table 3.11-6**. The maximum predicted total concentrations of CO, NO_2, $PM_{2.5}$, and PM_{10} for the Kensico Campus would all be below the applicable NAAQS. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable CEQR *de minimis* thresholds for the annual neighborhood averaging period.

Therefore, emissions as a result of construction of the Proposed Action at the Kensico Campus would not result in significant adverse air quality effects.

KEC Eastview Site

Maximum predicted emissions from the KEC Eastview Site are presented in **Table 3.11-7**. The maximum predicted total concentrations of CO, NO_2, $PM_{2.5}$, and PM_{10} for the construction at the KEC Eastview Site would be below the applicable NAAQS. In addition, the maximum predicted $PM_{2.5}$ concentrations would also not exceed the applicable CEQR *de minimis* threshold for the annual neighborhood averaging period.

Stationary emissions from construction activities at the KEC Eastview Site would not result in significant adverse air quality effects.

3.11.5.2 Mobile Sources

An air quality mobile source analysis was conducted at two representative intersections for CO and PM during Q4 2027, the worst-case peak traffic quarter with the highest project resulting incremental traffic, in accordance with the *CEQR Technical Manual*. Emissions were estimated for the reasonable worst-case condition. The EPA CAL3QHC model was used to predict CO emissions and Tier II analyses using the CAL3QHCR model were used to predict PM_{10} and $PM_{2.5}$ emissions at the two intersections (**Table 3.11-3**).

Table 3.11-6. Stationary Analysis Modeling Results – Kensico Campus

Pollutant (units)	Averaging Period	Background Concentration	Maximum Predicted Concentration	Future with the Proposed Action(1)	NAAQS
CO (ppm)	1-hour	2.1	0.1	2.2	35
	8-hour	1.5	0.03	1.5	9
NO_2 ($\mu g/m^3$)	1-hour(2)	71.6	66.2	137.8	188(3)
	Annual	24.1	2.6	26.7	100(4)
$PM_{2.5}$ ($\mu g/m^3$)	24-hour	19.1	1.9	21.0	35
	Annual	7.0	0.3	7.3	12
	Annual Neighborhood Scale	-	0.05	-	-
PM_{10} ($\mu g/m^3$)	24-hour	38.0	21.4	59.4	150

Notes:

(1) The future with the Proposed Action concentrations consists of a summation of the background concentration and the maximum predicted concentrations. The future with the Proposed Action concentrations were then compared to the NAAQS.

(2) Modeling was conducted for the short-term peak period (December 2026). Since the future with the Proposed Action concentrations are predicted to be below the NAAQS based for the short-term peak period, modeling based on a three-year average is not warranted. Background concentration and site-only maximum predicted concentration are determined through a culpability analysis of model results. A culpability analysis is a specific model run to determine the contribution of modeled sources to the maximum design concentration. This analysis is due to background concentrations being included within the original model itself versus adding a static background monitor concentration post model.

(3) The NAAQS 1-hour NO_2 standard of 100 ppb is equal to 188 $\mu g/m^3$.

(4) The NAAQS annual NO_2 standard of 53 ppb is equal to 100 $\mu g/m^3$.

Table 3.11-7. Stationary Analysis Modeling Results – KEC Eastview Site

Pollutant (units)	Averaging Period	Background Concentration	Maximum Predicted Concentration	Future with the Proposed Action(1)	NAAQS ($\mu g/m^3$)
CO (ppm)	1-hour	2.1	0.2	2.3	35
	8-hour	1.5	0.07	1.6	9
NO_2 ($\mu g/m^3$)	1-hour (2)	72.4	57.4	129.8	188(3)
	Annual	24.1	1.4	25.5	100(4)
$PM_{2.5}$ ($\mu g/m^3$)	24-hour	19.1	0.6	19.7	35
	Annual	7.0	0.09	7.1	12
	Annual Neighborhood Scale	-	0.02	-	-
PM_{10} ($\mu g/m^3$)	24-hour	38.0	20.2	58.2	150

Notes:

(1) The future with the Proposed Action concentrations consists of a summation of the background concentration and the maximum predicted concentrations. The future with the Proposed Action concentrations were then compared to the NAAQS.

(2) Modeling was conducted for the short-term peak period (June 2029). Since the future with the Proposed Action concentrations are predicted to be below the NAAQS based for the short-term peak period, modeling based on a three-year average is not warranted. Background concentration and site-only maximum predicted concentration are determined through a culpability analysis of model results. A culpability analysis is a specific model run to determine the contribution of modeled sources to the maximum design concentration. This analysis is due to background concentrations being included within the original model itself versus adding a static background monitor concentration post model.

(3) The NAAQS 1-hour NO_2 standard of 100 ppb is equal to 188 $\mu g/m^3$.

(4) The NAAQS annual NO_2 standard of 53 ppb is equal to 100 $\mu g/m^3$.

The CO concentrations at the two analyzed intersections during the Q4 2027 peak periods in the future with the Proposed Action, including background concentrations, are shown in **Table 3.11-8**. The values shown are the highest predicted concentrations for the receptor locations analyzed and are below the CO NAAQS and the more stringent CEQR *de minimis* level of 0.5 ppm.

Table 3.11-8. Mobile Analysis Modeling Results - 8-Hour Average CO Concentrations

Columbus Avenue and Westlake Drive/ Columbus Avenue and Lakeview Avenue[1]	8-Hour Average CO Concentration (ppm)		
	Maximum Predicted	Future with the Proposed Action[2]	NAAQS
Q4 2027	0.2	1.7	9

Notes:
(1) Due to their proximity, the intersections of Columbus Avenue (CR64) and Westlake Drive and Columbus Avenue (CR64) and Lakeview Avenue were modeled together.
(2) The future with the Proposed Action concentration includes a background concentration of 1.5 ppm.

PM_{10} concentrations at the two analyzed intersections during the Q4 2027 peak periods in the future with the Proposed Action, including background concentrations, are presented in **Table 3.11-9**. The values shown represent the highest predicted concentrations for the receptor locations. As shown in the table, concentrations would be below the PM_{10} NAAQS.

The $PM_{2.5}$ concentrations at the two analyzed intersections during the Q4 2027 peak periods in the future with the Proposed Action, including background concentrations, are presented in **Table 3.11-10** and **Table 3.11-11.** The values shown represent the highest predicted concentrations for the receptor locations and concentrations would be below the $PM_{2.5}$ NAAQS.

For $PM_{2.5}$, the maximum predicted annual average concentration increments were also calculated for comparison with the *de minimis* criteria. Based on this analysis, the maximum predicted neighborhood-scale annual average incremental $PM_{2.5}$ concentrations would be below the CEQR neighborhood-scale *de minimis* level of 0.1 $\mu g/m^3$, as listed in **Table 3.11-11.**

Table 3.11-9. Mobile Analysis Modeling Results - 24-Hour Average PM_{10} Concentrations

Columbus Avenue and Westlake Drive/ Columbus Avenue and Lakeview Avenue[1]	24-Hour Average PM_{10} Concentration ($\mu g/m^3$)		
	Maximum Predicted	Future with the Proposed Action[2]	NAAQS
Q4 2027	30.1	68.1	150

Notes:
(1) Due to their proximity, the intersections of Columbus Avenue (CR64) and Westlake Drive and Columbus Avenue (CR64) and Lakeview Avenue were modeled together.
(2) The future with the Proposed Action concentration includes a background concentration of 38 $\mu g/m^3$.

Table 3.11-10. Mobile Analysis Modeling Results - 24-Hour Average $PM_{2.5}$ Concentrations

Columbus Avenue and Westlake Drive/ Columbus Avenue and Lakeview Avenue[1]	24-Hour Average $PM_{2.5}$ Concentration ($\mu g/m^3$)		
	Maximum Predicted	Future with the Proposed Action[2]	NAAQS
Q4 2027	0.3	19.4	35

Notes:
(1) Due to their proximity, the intersections of Columbus Avenue (CR64) and Westlake Drive and Columbus Avenue (CR64) and Lakeview Avenue were modeled together.
(2) The future with the Proposed Action concentration includes a background concentration of 19.07 $\mu g/m^3$.

Table 3.11-11. Mobile Analysis Modeling Results - Annual Average $PM_{2.5}$ Concentrations

Columbus Avenue and Westlake Drive/ Columbus Avenue and Lakeview Avenue[1]	Annual Average $PM_{2.5}$ Concentration ($\mu g/m^3$)			
	Maximum Predicted Annual Average $PM_{2.5}$	Future with the Proposed Action Annual Average $PM_{2.5}$[2]	Maximum Predicted Annual Neighborhood Average $PM_{2.5}$	NAAQS
2027	0.2	7.2	0.003	12

Notes:
(1) Due to their proximity, the intersections of Columbus Avenue (CR64) and Westlake Drive and Columbus Avenue (CR64) and Lakeview Avenue were modeled together.
(2) The future with the Proposed Action concentration includes a background concentration of 7.03 $\mu g/m^3$.

3.11.5.3 Cumulative Impacts

During the early stages of the KEC Project construction, the Waterfowl Management Program Building, the Kensico Regional Headquarters, and various projects at DEL Shaft 18 at the Kensico Campus would also occur. These are scheduled to be completed in 2025 or 2026 with minimal equipment operations on site anticipated. Moreover, as these projects are located closer to the reservoir shoreline and away from sensitive receptors at the Valhalla Middle and High Schools or residences along Columbus Avenue, additional mobile emissions would not be anticipated to result in significant cumulative impacts.

Likewise, construction activities associated with the Manhole Cleanouts for Foundation Drain System project planned for the KEC Eastview Site between 2024 and 2025 would also be small

in scale and temporary in nature resulting in negligible cumulative air quality impacts at the KEC Eastview Site. A quantitative cumulative air quality analysis is therefore not warranted.

The cumulative analysis was conservatively conducted by combining the worst-case concentration levels predicted from the Kensico Campus and KEC Eastview Site and the worst-case intersection selected for microscale impact modeling around the construction site. Although the intersection selected for microscale modeling analysis is near Kensico Campus, the worst-case modeling results at this intersection for mobile sources were also conservatively added to the worst-case concentration levels predicted for the KEC Eastview Site. The predicted cumulative impact results are summarized in **Table 3.11-12** and **Table 3.11-13**, for the Kensico Campus and KEC Eastview Site, respectively, and are all below the applicable NAAQS or CEQR *de minimis* threshold under a neighborhood scale.

Table 3.11-12. Cumulative Analysis Modeling Results – Kensico Campus

Pollutant (Unit)	Averaging Period	Background Concentration	Maximum Predicted Cumulative Concentration	Cumulative Future with the Proposed Action(1)	NAAQS (µg/m^3)
CO (ppm)	1-hour	2.1	0.4	2.5	35
	8-hour	1.5	0.2	1.7	9
$PM_{2.5}$ (µg/m^3)	24-hour	19.1	2.2	21.3	35
	Annual Local	7.0	0.5	7.5	12
	Annual Neighborhood Scale	-	0.05	-	-
PM_{10} (µg/m^3)	24-hour	38.0	51.5	89.5	150

Note:
(1) Future with the Proposed Action concentrations consist of a summation of the background concentrations and the maximum predicted concentrations. The future with the Proposed Action concentrations were then compared to the NAAQS.

Table 3.11-13. Cumulative Analysis Modeling Results – KEC Eastview Site

Pollutant (unit)	Averaging Period	Background Concentration	Maximum Predicted Cumulative Concentration	Cumulative Future with the Proposed Action(1)	NAAQS ($\mu g/m^3$)
CO (ppm)	1-hour	2.1	0.5	2.6	35
	8-hour	1.5	0.3	1.8	9
$PM_{2.5}$ ($\mu g/m^3$)	24-hour	19.1	0.9	20.0	35
	Annual Local	7.0	0.3	7.3	12
	Annual Neighborhood Scale	-	0.02	-	-
PM_{10} ($\mu g/m^3$)	24-hour	38.0	50.3	88.3	150

Note:
(1) Future with the Proposed Action concentrations consist of a summation of the background concentrations and the maximum predicted concentrations. The future with the Proposed Action concentrations were then compared to the NAAQS.

3.11.5.4 General Conformity Rule Applicability

A breakdown of estimated tons per year for nonattainment and maintenance criteria pollutants from the removal of accumulated sediments is summarized in **Table 3.11-14**. The total emissions over a four-month duration during sediment removal would be below applicable annual *de minimis* levels for each pollutant. Therefore, no formal conformity determination is required under the GCR requirements.

Table 3.11-14. Estimated Sediment Removal Annual Emissions – Kensico Campus

Year	Pollutant (tons)			
	VOC	NO_x	CO	$PM_{2.5}$
Q4 2027 to Q1 2028 (4 months total)	0.03	0.07	0.1	0.004
De Minimis Level	25	25	100	100

3.11.5.5 Construction Control Measures

As part of the Proposed Action, various best practices and control measures would be routinely used to minimize construction-related air quality emissions during construction. For projects within New York City, air pollution control measures noted in the City's *Administrative Code Title 24 Environmental Protection and Utilities, Chapter 1: Air Pollution Control* would typically be required. While the Proposed Action is located in Westchester County, applicable measures consistent with Title 24 for air pollution control would, however, be implemented, as applicable and appropriate. Construction control measures may include, but not be limited to:

- Dust Control - a dust control plan including a watering program may be required as part of contract specifications. The plan may include measures such as:
  - Trucks hauling loose materials would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the construction sites.
  - Water sprays would be used for excavation and transfer of soils to ensure that materials will be dampened as necessary to avoid the excess suspension of dust into the air.
  - Loose materials would be watered, stabilized, or covered.
  - Construction Dust Rules established by DEP regulating construction-related dust emissions would be implemented.
- Idling Restriction - As required under Subchapter 7 of New York City local law (§24-163), stationary vehicles on roadways adjacent to the construction sites would be prohibited from idling for more than three minutes. Idling restrictions however would exclude vehicles that require engine use to operate a loading, unloading, or processing device (e.g., concrete-mixing trucks) or which is otherwise required for proper engine operation.
- To extent practicable, equipment that could use electric engines in lieu of diesel engines would be utilized.

3.11.6 CONCLUSIONS

Construction of the Proposed Action at both the Kensico Campus and the KEC Eastview Site would not result in predicted concentrations above the NAAQS for CO, NO_2, $PM_{10,}$ and $PM_{2.5}$ or *de minimis* screening thresholds. No significant adverse air quality impacts are therefore anticipated as a result of the construction of the Proposed Action.

3.12 GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

3.12.1 INTRODUCTION

Greenhouse gas (GHG) emissions are gases that trap heat in the atmosphere and cause a general warming of the Earth's atmosphere, known as the "greenhouse effect." GHGs are associated with global climate changes including increased intensity of storms and flooding, sea level rise, and temperature increases. New York State's Climate Leadership and Community Protection Act of 2019 establishes certain GHG emission reduction limits, as well as goals to address climate change, including a goal to limit Statewide GHG emissions to 40 percent of 1990 levels by 2030 and 85 percent by 2050. In December 2014, the City committed to reducing GHG emissions by 80 percent by 2050 under Local Law 66 of 2014, with an interim target to reduce emissions by

30 percent by 2030. Through OneNYC, the City has advanced sustainability initiatives and goals to both greatly reduce GHG emissions and increase the City's resilience to climate change.

The *CEQR Technical Manual* recommends that a GHG consistency assessment be conducted for City capital projects that require an EIS, power generation projects, projects resulting in 350,000 square feet or more of development, and projects which change the City's solid waste management system. Since the Proposed Action is a City capital project that requires the preparation of an EIS, a GHG consistency assessment was conducted.

Construction source GHG emissions are a significant part of the total project emissions, as the Proposed Action would require energy use for stationary sources, motor vehicles, and material extraction, production, and transport. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed sources are referred to as stationary source emissions. Therefore, the construction-related GHG emissions from the Proposed Action have been estimated in accordance with the *CEQR Technical Manual*. In addition, since construction of the Proposed Action would include the removal of trees, an analysis was performed to estimate the loss in carbon sequestration and release of biogenic emissions as a result of the tree removal.

This section evaluates the GHG emissions that would be generated by construction of the Proposed Action and the change in carbon sequestration from the removal and proposed planting of trees at the Kensico Campus and KEC Eastview Site. A discussion of the Proposed Action's consistency with City and State GHG reduction goals, opportunities for reducing GHG emissions during construction, the potential effects of climate change on the Proposed Action, and potential measures to reduce these effects are also presented. The potential effects once construction of the Proposed Action is completed and the proposed facilities are operational are discussed in Chapter 4, "Potential Impacts from Operation of Proposed Action."

3.12.2 METHODOLOGY

3.12.2.1 Greenhouse Gases

In accordance with the NYSDEC Policy – *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements* (July 2009), the *SEQR Handbook, Fourth Edition* (March 2020), and the *CEQR Technical Manual*, direct and indirect GHG emissions were assessed. Direct GHG emissions include emissions from on-site construction equipment and on-road construction vehicles traveling to and from both construction sites (Kensico Campus and KEC Eastview Site). Indirect emissions include emissions resulting from the manufacture or transport of construction materials (typically steel and concrete) used for the Proposed Action.

Construction of the Proposed Action would require energy use for on-site equipment, on-road vehicles, and material extraction, production, and transport. In accordance with the

NYSDEC Policy and the *CEQR Technical Manual*, a review was performed of the six internationally recognized GHG pollutants of concern[32]: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride. There would be no significant sources of HFCs, PFCs or sulfur hexafluoride associated with the Proposed Action since these pollutants are typically associated with non-combustion sources such as refrigeration and industrial resources. Calculations of emissions are presented in units of annual metric tons of carbon dioxide equivalent ($mTCO_2e$/year), which allows gases with different global warming potentials to be added together and compared.

After the emissions were estimated following the methodology discussed below, the source of GHG emissions was examined in terms of potential goals for reducing GHG emissions using qualitative considerations. Specifically, whether the Proposed Action would be consistent with the attainment of the State's goal of reducing Statewide GHG emissions to 40 percent of 1990 levels by 2030 and 85 percent by 2050, and the City's goal of reducing Citywide GHG emissions by 30 percent below 2005 levels by 2030 and 85 percent by 2050. As defined in the *CEQR Technical Manual*, the qualitative goals that should be assessed, as relevant to the Proposed Action are:

1. pursuing -transit-oriented development;
2. generating clean, renewable power;
3. constructing new resource- and energy-efficient buildings and/or improving the efficiency of existing buildings; and
4. encouraging sustainable transportation.

Stationary Sources

On-site construction activities are considered stationary source activities. Construction would span over a multi-year period starting ~~in~~ around January 2024 through 2034, inclusive of start-up and commissioning. The phases, duration, overlap of construction activities and construction equipment, and average daily worker and truck estimates, were identified for the Kensico Campus and KEC Eastview Site. For the GHG emission estimates, construction was conservatively assumed to occur 30 days per month from 2024 to 2033 over three shifts; 7 AM to 3:30 PM, 3 to 11:30 PM, and 11 PM to 7:30 AM. A third shift was only included for the KEC Eastview Site based on the anticipated construction schedule.

The horsepower, load factor (average power load as compared to rated power), time usage factor (fraction of the hours each equipment engine would be expected to work), if available, and the quantity/number to be utilized on site for each aboveground equipment type was estimated for the analyses. Equipment-specific emission rates for diesel and gasoline powered equipment were

[32] Per the Kyoto Protocol, an international agreement adopted in 1997 that is linked to the United Nations Framework Convention on Climate Change.

obtained from the EPA MOVES Non-Road Module and used to calculate the $mTCO_2e$/year during construction. Diesel and motor gasoline heating values, and carbon dioxide, methane and nitrous oxide emission factors were obtained from *40 CFR 98 Mandatory Greenhouse Gas Reporting*.

In order to calculate emissions associated with electric-powered equipment, the largest load being the TBM, the kilowatt-hours (kWh) for each year of construction were multiplied by an emission factor of 0.252 kilograms (kg) CO_2e/kWh which was obtained from Con Edison's 2020 Environmental, Social and Corporate Governance Reporting Standards[33], which reflects Con Edison's 2021 fuel mix. While Con Edison has a 100 percent clean electricity goal by 2040, and more renewables will likely come online each year of construction, use of the 2021 fuel mix and associated emission factor to all years of construction was assumed to be conservative.

Mobile Sources

Mobile source emissions during construction were estimated using the *CEQR Technical Manual's* Mobile GHG Emissions Calculator (Bronx, Brooklyn, Queens, and Staten Island boroughs section). Trip generation numbers for passenger cars and trucks, and vehicle miles traveled (VMTs) by road type (local, arterial and interstate/expressway) were obtained from the construction traffic analysis completed as part of this ~~Draft~~ Final EIS analyses and used to calculate the annual metric tons of carbon dioxide equivalent during construction.

Material Extraction, Production, and Transport

Emissions associated with material extraction and production were estimated for the steel and concrete proposed to be used in the Proposed Action. Based on a review of available literature, the extraction portion of GHG for concrete production is less than one percent of the extraction and production total, and therefore, this was not used for this analysis. To estimate GHG emissions from concrete, the embodied CO_2e of ready-mixed concrete environmental product declarations (EPDs) were reviewed from over 900 facilities in New York State that report the CO_2e emission factors of their concrete to the Embodied Carbon in Construction Calculator (EC3) tool, which is a publicly available database of EPDs. The EC3 tool is a free database developed by the Carbon Leadership Forum, in partnership with nearly 50 industry partners. The conservative GWP provided by EC3 for these identified mixes (420 kg CO_2e per cubic yard) was selected as a CO_2e emission factor for concrete. It was assumed that the values provided in the EPDs do not include transportation emissions to the location of the Proposed Action and are "cradle to gate" (of the concrete mixing facility) following review of a subset of the over 900 EPDs in the database.

[33] https://lite.conedison.com/ehs/2020-sustainability-report/eei-esg-template/.

The CO_2e emission factor for steel production was calculated using data from the *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019* (EPA Publication 430-R-21-005, April 2021). This was completed by summing the 2019 US steel production (Electric Arc Furnace and Basic Oxygen Furnace) from Table 4-72 and dividing by the 2019 CO_2e estimate for metallurgical coke, iron, and steel production from Table 4-74. As with concrete, the portion of GHG due to iron ore extraction is expected to be an insignificant portion of the extraction and production total and was therefore not separately accounted for in the analysis. However, the production-related CO_2e value for steelmaking does account for the CO_2e emissions from taconite pellet production. Emissions associated with transport of steel and concrete were captured as part of the construction mobile source GHG emissions analysis.

Tree Removal and Post-Construction Planting

The Proposed Action would result in the removal of approximately 2,350 trees. Approximately 63 different species of trees are present at the Kensico Campus and KEC Eastview Site. The Kensico Campus includes approximately 3,145 trees, of which approximately 2,250 trees are proposed to be removed as part of the Proposed Action. The KEC Eastview Site has over 3,550 trees, of which approximately 100 trees would be removed as part of the Proposed Action. As part of the Proposed Action, approximately 1,880 trees are proposed to be planted as part of restoration and landscaping.

The reduction in carbon sequestration associated with tree removal as part of the Proposed Action, as well as biogenic emissions[34] that would be generated as a result of the decomposition of chipped material from harvested trees and changes in soil carbon from the disturbance, were evaluated using the Climate Action Reserve's Forest Project Protocol (FPP) V5. To provide a conservative estimate of reduced carbon sequestration, it has been assumed that the harvested trees would be chipped. Section 5.2 of the FPP describes the required GHG Assessment Boundary or components to be included in the assessment. For the Proposed Action this includes the portions of forest biomass, or carbon pools, to evaluate for reduction in future carbon sequestration, and the increase in biogenic emissions as a result of forest management. Some portions of the forest, such as standing tree biomass, are more critical to understanding changes in forest carbon due to management practices. **Table 3.12-1** includes the carbon pools within this boundary and the proposed methodology to estimate these pools. In accordance with FPP guidelines, the required accounting period to evaluate the carbon pools defined below is 100 years.

[34] Biogenic emissions are emissions from biologic sources other than fossil fuels, including various wood end uses, such as chipping.

Table 3.12-1. Carbon Pools, Descriptions, and Quantification Methodology for Tree Removal and Planting Activity

Carbon Pool	Description	Quantification Methodology for Proposed Action
Live and standing dead trees; Tree planting	• Standing live carbon (carbon in all portions of living trees). • Standing dead carbon (carbon in all portions of dead, standing trees).	• Standing above-ground and below-ground biomass estimated from tree inventory data (e.g., diameter at breast height, condition). • Trees to be planted based on species list and number of each species. • Application of allometric equations(1) in Microsoft Excel and i-Tree Eco-V6 (for comparison)(2). • Future growth over 100-year period estimated using i-Tree modeling software. • For standing dead trees, it was assumed hardwoods retained 100 percent of their biomass and softwoods retained 80 percent of their biomass in accordance with Decay Class 2 of the FPP. • Below ground biomass was estimated from aboveground biomass using equations provided in the FPP from Cairns et al. 1997.
Soil carbon	• Changes in organic carbon following clearing and land use conversion.	• Use of the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey Data for soil order, bulk density, and soil organic matter factors. Soil carbon losses estimated by following the process for management-related emissions defined in Section B.2.9 of the FPP.
Wood products	• Accounts for CO_2 emissions from decomposition or disposal of wood products.	• All wood was assumed to be chipped and land applied. 100 percent of above-ground and 80 percent of below-ground biomass assumed to be released to atmosphere within first year of harvest per assumptions in McPherson and Kendall 2014 and McPherson et al. 2015. The remaining 20 percent of chipped below-ground biomass assumed to be emitted within 10 years.

Notes:

(1) Allometric equations represent the relationships between the various attributes of tree size and growth. Species specific allometric equations were preferred, but when diameter at breast height (dbh) ranges were outside of the appropriate use of these equations, species groups or general allometric formulas for deciduous trees (hardwoods), or softwoods (evergreens) were used (Martin et al. 1998, McPherson et al. 2016, Jenkins et al. 2003, Jenkins et al. 2004).

(2) Unknown trees in the i-Tree analysis were assumed to be the most abundant tree on site, Norway Maple (*Acer platanoides)*. Similar results were found using this method compared to estimating biomass in Microsoft Excel.

For changes in soil carbon of the estimated 13.2 acres of tree clearing area between Kensico Campus and the KEC Eastview Site, approximately 8.4 acres was assumed to be replanted, while 4.8 acres was assumed to be converted from forest to other land use. The proposed plantings would include an estimated 25 species, totaling 1,880 trees to be planted as part of the Proposed Action. Biomass removal and soil disturbance index, harvest intensity, frequency of disturbance, and site treatment were determined in accordance with FPP guidelines to estimate net soil carbon loss from this information.

Although research suggests that some carbon in land applied chipped material (up to nine percent) can be sequestered based on soil type (Wolff et al. 2020, Petersen et al. 2013, Ramlow et al. 2018), to be conservative, it was assumed all carbon from land applied chipped material is emitted as it breaks down.

Tree Plantings

Approximately 8.4 acres of land was assumed to be replanted. The proposed plantings would include 25 different species, with an estimated 1,880 trees in total. Each tree was assumed to be one-inch dbh at the time of planting and live for 99 years. Additionally, there was an assumed tree mortality of 10 percent. The i-Tree Calculator was used to quantify the carbon stored within tree biomass. The i-Tree Calculator correlates carbon sequestered annually with each tree species' annual growth rate. Total carbon storage is calculated by aggregating the carbon sequestered annually, over the time horizon of 99 years.

3.12.2.2 Climate Change

In accordance with SEQRA and the *CEQR Technical Manual*, a climate change assessment should discuss measures to avoid or reduce both an action's impacts on climate change and associated impacts due to the effects of climate change such as sea level rise and flooding. The *CEQR Technical Manual* recommends that such a discussion focus on early integration of climate change considerations into a project and may include proposals to increase climate resilience and adaptive management strategies to allow for uncertainties in environmental conditions resulting from climate change.

3.12.3 PROJECTED GHG EMISSIONS FROM THE PROPOSED ACTION

3.12.3.1 Greenhouse Gas Emissions

Stationary Sources

The results of the construction stationary source GHG analysis are provided in **Table 3.12-2**.

Mobile Sources

The results of the construction mobile source GHG analysis are presented in **Table 3.12-3**.

Table 3.12-2. Stationary Source Greenhouse Gas Emissions during Construction ($mTCO_2e$)

Construction Year	Annual GHG Emissions from Diesel and Gasoline Powered Equipment ($mTCO_2e$)	Annual GHG Emissions from Electric Equipment ($mTCO_2e$)	Total Annual GHG Emissions ($mTCO_2e$)
2024	2,678	29	2,707
2025	4,348	140	4,488
2026	5,425	262	5,687
2027	9,442	6,941	16,383
2028	4,056	9,551	13,607
2029	6,538	0	6,538
2030	4,647	0	4,647
2031	3,508	0	3,508
2032	1,820	0	1,820
2033	705	0	705
Total	**43,167**	**16,923**	**60,090**

Table 3.12-3. Mobile Source Greenhouse Gas Emissions during Construction ($mTCO_2e$)

Construction Year	Annual VMT Generated	Annual GHG Emissions ($mTCO_2e$)
2024	925,998	731
2025	1,993,715	1,060
2026	2,515,304	1,128
2027	7,416,096	4,061
2028	7,179,219	4,510
2029	7,473,422	3,545
2030	2,596,780	1,133
2031	2,327,838	1,043
2032	763,598	291
2033	295,692	155
2034	77,843	24
Total	**33,565,505**	**17,681**

Material Extraction and Production

As discussed above, the extraction-related emissions are a very small portion of the overall extraction and production total CO_2e emissions for steel and concrete production. The uncertainty in the production-related CO_2e emissions is greater than the small portion of extraction-related emissions, and therefore, the very small (relative to production) extraction-related emission component is not quantified.

The anticipated CO_2e emissions from steel and concrete (via cement production) use for Proposed Action are summarized in **Table 3.12-4**.

Table 3.12-4. Estimated CO_2e Emissions from Production of Construction Materials

Material	Projected Amount to be Used	Units	Mass Amount	CO_2e Emission Factor	CO_2e Emissions
			(tons)	Varies	($mTCO_2e$)
Steel (sheet pile, railing)	177,580	square feet	3,750	1037.45 (lb/ton)	1,765
Goose Fence	1,545	square feet	2	1037.45 (lb/ton)	1
Concrete	260	cubic yards	not used	420.00 (kg/CY)	109
Material Production Total GHG					**1,875**

Cumulative Stationary and Mobile Sources

The total annual GHG emissions that would be generated due to construction of the Proposed Action is shown in **Table 3.12-5**. The anticipated CO_2e emissions from steel and concrete (via cement production) use for Proposed Action are assumed to occur prior to or when construction starts for the Proposed Action, so they are added to the first year of construction (2024) stationary source emissions in **Table 3.12-5**.

Table 3.12-5. Total Greenhouse Gas Emissions during Construction ($mTCO_2e$)

Construction Year	Annual Stationary Source GHG Emissions(1) ($mTCO_2e$)	Annual Mobile Source GHG Emissions ($mTCO_2e$)	Total GHG Emissions ($mTCO_2e$)
2024	4,582	731	5,313
2025	4,488	1,060	5,547
2026	5,687	1,128	6,815
2027	16,383	4,061	20,445
2028	13,607	4,510	18,117
2029	6,538	3,545	10,082
2030	4,647	1,133	5,780
2031	3,508	1,043	4,551
2032	1,820	291	2,111
2033	705	155	860
2034	0	24	24
Total	**61,965**	**17,681**	**79,646**

Note:
(1) Stationary source emissions estimated for 2024 include emissions from steel and concrete (via cement production) use for the Proposed Action.

3.12.3.2 Tree Removal and Tree Plantings

The Proposed Action includes the removal of approximately 2,250 trees at the Kensico Campus, and approximately 100 trees at the KEC Eastview Site. In addition, a total of approximately 1,880 new trees would be planted as part of the Proposed Action.

The increase in biogenic emissions from the decomposition of chipped material from the harvested trees and changes in soil carbon from disturbance, reduction in carbon sequestration associated with tree removal as part of the Proposed Action, and increased carbon sequestration associated with the proposed tree plantings are summarized in **Table 3.12-6.** Within the first year after tree removal, 2,705 $mTCO_2e$ of biogenic carbon emissions would occur from the decomposition of land applied chipped trees, with an additional 87 $mTCO_2e$ occurring over nine years between year one and year 10. It is estimated that 217 $mTCO_2e$ of additional biogenic emissions would be released from impacts to soil carbon the year of tree removal. Overall biogenic emissions from the Proposed Action are estimated to be approximately 2,792 $mTCO_2e$.

Over 100 years from the time of the proposed tree removal, 3,671 $mTCO_2e$ of potential future sequestration would be lost. The majority of this sequestration would be lost within the first 50 years as the existing younger trees mature. This estimate does not include future lost sequestration in the soil or emissions as standing trees or understory would decompose over the 100 year time period. Over 99 years from the time of the proposed tree plantings, 42,644 $mTCO_2e$ would be sequestered. This value accounts for the carbon lost to new planting mortality. While old forests have accumulated more carbon than younger forests; young forests grow rapidly, removing much more CO_2 each year from the atmosphere than an older forest covering the same area.

Table 3.12-6. Net Carbon Sequestration due to the Proposed Action ($mTCO_2e$)[1]

Soil Carbon Pools[2]	Biogenic Emissions ($mTCO_2e$)	Lost Future Sequestration (Removed Trees) ($mTCO_2e$)	Future Sequestration (New Plantings) ($mTCO_2e$)
Live and standing dead trees (Aboveground)	2,141	3,901	1,739
Live and standing dead trees (Belowground)	982.5		
Soil Carbon	217	NA	NA
Total	**3,340**	**3,901**	**1,739**
Net Sequestration	**–5,502**		

Notes:
(1) A 100-year evaluation period was used in accordance with FPP guidelines.
(2) Conversion factors in Appendix B.1 of the FPP were used to estimate metric tons of carbon dioxide equivalents (CO_2e) from metric tons of biomass. To convert to carbon, biomass was multiplied by 0.5 (biological carbon/biomass equivalents). To convert to CO_2e total carbon was multiplied by 3.667 (CO_2e / biological carbon).

Net tree and soil carbon sequestration is calculated by totaling the biogenic emissions and lost future sequestration (from tree removal) to establish a baseline, then subtracting anticipated future sequestration per the following equation:

Net Sequestration = (*Biogenic Emissions + Lost Future Sequestration) - Future Sequestration*

As a result of the Proposed Action, there would be a net loss of carbon sequestration over the considered time horizon. Although the annual *rate* of carbon sequestration decreases over time for older trees and increases for younger trees, a mature stand still sequesters a greater *volume* each year for most of the 100 years.

3.12.3.3 Assessment of Consistency with the GHG Reduction Goals

To determine consistency with the City and State's overall GHG reduction goals, the Proposed Action was examined against OneNYC's goals to reduce Citywide GHG emissions, as applicable to the Proposed Action. These goals are as follows:

- Reduce Construction Operation Emissions
  - Use low-emission construction vehicles and equipment;
  - Incorporate any of the following measures to reduce the project's construction GHG emissions:
    - Diesel particulate filters;
    - Diesel oxidation catalysts;
    - Alternate low-carbon fuels; or
    - Other technologies that reduce construction operation GHG emissions.

The Proposed Action's anticipated reduction in GHG emissions of 80 percent below the baseline during construction would help the City and State meet their GHG reduction goals. Opportunities for further reducing GHG emissions during construction may include:

- Best Available Technology in diesel-powered non-road vehicles;
- Ultra-low sulfur diesel in diesel-powered non-road vehicles;
- Minimum lighting efficiency standards with high efficiency lamps;
- Vehicle idling restrictions compliance;
- Alternative fuels in heavy equipment (such as biodiesel);
- Electrified construction equipment and vehicles (the TBM which is the largest load is already electric);
- Temporary photovoltaic (PV) panels or solar-powered lights;

- Improved logistics and planning by assessing traffic and routes as part of traffic management plans;
- On-site plants in lieu of trucking material to the site, if applicable and practical;
- Prefabrication of design elements; and
- Purchase of Renewable Energy Credits (RECs) or offsets for part of the energy consumption.

3.12.4 CLIMATE CHANGE

Water resources, such as Kensico Reservoir, are subject to climate change, including flooding and effects to water quality. Future rainfall events are expected to experience increased intensity and duration, which would potentially result in increased site runoff volumes and associated erosion and sediment runoff, flow velocities, and potential flooding. During Superstorm Sandy in October 2012, the western and cove shorelines and adjacent upland areas of Kensico Reservoir suffered severe erosion from wave action. This resulted in higher levels of sedimentation and suspended solids in reservoir waters, which caused turbidity in areas near the UEC and DEL Shaft 18. In order to reduce the potential for effects to water quality, the Proposed Action would include stabilization of Kensico Reservoir's western shorelines extending from the UEC south and connecting to previously completed stabilization efforts located north of DEL Shaft 18. Shoreline stabilization would involve a combination of regrading, excavation, riprap placement, concrete curb work, and/or gabion walls. These efforts would serve to protect these shoreline areas and potential effects to reservoir water quality due to significant storm events including those that may be exacerbated by climate change.

The Proposed Action would also involve the replacement of existing turbidity curtains within the reservoir and east of the UEC intake that are in place to address ongoing runoff issues associated with Malcolm Brook. These existing curtains are reaching the limit of their useful life and would be replaced with a new and longer turbidity curtain that would direct flows from Malcolm Brook further into the open areas of the reservoir and away from the UEC. This would address current conditions, as well as increased runoff that may occur due to climate change.

Finally, completion of the new deep rock tunnel and improvements to the UEC would increase DEP's flexibility to manage water quality within the reservoir and maintain DEP's ability to bypass Kensico Reservoir or the CDUV Facility when required. The Proposed Action would therefore provide DEP with increased flexibility to maintain a high-quality supply of water including during those periods when more severe storm events may result in increases in turbidity in the Catskill System.