19. Construction and Construction Impacts

This chapter summarizes the conceptual construction approach for the Proposed Project and assesses the potential for adverse environmental effects during construction.

The selected design-builder will be responsible for final design and construction of the Proposed Project that meets the specifications established by MTA, including any mitigation defined in this EA. MTA will oversee the design-build process and have ultimate responsibility for project implementation. In addition to contract documents, the design-builder must comply with all other applicable engineering codes and standards, including those of various federal, state and local jurisdictions. MTA will provide thirty percent design documents, with 100 percent design documents for the track alignment, to the design-builder. Throughout the final design process, MTA and Amtrak would participate in design reviews with the design-builder. The exact construction sequencing would be developed in conjunction with Amtrak and the selected design-builder as the design-build process proceeds. As described in Chapter 22, "Public Participation and Agency Coordination," consultation with Amtrak and other key stakeholders has begun and such coordination is ongoing.

Since rail service must be maintained along the HGL for the duration of construction, the availability and scheduling of specific track outages would be instrumental in determining the ultimate construction phasing. For purposes of this EA, it is assumed that some daytime on-track work would be required. The type and duration of construction activities in any given area can be estimated based on past projects of a similar nature. This experience provides a basis for an assessment and disclosure of potential adverse effects that may occur along the corridor during construction, as well as the development and disclosure of measures that would avoid or minimize any adverse effects of construction on the surrounding communities and man-made and natural resources.

This chapter first discusses likely construction means and methods based on the preliminary design and then assesses the potential effects that construction would have on land use, zoning and public policy; socioeconomic conditions; community facilities and services; visual resources; open space and recreation; natural resources; historic resources; archaeological resources; transportation; air quality; energy; GHGs; noise and vibration; contaminated materials; and safety and security. Measures that would avoid, minimize, or mitigate potential adverse effects are identified.

19.1 KEY CONCLUSIONS

Construction of the Proposed Project would result in temporary effects along the railroad right-of-way and in areas adjacent to sections of the right-of-way where passenger stations, bridge modifications, and other project elements are proposed. The HGL was originally designed to hold six railroad tracks and is now occupied by two Amtrak passenger tracks and one CSX freight track. Therefore, the right-of-way has sufficient space for the majority of the Proposed Project elements, except where property acquisition is required as noted in Table 3-4 in Chapter 3, "Land Use, Zoning, and Public Policy." The Proposed Project would require permanent property acquisitions from Amtrak, public and private entities, as well as easements during construction and for station access. Based on conceptual plans and schedule, construction would last approximately four to five years. There would be approximately 9 to 18 months of consistent station work at each station and up to 24 months of work at each new substation, with shorter durations of work along the HGL Corridor which could occur simultaneously. Access points and staging areas could be active for the duration of the project. To minimize any potential adverse effects during construction, the design-builder will implement specific measures are described in Section 19.6, "Measures to Minimize Community Impacts."

19.2 CONSTRUCTION ELEMENTS

The elements that would be constructed or modified as part of the Proposed Project include the following:

- New Metro-North passenger stations
- New and modified trackwork
- New and modified interlockings
- Repair and construction of rail bridges
- Traction power system modifications
- Signal and communications system upgrades
- Train yards and storage facilities

Each element is discussed in more detail below. The information is based on the preliminary design prepared by MTA, construction best practices, and Metro-North design standards.

19.2.1 Passenger Stations

The Proposed Project includes four new ADA-compliant Metro-North passenger stations on the HGL Corridor, at Hunts Point, Parkchester-Van Nest, Morris Park, and Co-op City. The station platform configurations would be center island platforms.

Passenger access and amenities for the four new stations would be designed according to Metro-North standards. Access to the platforms would include ADA-compliant elevator connections from street level to each platform. Each platform would have a canopy and waiting area, with signage and an active passenger communications interface, as well as a platform heating system for snow melting. Compliance with ADA requires very precise construction of the station platforms with respect to the adjacent track alignments. Therefore, it is anticipated that the new station platforms would be constructed after the adjacent tracks have been constructed or relocated.

The specific platform construction methodology for each station would not be determined until a design-builder is selected and the final design is advanced. However, based upon experience with similar construction projects, it is likely that the platforms would be constructed using micropiles and either concrete or fiber reinforced panels. It is expected that mobile micropile drill rigs would be used. Panels would either be fabricated offsite or cast in place.

The overall duration of construction of access and amenities for an individual station would likely be approximately 9 to 18 months, and construction of an individual platform would likely be approximately 6 to 9 months. These durations would depend upon the specific station design, the availability of Amtrak track outages, and the means and methods employed by the design-builder. Depending on availability of storage space within the right-of-way, there may be just-in-time delivery of the pre-cast or fiber reinforced panels platform panels and the steel and pre-cast concrete construction materials for the stair and elevator shafts and pedestrian bridges, with delivery either by rail or by truck. A worst-case assumption for transportation impacts, is delivery primarily by truck. Mobile cranes would be used to place them.

19.2.2 Trackwork

A key requirement for trackwork construction on the HGL is that both passenger and freight operations must be maintained at all times during the relocation and construction process. The existing HGL consists of two Amtrak passenger tracks, and one freight track. If any construction work interrupts normal passenger operations on one track, full Amtrak service must be maintained in both directions on the other track. Operating a normal two-track operation on one track like this is known as “single-tracking.” As there is only one freight track, construction work has the potential to interrupt freight operations so would be scheduled to minimize impacts.

Much of the passenger trackwork construction would consist of relocating or shifting existing tracks and replacing catenary (overhead power system). This would be accomplished by coordinating front end loaders or similar construction machinery. The construction machinery would progress simultaneously, pushing the track into its new alignment. Where an entirely new track is required, space would first be cleared and then new track and catenary wire would be constructed, either using specialized machinery or traditional construction methods (cranes and front end loaders). Catenary work may require temporary de-energizing of adjacent systems during weekend outages.

The ballast for both passenger and freight tracks along the entire corridor is expected to be replaced and underdrains installed along the trackbeds. Contractors may reuse or clean some contaminated ballast, depending on the on-site conditions. Assuming a worst-case scenario where no ballast is reused on-site, and soil and rock sub-grade material must also be replaced, it is estimated that fewer than 28 trucks per day would be needed to haul away ballast spread over the entire corridor and construction period. This is a conservative measure since it is possible that stone trains could be used to transport some material off-site.

The overall duration of the trackwork and associated catenary wire construction would likely be approximately 24 to 48 months, but the entire effort would not be performed at one time. Instead, the trackwork would be gradually progressed along the HGL Corridor and the work would only affect neighborhoods immediately adjacent to the active construction site. The duration of that local effect would depend upon the specific track and catenary design, the availability of Amtrak track outages (or in the case of freight-only tracks, CSX outages), and the means and methods employed. The trackwork is anticipated to be intermittent and phased throughout the course of this project.

19.2.3 Interlockings

An interlocking is an arrangement of track, switches, and signals that allows trains to move between the different tracks or through a junction. The Proposed Project includes the construction of four new interlockings, at Leggett, Young, Tremont, and Bronx, and the reconfiguration of one existing interlocking, at Pelham Bay. Additional switches would be added to CP-215 and CP-217 to increase NHL operating flexibility with the proposed project.

The construction of the proposed interlockings would be subject to the same requirement to maintain Amtrak NEC service as the track and catenary system construction. Construction of interlockings would include the installation of the signal control hut and its foundation. Signal control huts are typically manufactured and delivered from offsite. Special trackwork, including turnouts, would be prefabricated offsite, typically as panels. While the signal control huts are being installed, the tracks through the future interlocking would be realigned to allow for rapid installation of the special trackwork.

Single-track service through the interlocking location would then be implemented to allow the installation of the special trackwork. Once installed, through-service could then be resumed on that track. This process would be repeated until all the special trackwork is installed. This would occur over approximately two weekends. When construction of the switches is complete, the final signal and communications wiring connections would be made, new catenary systems would be installed, and testing would be conducted. Service would be limited again to single tracking

The overall duration of construction of a new or reconfigured interlocking would likely be approximately 6 to 12 months, including testing. This duration would depend upon the specific interlocking design, the availability of Amtrak track outages, the means and methods employed either by the design-builder or by Amtrak in-house construction forces, and the complexity of testing the particular interlocking.

19.2.4 Rail Bridges

Trains using the HGL Corridor travel under 21 existing bridges and over five existing bridges between the proposed Leggett Interlocking and Bronx Interlocking. A major objective of the proposed design is to avoid impacts to the existing bridges that the HGL crosses under, to the extent practicable. To meet this objective, the existing, relocated, and/or new catenary systems would be attached to new catenary support portal structures that would be constructed adjacent to each side of each bridge. This would avoid having to attach the catenary wires to the overhead bridge structures. The new catenary portals at the existing bridges would be constructed as discussed in Section 19.2.5.

The anticipated construction effects on four of the five bridges over which the trains on the HGL travel are as follows:

- **Bronx River Bridge** – The existing bridge consists of two drawbridges, locked in the closed position. The northern drawbridge carries two Amtrak passenger tracks and the southern drawbridge carries a single CSX freight track with a vacant trackway. Structural repairs of both drawbridges would be performed as necessary and both bridges would be repainted. Structural repairs of the drawbridges are likely to require working at nights and weekends to minimize Amtrak and CSX outages. Note that the work would include removal of the counterweight at both drawbridges and is not intended to restore either drawbridge for moveable operations. The overall duration of construction of repairs and painting of the existing Bronx River Bridge would likely be approximately 24 months. The duration of any structural repairs of the bridge substructure would depend upon the specific design and the effects of maintaining Amtrak service across the bridge.

  In addition, to accommodate the third passenger track as part of the Proposed Project, a new two span bridge would be constructed over the Bronx River to the north of the existing Bronx River Bridge. Based on preliminary design, the new bridge would use an existing abutment to the east of the Bronx River and would construct a new abutment on the west edge of the Bronx River. It is anticipated that in-water work would be limited to one abutment and one new deep foundation pier (approximately three to six months). Each substructure unit would be supported on deep foundations (drilled shafts). For the span over the Bronx River, since it would not need to function as a drawbridge, a through girder type structure would be the most cost-effective solution for the superstructure and would help maintain at a minimum the existing vertical clearance of the existing structures over the Bronx River. If the design-builder opts for a different structure during final design, any impacts from changes would be assessed by MTA through a supplemental evaluation. The new structures would provide 8'-0" minimum clearance to centerline of track, which adheres to Amtrak's standards for through girder bridges. The overall duration of construction of the new Bronx River spans would be approximately 12 months.

- **Bronxdale Avenue and Eastchester Road Bridges** – The superstructures of each bridge consist of multiple separate steel girder spans. The design-builder would determine whether one or more new steel spans would need to be constructed and whether any structural repairs should be undertaken during final design. If construction of one or more new steel bridge spans is required, the work would be sequenced so that Amtrak service is diverted off the affected span and onto a track across one of the other spans. This would allow double-track Amtrak service to continue while the new span is constructed.

  The overall duration of construction of the single new steel bridge span of the Bronxdale Avenue and Eastchester Road Bridges would each likely last approximately 9 to 18 months. The duration of any structural repairs of the bridge substructures would depend upon the specific design and the effects of maintaining street traffic under the bridge.

- **Pelham Lane Pathway Bridge** – The bridge would be rehabilitated or replaced to accommodate the new interlocking. In addition, the design-builder would assess the Pelham Lane Pathway Bridge for carrying the additional Metro-North trains during final design to determine if additional structural repairs are necessary. The determination regarding rehabilitation or replacement will be made by MTA and Amtrak.

19.2.5 Traction Power System and Substations

The addition of new Metro-North service on the HGL Corridor in addition to the planned expansion of Amtrak service would require increased load flow in the AC traction power system. Metro-North assessed the magnitude of the increased power requirements and the need for new or expanded traction power substations, electrical switching equipment, and feeders. As a worst-case assumption, the following new and modified substations would be required for the Proposed Project:

- **Woodside –** Construct new DC substation.
- **Gate** – Construct new DC substation.
- **Van Nest** – Replace existing AC supply substation near its existing location.
- **Bowery Bay** – Upgrade/renew existing AC substation.
- **Oak** – Construct new AC supply substation.
- **Co-Op City** – Construct new AC substation.
- **New Rochelle** – Replace existing AC substation.

Construction of an individual traction power substation would begin with the reinforced concrete base slab or other foundations. It is anticipated that where construction is adjacent to an active track, the work would be performed at times when Amtrak could operate on a single track.

This would be followed by construction of any new building elements required to protect the electrical equipment or provide maintenance staff facilities. With the electrical equipment installed, the process of installing the new feeder system could proceed, followed by field testing to verify that the equipment is installed safely and operates as specified.

Construction of an individual substation slab would be likely to take between 3 to 6 months and it is anticipated that the construction of any associated feeder distribution pole foundations would progress along the HGL Corridor ahead of the rest of the work. Construction of the substation building, installation of the prefabricated electrical equipment, and installation of the wiring and field testing would likely take between 12 to 15 months. Testing would require an additional 3 months.

Traction power for Amtrak (and for future Metro-North) trains running on the HGL Corridor is delivered to the trains by means of catenaries. The existing catenaries are supported on a series of portal structures that span the full width of the railroad right-of-way. MTA would require replacement of most of the existing catenary support portal structures where the new track alignment would not fit under the existing portals or due to the poor condition of the structures. If possible, existing catenary structures would be used, requiring only the relocation of the attachments of the catenaries to the portals to match the reconfigured track layout. This catenary construction activity is discussed above, in the context of track relocation and construction.

Construction of any specific catenary support structure would begin with construction of the related reinforced concrete foundations. These would generally be drilled caissons +/- 20 feet deep. Reinforcement and anchor bolts would be installed in the drilled caissons, followed by placement of the concrete. Construction of each caisson would likely take up to one week and it is anticipated that the construction of the caissons would progress along the HGL ahead of the rest of the work to allow time for the concrete to develop strength. In fact, the catenary structure foundations could be constructed as long in advance of the structure installations as is convenient. It is anticipated that where a caisson is next to an active track, the work would be performed at times when Amtrak could operate a full level of scheduled service on a single track.

The catenary support structures would be pre-fabricated and brought to the construction site by rail or by truck. The portal beam sections would be bolted together on-site and the fully assembled beam would be lifted into place by a mobile crane. The work would be closely coordinated with Amtrak so that the maneuvering of a structure over the track would take place in a defined period between individual trains. This would likely require the work to take place at night, when the intervals between trains are the longest.

The actual duration of on-site construction of a catenary support structure and the installation of the structure would likely last approximately 2 weeks, spread over multiple months. The duration would depend upon the specific structure design, including whether it is a portal or a single pole.

In order to provide continuous traction power supply to the Metro-North train cars, it would be necessary to add up to two (2) miles of new third-rail from Harold Interlocking to the existing Overhead Catenary Phase Break[1] with two (2) new DC Substations (at Woodside and Gate). The new section of third-rail would be an extension of the Harold Interlocking third-rail. The work would probably be performed with either both

[1] The Amtrak NEC traction power system uses AC (Alternating Current) electricity, which has a specific design frequency. The AC electricity from Gate Interlocking west to Washington DC has a 25 Hertz frequency and from Gate Interlocking east to Boston the AC electricity frequency is 60 Hertz. Where the two traction power systems meet, just east of Gate Interlocking, a Phase Break is installed as part of the catenary system. The Phase Break electrically separates the 25 Hertz and 60 Hertz AC catenaries and prevents cross-contamination of the traction power supply.

passenger tracks in service, between the passage of Amtrak trains or with Amtrak single-tracking between Harold Interlocking and Gate Interlocking, as discussed in Section 19.2.2, "Trackwork" above.

19.2.6 Signals and Communications

The new Metro-North service on the HGL, in addition to the planned expansion of Amtrak service, would require an upgrade of the HGL signal system. This upgrade would require a modification of the signal system to allow trains to run safely closer together so that the number of trains per hour could be increased. This would require installation of new track circuitry and signal cables, and modified wayside signals (to accommodate new interlockings). The upgraded system would retain compatibility with Amtrak's Advanced Civil Speed Enforcement System II Positive Train Control (PTC) system, which is already in place on the HGL.

It is anticipated that the upgraded signal system would be installed as an overlay to the existing system and that trains could continue to operate on the HGL using the existing signal system pending completion of the new system. The work would be performed in coordination with the track and interlocking construction described in Sections 19.2.2 and 19.2.3, above and it would be performed by small teams of specialist signal installers and testers. The use of backhoes and large cranes would be required. Transition to the new system could occur with minimal overall effect on train operations.

In parallel with the signal system upgrade, corresponding modifications would be installed at Amtrak's Penn Station Control Center. This would include any upgrades to the HGL Communications System required to support the Proposed Project.

19.2.7 Rail Yards and Facilities

The New Rochelle Yard just east of New Rochelle station would be expanded linearly to include three (3) stub end tracks (approximately 5,200 linear feet of track) with storage and car cleanout capabilities, 1,600 linear feet of track for maintenance-of-way vehicles, and employee welfare facilities (employee buildings and parking). Metro-North would utilize the expanded yard for overnight storage for the new service, as well as light maintenance and interior cleaning of the proposed Metro-North trains. The work would take place primarily within the NHL right-of-way and in the existing New Rochelle Yard, with some acquisition of small portions of private property required for construction of retaining walls to protect the yard space from the main line tracks, and separate the yard from adjacent land uses.

The overall duration of construction of improvements to New Rochelle Yard would likely be approximately 24 to 36 months, although work may be phased throughout the overall project construction period.

19.3 CONSTRUCTION SCHEDULE AND PHASING

Table 19-1 presents an estimate of the construction duration for individual elements of the Proposed Project based on preliminary design. Construction on multiple elements would occur simultaneously throughout the project area.

As described previously in this chapter, construction phasing and scheduling plans would depend upon details of the final design, the track outages permitted by Amtrak, and the construction means and methods. This project would maximize the usage of single tracking to the extent that would not affect Amtrak operations. In addition, there may be elements of the construction work on the right-of-way that would require infrequent temporary service suspension, which would be carefully coordinated with Amtrak to minimize the potential effects to Amtrak's customers. As described in Chapter 22, "Public Participation and Agency Coordination," consultation with Amtrak and other key stakeholders has taken place and such coordination is ongoing. Construction on the NEC is closely coordinated with Amtrak and all other operators on the NEC in the NYC region. MTA and other operators on the NEC participate in weekly meetings with Amtrak to closely coordinate regional projects that require track outages. Detailed schedules are developed on a weekly, six-month and five-year outlook and are continually adjusted to reflect updated manpower requirements. These meetings prioritize projects and coordinate all work being conducted on the NEC to ensure weekend outages maximize productivity in order to minimize overall impacts to passengers. Although the Proposed Project has not yet entered the construction phase, the outage needs are already being identified and are included in the outage scheduling.

Table 19-1. Proposed Project Construction Element Durations

Construction Element	Approximate Duration
Station construction (at each location)	18 months
Trackwork (including ballast replacement and underdrains) and associated catenary wire construction	24 to 48 months
Construction of a new or reconfigured interlocking (new at Leggett, Young, Tremont, Market and Bronx; reconfigured at Pelham Bay)	3 months
Upgrade of the signal system	Coordinated with trackwork and interlockings construction
Expansion of New Rochelle Yard	24-36 months
Construction of new substation (slab, building, installation of the prefabricated electrical equipment, and installation of the wiring and field testing)	18 to 24 months (includes 3 months of testing)
Rehabilitation of the existing Bronx River Bridge	24 months
Construction of new two-span bridge over the Bronx River	12 months (in-water work would be limited to 3 to 6 months)
Rehabilitation or replacement of existing single steel bridge span of the Bronxdale Avenue and Eastchester Road Bridges	9 to 18 months for construction of new single steel bridge span
Rehabilitation or replacement of Pelham Lane Pathway Bridge	12 months
Overall Timeframe for Project	**48 to 60 months**

Source: HNTB, 2020.

Experience with projects of this type on active railroad right-of-way suggests that the overall construction duration will span approximately four to five years, however the duration will depend on the design-builder. It is important to emphasize that this does not mean that there will be continuous construction activity for this period along the entire HGL Corridor. Instead, as described in Section 19.2.2, various phases of construction will progress along the HGL corridor at different advance rates, depending upon the specific technical content of the work, the track outage scenarios, and the construction methodology used by the design-builder.

19.4 CONSTRUCTION STAGING AREAS AND ACCESS

Construction staging areas and necessary construction and maintenance easements would be identified as the design-build process progresses. Currently, it is not anticipated that any existing buildings would need to be demolished, but easements on portions of lots may be required. Amtrak currently has eight locations of access to the railroad right-of-way that it uses to maintain the right-of-way as summarized in Table 19-2. These locations would form the basis for construction access. There are at least two access points to the right-of-way within each Proposed Project segment, at least one of which would be suitable for construction access.

Currently Amtrak moves around the right-of-way between the various access points by utilizing the clear space between tracks. These spaces are not formal paved access roads, but rather track ballast surfaces that Amtrak personnel vehicles can traverse. Construction of new tracks for the Proposed Project would remove or limit these informal maintenance routes and block them at the new station locations, but new permanent access points would be provided.

Table 19-2. Existing Access Points and Approximate Staging Areas along the Hell Gate Line (HGL) Corridor

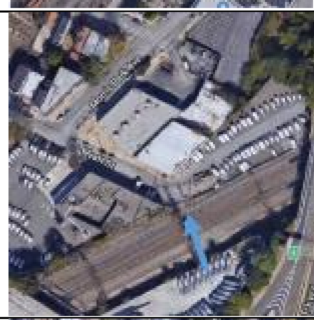
Location	Description	Location	Photograph
Bruckner Boulevard at 149th Street Block 2599 Lot 200 *Segment 2*	A gated entry, located off Bruckner Boulevard northbound, in the vicinity of the former Oak tower.		
Longwood Avenue and Garrison Avenue. Block 2730 Lot 101 *Segment 2*	This ramp leads to the Oak Point Yard, and is used by CSX and Amtrak to access the right-of-way.		
Watt Street and East 178th Street Block 3908 Lot 68 *Segment 3*	This gated entry is located behind a second gated entry to the street. Amtrak has an access easement.		
Sacket Avenue at Paulding Avenue. Block 4067 Lot 16 *Segment 3*	This gated entry is located behind a roadway guard rail, which would need to be modified for greater access.		
New England Thruway (I-95) Southbound off ramp to Pelham Parkway Block 4411 Lot 1 *Segment 3*	Amtrak utilizes the incomplete cloverleaf ramp of the northeast Thruway for direct access to the right-of-way.		

Table 19-2. Existing Access Points and Approximate Staging Areas along the Hell Gate Line (HGL) Corridor (continued)

Location	Description	Location	Photograph
Erskine Place and Boller Avenue Block 5153 Lot 100 *Segment 3*	This gated entry leads to the parking lot for the Communications and Signal room for the Pelham Bay Drawbridge.		
Pelham Bay Park - Bartow Circle at Shore Road Block 5650 Lot 100 *Segment 4*	This simple gate leads to the right-of-way and a commercial cellular telephone installation.		
Forest Road Westchester County *Segment 4*	This gate leads to the right-of-way and a fenced maintenance of way storage area.		

During construction, Amtrak's access to the railroad right-of-way and critical infrastructure would be maintained until the new permanent access points are completed. MTA would coordinate with Amtrak and strive to combine construction access points with future railroad right-of-way maintenance access points. The availability of suitable construction staging areas would be a determining factor in choosing maintenance access points. Reconstruction of the Bronxdale Avenue and Eastchester Road Bridge superstructures, as well as at certain bridges with bridge piers between tracks, would require additional planning by the design-builder for construction staging and access.

19.5 POTENTIAL EFFECTS OF PROPOSED PROJECT CONSTRUCTION

As with any large transportation project, construction activities associated with the Proposed Project would result in temporary effects to the areas immediately adjacent to the construction activities. The following analyses describe the potential effects that could result from construction of the Proposed Project and measures to minimize any adverse effects under Section 19.6, "Measures to Minimize Community Impacts."

19.5.1 Land Use, Zoning, and Public Policy

While construction of the overall project would take four to five years, construction activity in any given area would be of short duration (less than 18 months) and would be limited to locations along the railroad right-of-way and in areas adjacent to sections of the right-of-way where passenger stations, bridge modifications, and other project elements are proposed. While property acquisition would occur, and temporary easements may be required for construction, the construction of the Proposed Project would not result in changes in area land use nor would it adversely affect public policy. Since the proposed stations would be constructed predominantly in areas surrounded by transportation and utility uses, the construction of these elements would not alter the existing neighborhood character of the surrounding communities. In areas where project elements are proposed in close proximity to residential and other sensitive uses, the adverse effects of construction would be avoided or minimized to the extent practicable through specific measures described below in Section 19.6.

The locations of construction staging areas and additional right-of-way access would be identified as the Proposed Project design-build process advances. Table 19-2 provides the existing access points and approximate staging areas for the Proposed Project, all of which are in non-residential areas. While most construction work would occur within the existing railroad right-of-way, future design refinements and advanced construction plans by the design-builder may identify the need for properties that would be used temporarily during construction. If the need for additional properties is identified in the future (i.e., temporary easements, staging areas), the selected design-builder would coordinate with potentially affected property owners.

19.5.2 Socioeconomic Conditions

The construction of the Proposed Project would result in the investment of significant capital into the local and regional economy. The local and regional economic benefits of this investment would include employment (construction-related labor) and economic output (demand for goods and services created by project construction, such as expenditures by materials suppliers and construction workers).

Construction activities associated with the four proposed stations and the rehabilitation or replacement of the bridges could at times affect pedestrian and vehicular access in the immediate vicinity of the construction. Any access modifications would be of short duration in keeping with the timeframes discussed above. Construction activities near the proposed station locations may result in a temporary loss of parking spaces, and temporary lane and road closures as described in Section 19.5.9.2, "Traffic and Parking." However, any short-term effects to parking due to construction activities are anticipated to be minimal. A Maintenance and Protection of Traffic Plan would be developed and implemented for each area undergoing construction to ensure that access to existing businesses would be maintained throughout the construction period. Therefore, businesses would not be adversely affected by any temporary change in pedestrian and vehicular access during construction and there would be no potential for adverse socioeconomic effects.

19.5.3 Community Facilities and Services

The majority of construction activities would occur within the existing railroad right-of-way, but construction staging areas may be located outside the right-of-way. Table 19-2 provides the existing access points and approximate staging areas for the Proposed Project, all of which are in non-residential areas and would not affect community facilities in the surrounding area. Temporary lane closures may be needed during work on the Bronxdale Avenue and Eastchester Road bridges, as well as during the construction of access for the four proposed stations. While it is anticipated that some minor overnight road closures would be required at Bronxdale Avenue and Eastchester Road Bridges, these would be limited to single nights, and fully incorporated into the greater Maintenance and Protection of Traffic Plan. Therefore, access to community facilities and services, including emergency services, would be maintained throughout the Proposed Project's construction. Measures to avoid adverse noise effects at community facilities, such as schools, hospitals, and other sensitive uses, during construction is discussed in Section 19.5.13, "Noise and Vibration."

19.5.4 Visual Resources

As construction of the Proposed Project proceeds, construction equipment, such as cranes, excavators, and trucks, would be visible to the residents and businesses located along the railroad right-of-way and the proposed station locations. Construction activities would be phased and it is anticipated that construction would not last longer than 24 months at any particular location. The construction areas would be restored upon completion. Although the character and quality of views of the HGL Corridor during construction of the Proposed Project would be modified, such effects would be temporary at any given location. Therefore, construction of the Proposed Project would not result in adverse effects to visual and aesthetic resources.

19.5.5 Open Space and Recreation

There are several parks adjacent to the HGL Corridor and within the station study areas, as discussed in Chapter 7, "Public Open Space and Recreation." The majority of proposed construction would occur within the existing railroad right-of-way.

19.5.5.1 Segment 1

In the Segment 1 Corridor, the right-of-way is on a viaduct and thus separated from the parks in the Segment 1 study area. Based on the location of the parks with respect to the right-of-way and the duration and limited intensity of the construction activities anticipated for the Proposed Project elements along Segment 1, the effects on the parks would not be substantial.

19.5.5.2 Segment 2

In the Segment 2 Corridor and Hunts Point Station area, the parks are separated from the railroad right-of-way by intervening highways, roadways, and buildings. Based on the location of the proposed construction activities with respect to open spaces, intervening structures, existing noise levels along the corridor, and the limited duration and intensity of the construction activities, the visual, noise, air quality and other construction effects along Segment 2 would not be substantial.

19.5.5.3 Segment 3

Several parks within the Segment 3 Corridor study area are adjacent to the HGL Corridor. During construction of new tracks, realignment of existing tracks, and construction of the proposed interlockings within the Segment 3 Corridor, construction equipment may be intermittently visible and audible from some of the adjacent parks.

There are no parks within close proximity of the proposed Parkchester-Van Nest and Morris Park Station areas (Segment 3). The proposed Co-op City Station would be located near Pelham Bay Park, but would not encroach on the parkland or pose any public access or safety issues. As public access to Pelham Bay Park is on the more distant southern side of the park, the new station's pedestrian overpass would not be visible to most park users.

Amtrak has an access road in Pelham Bay Park for right-of-way maintenance purposes, which would likely be used for construction staging for the Proposed Project, pending further design and coordination by the design-builder. The portion of the park nearest to the proposed station location is a protected wetland area that is not accessible to the public. Therefore, noise and air emissions during construction would not affect the public enjoyment of the park.

19.5.5.4 Segment 4

The Proposed Project elements along the Segment 4 Corridor that are adjacent to an open space resource include the proposed Bronx Interlocking and the rehabilitation or replacement of the Pelham Lane Pathway Bridge, both of which are within the existing railroad right-of-way that passes between the Pelham Bay and Split Rock Golf Courses. Access under the Pelham Lane Pathway Bridge (currently golf cart and bridle paths that connect the Pelham Bay and Split Rock Golf Courses) would be maintained during rehabilitation or replacement of the bridge. Temporary visual, noise, air quality, and other effects of the construction of these elements are anticipated to be minimal and would not result in any adverse effects on this open space resource. In addition, as outlined in Section 19.6, "Measures to Minimize Community Impacts," the limited duration of construction (less than 18 months in one location), minimal heavy in-ground construction and disturbance, as well as construction control measures would minimize any adverse effects to open space during the construction timeline. Other Proposed Project elements within Segment 4 would not be located near any public open spaces.

19.5.6 Natural Resources

19.5.6.1 Surface Waters and Aquatic Resources

The Proposed Project would not result in in-water or over-water construction over the East River, the Bronx Kill, or Hutchinson River, and therefore there would be no adverse effects during construction on these surface water bodies. The Proposed Project has the potential to temporarily affect the Bronx River during construction. As described above, a new bridge would be constructed over the Bronx River to the north of the existing Bronx River Bridge. While it is anticipated that most work would be performed from land, there is potential for barges to be used during construction. During potential over-water work, best management practices, including silt fences, netting and other sediment containment techniques, would be used to protect the surface water bodies and associated aquatic resources, in consultation with regulatory and resource agencies.

Based on the preliminary design for the new bridge, a new abutment to the east of the Bronx River, a new upland abutment to the west of the Bronx River, and a new deep foundation pier on the west edge of the Bronx River would be constructed. The new abutment and pier would be constructed through two 6 foot diameter caissons with drilled shafts for the required deep foundations, likely using a Bauer BG-40 rig. Pile driving is not anticipated as the caissons (drilled shafts) are not driven, but augered type piles. This work within the Bronx

River would be performed in dry conditions, within temporary cofferdams.[2] The temporary cofferdams would prevent fish from entering the work area. Approximately 1,542.6 square feet (0.035 acre) of temporary impact to EFH would result from the installation of cofferdams within the river to facilitate construction. The temporary cofferdams would be removed following construction, within the time period allowed for in-water work, per NOAA recommendations (July 1 to December 31).

Much of the work would be performed from land; however, spud barges (specialized barges used for marine construction) may be used to support construction activities. The potential use of spud barges would result in minor temporary increases in suspended sediment and disturbance to the substrate and the benthic community. Sediment would be expected to quickly fill in depressions to restore natural gradients and predominant grain size, and recolonization of benthic infauna prey organisms would occur relatively quickly in areas occupied by the temporary cofferdams and disturbed by spud barge activity. Construction of the Proposed Project would last approximately 3 to 6 months. The schedule of in-water activity is not known, but the design-builder will comply with recommendations from NOAA that include avoidance of in-water work between January 1 and June 30. In addition, per NOAA recommendations, the design-builder will ensure that spud barges are able to float at all stages of the tide. Any adverse effects to EFH are anticipated to be no more than minimal and/or temporary, and minimization measures and mitigation are planned. The Proposed Project would not result in a significant adverse effect on EFH-designated species or habitat, or forage species.

NOAA did not have any objections to the Proposed Project and additional EFH conservation recommendations are not warranted (see Appendix F "Natural Resources"). Therefore, there would be no significant adverse effects on surface water quality or aquatic resources during construction.

19.5.6.2 Floodplains and Wetlands

Portions of the HGL corridor are within the 100-year floodplain and the following rail infrastructure components of the Proposed Project would be within the 100-year floodplain: Leggett Interlocking (Segment 2), Oak AC Substation (Segment 2), Pelham Bay Interlocking (Segment 3), and Co-Op City AC Substation (Segment 3). The signal equipment and electrical equipment for Leggett Interlocking would be installed two feet above the flood elevation using steel platforms and the signal equipment and electrical equipment for Pelham Bay Interlocking would be installed four feet above BFE due to its proximity to a waterway. In order to protect critical infrastructure, the Oak and Co-op City AC Substations would either be constructed on an elevated platform or surrounded by flood walls, depending on the design-builder's final design. Since the Co-op City Station (Segment 3) would be within the 100-year floodplain, the design-builder will construct critical equipment at least two feet above the BFE and adhere to Metro-North standards for flood proofing and drainage. The proposed station would also be designed in accordance with NYSDEC Stormwater Management Design Manual guidelines and coordinated with NYCDEP as necessary.

Based on a wetland delineation of the HGL conducted by MTA in March and April 2020, less than 1/4 acre of wetland would be permanently impacted and less than 0.01 acre of wetland would be temporarily impacted by construction of the Proposed Project. A permit application has been submitted to the U.S. Army Corps of Engineers and any mitigation requirements or measures to protect wetlands will be identified through the permitting process and included in the Stormwater Pollution Prevention Plan. These measures may include sediment traps, silt fences, slope drains, water holding areas and other control measures. In addition, stormwater

[2] A cofferdam is a watertight enclosure built within a body of water and pumped dry to permit construction work below the waterline.

runoff generated from construction activities would be contained and managed through best management practices as to avoid contributing potential pollution sources to these surface waters. Therefore, with these measures in place, there would be no significant adverse effects on floodplains and wetlands during construction.

19.5.6.3 Ecological Communities and Wildlife

During construction, birds and mammals may be displaced by the clearing of trees and brush throughout portions of the HGL corridor. Although most tree removal would be permanent (as identified in Section 8.6.4), some additional areas may be temporarily cleared for laydown areas and construction staging. Regrowth would be permitted on those areas, following construction. The vegetation that would potentially be removed does not offer a habitat of value to native wildlife, as discussed in Chapter 8, "Natural Resources." The loss of this vegetation would not significantly degrade or reduce the amount of habitat available to the generalist species of wildlife present within the right-of-way. Disturbance during construction of the Proposed Project due to increased noise and human activity has the potential to temporarily displace wildlife within the vicinity of the construction. Suitable habitat for these urban-adapted species would be available nearby.

As per NYCDPR requirements, where the Proposed Project would involve work on or within 50 feet of a tree under City jurisdiction, the design-builder would obtain a Tree Work Permit from NYCDPR prior to the start of construction, and perform all work in compliance with NYCDPR's Tree Valuation Protocol and Tree Protection Protocol. A Memorandum of Agreement between MTA and NYCDPR will establish the procedures for surveying the trees by a certified arborist, submitting project design plans for NYCDPR review, and determining restitution requirements.

Therefore, there would be no significant adverse effects on ecological communities or wildlife during construction.

19.5.6.4 Endangered, Threatened, and Special Concern Species

No construction related impacts to endangered, threatened, or special concern species are anticipated. As described in Chapter 8, "Natural Resources," although USFWS and NYSDEC NYNHP identified several endangered, threatened, and special concern species within the area of the Proposed Project, they did not identify any areas as having critical habitats for such species. The construction of the Proposed Project would not directly disturb any natural areas where these species are likely found. Therefore, it is not expected that the construction of the Proposed Project would result in any significant adverse impacts to these species.

As described in Chapter 8, "Natural Resources," based the NOAA ESA Section 7 mapper query results, the Proposed Action Area is within one mile (specifically 750 feet upstream) of waters potentially used by shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus)* and green (*Chelonia mydas*), Kemp's Ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and loggerhead (*Caretta caretta)* sea turtles. NOAA recommends evaluating the following stressors, which may adversely affect ESA-listed species: sound, habitat structure and disturbance, dredging, water quality, prey quality/quantity, vessels, and in-water structures. The temporary effects of the Proposed Project on ESA-listed species, specifically sturgeon and sea turtles, are summarized below.

Sound

In-water activity would be limited to installation and removal of cofferdams and barge spud deployment. The Proposed Project does not require pile driving. The proposed temporary cofferdams would allow construction to be conducted in dry conditions and would prevent sturgeon and sea turtles from entering the work area. It is likely that, if present in the vicinity of the Proposed Action Area during construction, any sea turtle or sturgeon would swim away and avoid the disturbance. Based on this analysis, the effect of sound from construction activities on Atlantic sturgeon or sea turtles is too small to be meaningfully measured, detected, or evaluated. Therefore, effects are insignificant.

Habitat Structure & Disturbance

Suitable habitat for sturgeon or sea turtles within the Proposed Action Area would be tied to the presence of suitable benthic resources for foraging. The existing habitat characteristics of the Proposed Action Area are sub-optimal for sturgeon and sea turtle foraging (i.e., shallow waters, no known submerged aquatic vegetation, limited benthic resources). However, the area may be used opportunistically, since benthic habitats provide prey such as amphipods. The Proposed Action Area does not provide overwintering or breeding habitat. Effects to sea turtles and sturgeon from the temporary disturbance of potential habitat during construction is too small to be meaningfully measured, detected, or evaluated. Therefore, effects are insignificant.

Dredging

The Project would not involve dredging; therefore, it would have no effect on sturgeon or sea turtles from exposure to effects from dredging.

Water Quality

The effects of potential sediment plumes caused by barge landings and cofferdam installation and removal on sturgeon behavior are expected to be too small to be meaningfully measured or detected. It is anticipated that sturgeon would either swim through the plume or make small evasive movements to avoid it.

While the increase in suspended sediments may cause sea turtles to alter their normal movements, the effect of these minor movements would be too small to be meaningfully measured or detected. Sea turtles breathe air and would be able to swim away from the turbidity plume and would not be adversely affected by passing through the temporary plume.

Silt fencing would be installed to prevent soil and debris from discharging into the Bronx River during land-based activities. Temporary cofferdams would allow construction of the abutment and pier in dry conditions, preventing turbidity increases. Any increase in turbidity and suspended sediment would be minor and temporary. In addition, the Atlantic and shortnose sturgeon and sea turtles are highly mobile and could avoid sediment plumes with minor movements to alter course away from such disturbance. The Proposed Project would not result in sturgeon or sea turtle exposure to pollutants or changes in water current or temperature. Based on this information, The effects to sea turtles and sturgeon from exposure to suspended sediment resulting from project activities would be insignificant.

Prey Quantity/Quality

After removal of cofferdams and barge spuds, it is expected that benthic invertebrates would rapidly recolonize the disturbed area given the minimal size of the impacted area compared to the large area of adjacent unimpacted habitat that would serve as a recruitment source for recolonization.[3] The Proposed Project would not result in the loss of submerged aquatic vegetation or shellfish beds and would have not have a significant effect on sturgeon or sea turtles from changes in the abundance, availability, accessibility, or quality of prey. The effects of the action on prey quantity/quality for sea turtles and sturgeon are too small to be meaningfully measured, detected, or evaluated. Therefore, effects would be insignificant.

Vessels

The majority of the work would be performed from land; however, a spud barge may be used to support construction activities. There would be no other project-related vessel traffic that would increase the risk of interactions between sturgeon/sea turtles and vessels in the Proposed Action Area. Based on this information, any increase in the risk of vessel strike by deployment of a spud barge is too small to be meaningful measured, detected, or evaluated. Therefore, effects are insignificant.

In-Water Structures Including Aquaculture

The Proposed Project would result in new in-water structures including an abutment and a pier. Approximately 1,835.5 square feet (0.042 acre) of intertidal habitat within the Bronx River would be affected during construction of the abutment and pier. These new structures would be immediately adjacent to an existing drawbridge structure and in the location of a bridge span that was previously demolished. The design-builder will comply with recommendations from NOAA that include avoidance of in-water work between January 1 and June 30 and ensuring that spud barges are able to float at all stages of the tide; therefore, these in-water structures are not anticipated to adversely affect sturgeon or sea turtles or their habitat.

Project implementation would be conditioned upon issuance of applicable federal and state permits (permits from USACE and USCG, and a water quality certificate from NYSDEC) and the Proposed Project would be constructed in accordance with federal and state permit conditions and NOAA recommendations. There is no critical habitat for any NMFS ESA species within the Proposed Action Area. Shortnose sturgeon, Atlantic sturgeon, and four species of sea turtles are found seasonally within one mile of the Proposed Action Area; however, the Proposed Action Area is not within the range of breeding or overwintering habitat for these species. If individuals of these species were present, it would be a transient presence with a limited temporal duration. Construction activities during the winter months would avoid the time frame that transient sea turtles and sub-adult and adult sturgeon occur in the vicinity of the Proposed Action Area. Seasonal transients are highly mobile and could easily avoid the Proposed Action Area if construction activities occur between April and November. Temporary avoidance of the Proposed Action Area would not result in lack of accessibility to

---

[3] Van Dolah, R. F., D. R. Calder, and D. M. Knott. 1984. Effects of dredging and open-water disposal on benthic macroinvertebrates in a South Carolina estuary. Estuaries 7(1):28-37.
McCabe, G.T., S. A. Hinton, and R. L. Emmett. 1998. Benthic invertebrates and sediment characteristics in a shallow navigation channel of the lower Columbia River, before and after dredging Northwest Science 72(2):116-126.
Guerra-García, J.M., J. Corzo and J.C. García-Gómez. 2003. Short-term benthic recolonization after dredging in the harbour of Ceuta, North Africa. Marine Ecology 24(3): 217-229.
Schaffner, L. C. 2010. Patterns and rates of recovery of macrobenthic communities in a polyhaline temperate estuary following sediment disturbance: Effects of disturbance severity and potential importance of nonlocal processes. Estuaries and Coasts 33:1300-1313.

suitable habitat or prey. Temporary cofferdams would prevent transient sea turtles and sturgeon from entering the area affected by construction of the abutment and pier.

Overall, all potential effects of the Proposed Project would be insignificant; therefore, the Proposed Project may affect, but is not likely to adversely affect any listed species or critical habitat under NMFS jurisdiction.

19.5.6.5 Significant Coastal Fish and Wildlife Habitat

As described in Chapter 8, "Natural Resources," the Co-op City Station area falls within a Significant Coastal Fish and Wildlife Habitat—the Pelham Bay Park Wetlands. Stormwater runoff generated from construction activities would be contained and managed through best management practices. The construction of the Proposed Project would therefore not result in any activity that would degrade water quality or alter tidal fluctuations in Pelham Bay Park Wetlands.

Overall, with the incorporation of the mitigation measures described in Section 19.6, "Measures to Minimize Community Impacts," construction of the Proposed Project would not result in a significant adverse effect on surface waters, floodplains, wetlands, ecological communities, wildlife, endangered and threatened species, species of special concern, or significant habitats.

19.5.7 Historic Resources

The construction of the new stations and substations, and the construction activities along the rail corridor would not affect any historic architectural resources, as discussed in Chapter 9, "Historic Resources." The design-builder would prepare and implement a Construction Protection Plan in consultation with the SHPO for any architectural resources within 100 feet of the Proposed Project construction. The Construction Protection Plan would set forth the specific measures to be implemented to protect historic architectural resources during construction. The historic architectural resources that would be subject to the Construction Protection Plan are the Parkchester Apartment Complex, the Amtrak HGL (Northeast Corridor) bascule bridge over the Bronx River, the Pelham Lane Pathway Bridge, the Pelham Bay Park Historic District, and the Kaufman Building.

In the short-term, the S/NR-eligible Parkchester Apartment Complex would potentially be affected by noise, vibration and particulate dust during construction of the new Parkchester–Van Nest Station and the Van Nest AC Substation. Similarly, the S/NR-eligible Kaufman Building would potentially be affected by noise, vibration and particulate dust during construction of the New Rochelle Yard expansion. The Construction Protection Plan would address these potential impacts.

The design-builder would implement measures to stabilize and rehabilitate the Amtrak HGL (Northeast Corridor) bascule bridge over the Bronx River in accordance with the Secretary of the Interior's Standards for Rehabilitation. Further, the proposed alterations to the Amtrak HGL (Northeast Corridor) bascule bridge over the Bronx River would not directly affect any historic architectural resources. In addition, the Proposed Project would construct a new two span bridge immediately to the north of the Amtrak HGL (Northeast Corridor) bascule bridge over the Bronx River. There would be no physical connection between the existing and new bridges. Safety precautions would be implemented, such as protective screens or temporary barricades, to protect the Bronx River Bridge.

Trackwork and rehabilitation or replacement of the S/NR-eligible Pelham Lane Pathway Bridge would take place within the railroad right-of-way that runs through the S/NR-eligible Pelham Bay Park Historic District.

As outlined in the Draft Programmatic Agreement, MTA will follow the process for resolution of adverse effects to resources not previously addressed in the Effects Assessment (July 2019), which includes the Pelham Lane Pathway Bridge. The design-builder will implement any measures identified by SHPO for the protection of the bridge. As described in Section 19.5.5.4, temporary visual, noise, air quality, and other effects of the construction of these elements are anticipated to be minimal and would not result in any adverse effects on the historic district/open space resource.

An overall Construction Monitoring Plan, which includes the Construction Protection Plan, in addition to design drawings and specifications would be reviewed and approved by SHPO for all historic properties that may be subject to inadvertent damage resulting from construction activities. It is anticipated that the Proposed Project would have no adverse effect on the Parkchester Apartment Complex, the Amtrak HGL (Northeast Corridor) bascule bridge over the Bronx River, the Pelham Bay Park Historic District, or the Kaufman Building with the conditions as outlined in this EA and as contained in the Draft Programmatic Agreement located in Appendix G, "Historic, Archaeological, and Cultural Resources." In addition, the process outlined in the Draft Programmatic Agreement would identify measures to protect the Pelham Lane Pathway Bridge to the extent practical.

19.5.8 Archaeological Resources

The study area possesses the potential for precontact or historic period archaeological resources, as discussed in Chapter 10, "Archaeological Resources." Phase IA studies completed in 2002 and 2013 found that the Co-op City Station site and the Morris Park Station site were potentially sensitive for precontact resources beneath approximately 22 inches of ballast that was laid beneath the tracks for bedding, and possibly beneath deeper levels of added fill. Further geotechnical study of these two sites was completed to aid in clarifying subsurface conditions and archaeological potential. Co-op City Station was found to have moderate archaeological sensitivity and Morris Park Station was found to have low archaeological sensitivity.

The anticipated depth of construction disturbance for the installation of new track and the realignment of existing track in the railroad right-of-way is 2 to 3 feet below existing grade. For OCS installation, the depth of construction disturbance may extend up to 20 feet below the existing grade. Phase IA studies of the site of a new two-span bridge over the Bronx River and the site of the New Rochelle Yard expansion found the areas to be extensively disturbed resulting in the sites' lack of potential for both precontact and historic archaeological resources. Any impacts to potential resources would be avoided through further investigation and, if necessary, mitigation prior to construction, to be conducted in coordination with the SHPO, as outlined in the Draft Programmatic Agreement.

An Unanticipated Discoveries Plan would be prepared to address the potential archeological resources that may be discovered during construction.

19.5.9 Transportation

This section evaluates the potential effects of the Proposed Project on passenger and freight rail operation and on vehicle traffic during construction. Pedestrian and bicycle traffic would not be substantially affected during construction. If temporary sidewalk closures are needed, pedestrian traffic would be safely rerouted.

19.5.9.1 Rail

The design-builder would develop a Project Safety Plan that conforms to the constituent railroads' safety rules and guidelines. All contractor personnel working on Amtrak, Metro-North Railroad or LIRR property will have successfully completed the relevant safety training for that railroad and be in possession of current badging showing the proper identification and training verification. All work on railroad property by contractor personnel will be in compliance with the relevant railroad's safety rules and as directed by the designated responsible railroad personnel. All contractor machinery and equipment used on railroad property will comply with the relevant railroad's requirements and will have been tested and approved in accordance with the railroad's rules.

For construction activities that necessitate taking tracks out of service, MTA and the design-builder would continue to work closely with Amtrak and CSX to coordinate the construction outage plan. It is anticipated that current levels of weekday Amtrak passenger service and CSX freight service would be maintained, and that changes to service at night or during weekends would likely be required.

The design-builder would conduct further detailed planning to identify construction activities and the type of equipment that could be used safely while all existing tracks are in service, with intermittent construction work stoppages to allow passage of trains. Based on the limited work needed near the existing New Rochelle Station, PSNY, and Harold Interlocking, the construction of the Proposed Project would have a minimal effect on existing LIRR and Metro-North service.

19.5.9.2 Traffic and Parking

Construction of the Proposed Project would temporarily result in construction worker trips to and from various portions of the HGL Corridor. These construction worker trips would occur primarily along existing truck routes and outside of typical commuter peak hours. Construction workers would park within the railroad right-of-way or at other designated parking areas. Some construction workers may carpool and/or use mass transit. Construction of the Proposed Project would also generate truck trips for delivery of construction materials and hauling of excavated materials. As discussed in Section 19.2.2, under a worst-case scenario of full ballast replacement, it is estimated that fewer than 28 trucks per day would be needed to haul away ballast from the right-of-way. The design-builder may choose options that would minimize construction-related truck trips, such as pre-fabricating some project components offsite (for example, it is expected that the station platforms would be pre-fabricated, rather than cast-in-place concrete platforms) or having certain construction materials delivered by rai, if it can be coordinated with Amtrak.

No extensive road and/or lane closures are anticipated, as most construction work activities would occur within the railroad right-of-way. Intermittent lane and/or road closures would be required for rail bridge reconstruction and potentially for passenger station construction, but such closures would likely be limited to single overnights or weekends. Overall, the volume and limited duration of construction worker trips and truck trips is not expected to result in significant adverse construction-period effects to traffic or parking.

19.5.9.3 Navigable Waters

At the southern end of Starlight Park, near 173rd St., a weir marks the upstream end of the dredged, navigational channel of the Bronx River. While the Bronx River is technically navigable up to Starlight Park, navigation in this portion of the Bronx River is limited, since the existing Bronx River Bridge is locked in the closed position. Nonetheless, boaters, such as kayakers, are still able to use this portion of the river. Construction of a new two-span bridge over the Bronx River may temporarily impede navigation during construction. It is anticipated that river navigation closures would only occur during in-water work, which is anticipated to last three to six months. Since navigation is already limited in this portion of the river and the river closures are expected to be of short duration (3-6 months), the Proposed Project would not be expected to result in a significant adverse construction-period impact to navigation.

19.5.10 Air Quality

Emissions from the construction equipment would be relatively minor and would not occur at any one location over an extended period of time (less than 24 months), as the work would advance along the HGL Corridor. Furthermore, some of the railroad right-of-way is either on a viaduct or in the depressed rail right-of-way, thus separating the construction equipment and associated emissions from residential and other sensitive uses at ground level.

The construction of each new passenger station would take approximately 18 months to complete and would involve the construction of platforms and associated pedestrian stairs, ramps, overpasses, and elevators. Equipment used for construction would include pile drilling rigs, mobile cranes, front end loaders, and concrete pumps. Construction of each substation would take approximately 18 to 24 months, including site work and testing. In addition, the construction of a new two span, through girder type bridge over the Bronx River would take approximately 12 months to complete. The construction of these elements would have the greatest potential for the Proposed Project's construction to result in adverse effects on ambient air quality. However, the proposed Hunts Point, Parkchester-Van Nest, and Morris Park station locations, the substation sites, and the new bridge over the Bronx River, are separated from residential and other sensitive uses which would minimize the potential for adverse air quality effects. The construction of the station at Co-op City would be closer to residential uses and could potentially result in short-term increases in air pollutant emissions.

Therefore, to minimize temporary construction effects on local air quality, the design-builder would prepare and implement an air quality control plan during construction that would include emission reduction measures. These measures would include the following:

- **Dust Control** - To minimize fugitive dust emissions from construction activities, a fugitive dust control plan including a robust watering program would be required as part of contract specifications. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the construction area; and water sprays would be used for all demolition, excavation, and transfer of soils to ensure that materials would be dampened as necessary to avoid the suspension of dust into the air.
- **Clean Fuel** – Ultra-low-sulfur-diesel[4] fuel will be used exclusively for all diesel engines used during construction.

[4] The EPA required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and non-road engines and equipment, including construction equipment. As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ultra-low sulfur diesel fuel. Sulfur levels in non-road diesel fuel are limited to a maximum of 15 parts per million.

- **Idling Restriction** - In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time will be restricted to five minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.
- **Best Available Tailpipe Reduction Technologies** - Non-road diesel engines with a power rating of 50 horsepower or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the contractor), including but not limited to concrete mixing and pumping trucks, would utilize the best available tailpipe technology for reducing diesel particulate matter emissions. Diesel particulate filters have been identified as the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 horsepower or greater would utilize diesel particulate filters, either installed by the original equipment manufacturer or retrofitted. Retrofitted diesel particulate filters must be verified by the EPA or the California Air Resources Board. Active diesel particulate filters or other technologies proven to achieve an equivalent reduction may also be used.
- **Utilization of Newer Equipment** - EPA's Tier 1 through 4 standards for nonroad diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO, NOx, and hydrocarbons. All diesel-powered nonroad construction equipment with a power rating of 50 horsepower or greater would meet at least the Tier 3 emissions standard.
- **Diesel Equipment Reduction** - Electrically powered equipment would be preferred over diesel-powered and gasoline-powered versions of that equipment to the extent practicable. With these measures in place and given the temporary nature of any effects (no more than 24 months in any location), construction of the Proposed Project would not result in any significant adverse air quality effects.

The design-builder must minimize the impact on off-site receptors from dust and potential airborne contaminants generated during construction. Therefore, the design-builder will prepare and implement a Community Air Monitoring Plan that includes real-time air monitoring for VOCs and particulate levels at the work area perimeter and establishes action levels for worker respiratory protection. The design-builder will monitor continuously during all ground disturbance activities, railroad-intrusive work, and demolition of contaminated or potentially contaminated structures. During the placement of clean fill, the design-builder will monitor for particulate levels.

19.5.11 Energy

The energy consumed during Proposed Project construction would be mostly in the form of fuel for construction equipment and trucks and would not be significant in the context of regional fuel consumption. The Proposed Project construction would not adversely affect electricity transmission and distribution systems. Therefore, the construction of the Proposed Project would not have an adverse effect on energy.

19.5.12 Greenhouse Gases

GHG emissions associated with the construction of the Proposed Project include emissions from the combustion of fuel that would be used for construction equipment, trucks, and employee vehicles, and the GHG emissions associated with the production of materials used in construction, such as steel and cement. The construction practices described in Section 19.5.10, "Air Quality" above will help reduce construction carbon footprint.

19.5.13 Noise and Vibration

Communities adjacent to the active railroad are currently exposed to high ambient noise levels. However, there is the potential for noise and vibration to be exacerbated for short periods of time due to construction activities, during some phases of the proposed work.

As noted elsewhere, equipment used to complete construction may include: backhoes, excavators, hydraulic cranes, cranes with a vibratory hammer, concrete delivery/mixer trucks, dump trucks, delivery trucks, front-end loaders, and drill rigs.

In general, most construction activities would be phased along the HGL Corridor and a single construction element would not occur at any one location for an extended period of time. Moreover, the construction work associated with the new track installation would be transient, regularly moving from place to place along the HGL Corridor. Therefore, the track-related construction work is expected to result in very short-duration noise and vibration exposure for adjacent sensitive properties. The longest-duration stationary noise and vibration exposure work would be associated with the construction of the four proposed stations at Hunts Point, Parkchester-Van Nest, Morris Park, and Co-op City, the new substations, and the New Rochelle Yard expansion. The station-related construction work is expected to take approximately 18 months to complete, with the construction activities generating the highest noise and vibration exposure likely to occur in the early phases of the station platform and access development. Similarly, the construction of new substations is expected to take 18 to 24 months, but the construction activities generating the highest noise and vibration exposure would likely occur in the early phases. Although the overall duration of construction of improvements to New Rochelle Yard would be approximately 24 to 36 months, phased throughout the overall project construction period, there would be limited noise or vibration-intensive activities.

In addition, the construction of a new two-span bridge over the Bronx River would involve the construction of a through girder type bridge and would take approximately 12 months to complete. Construction of the abutments and pier on the edge of the Bronx River would generate the highest noise and vibration exposure but that activity would be short in duration and would not occur near residential uses. There are no active recreational uses in the area of Starlight Park closest to the bridge construction, with the exception of the pedestrian bridge to be constructed south of the existing Bronx River Bridge. Users would experience only a momentary impact while crossing the bridge.

The analysis of the Proposed Project's effect on community noise during construction was completed using two assessment methodologies – one based on the FTA guidelines and impact criteria and the other in accordance with the New York City Environmental Quality Review (CEQR) assessment methodology and impact criteria. The assessments differ by the determination of the noise exposure – FTA evaluates noise impact based on the two loudest pieces of equipment, whereas CEQR determines noise exposure from all equipment operating throughout the construction phase, and generally a quantitative assessment is not conducted unless the construction phase exceeds 24 months. The FTA and CEQR methods also differ by the criteria against which the noise levels are assessed for impact.

An assessment of construction vibration was also completed following FTA guidance, which is consistent with CEQR methodology and criteria.

Any impacts identified by the assessment will be minimized by the design-builder, who would implement a Noise and Vibration Control Plan in accordance with NYC Department of Environmental Protection regulations which would include control measures as outlined in Section 19.5.13.4 below.

19.5.13.1 FTA Construction Noise Assessment

A screening level construction noise exposure impact assessment based on the FTA's *Transit Noise and Vibration Impact Assessment Manual* guidance was completed applying the FTA's General Noise Assessment procedures, which establishes potential noise exposure annoyance based on the impact thresholds shown in Table 19-3. The general assessment criteria set noise impact thresholds based on land use type and time of day. The FTA manual states that if the criteria are exceeded there may be adverse community reaction. The criteria limit peak construction noise exposure to a maximum one-hour equivalent noise level (Leq) of 90 dBA during the day and 80 dBA at night in residential areas.

Table 19-3. General Assessment Construction Noise Criteria

Land Use	One Hour L_{eq} (dBA)	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual, 2018

The construction noise assessment was determined by utilizing FHWA's Roadway Construction Noise Model. The general assessment estimates construction noise exposure based on the two noisiest pieces of equipment expected to be used during the daytime and nighttime time periods. Figure 19-1 through Figure 19-4 show the locations of the nearest residential properties to the proposed station construction areas. Although the details of the construction staging schedule would be developed by the design-builder and may be altered based on the methods employed, it is expected that equipment generating the most noise would be used primarily during weekday daytime periods in the first nine months of the approximately 18-month station construction phase and consist of activities such as excavation, drilling, concrete work, mobile crane operations and heavy truck movements.

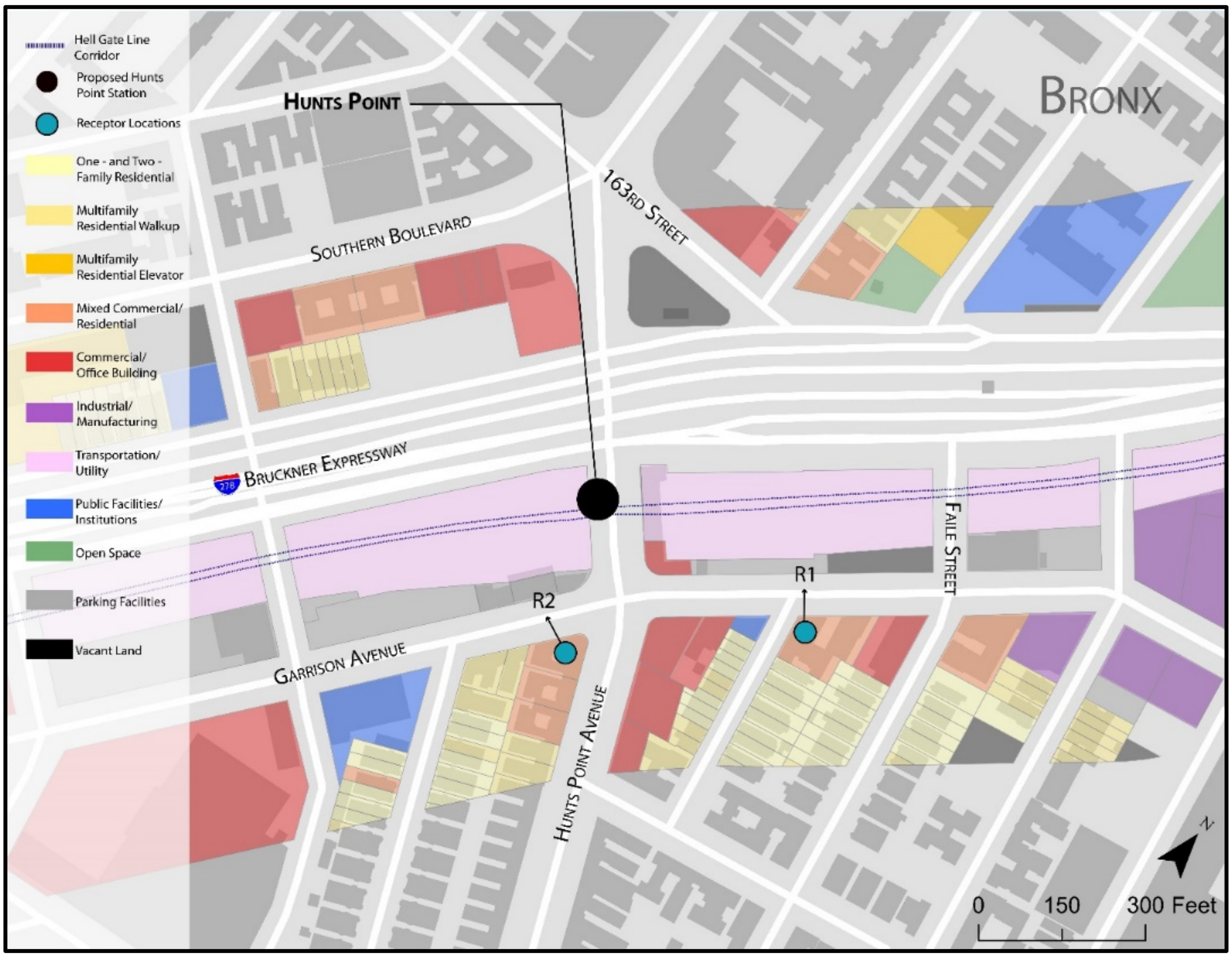
The FHWA's Roadway Construction Noise Model was used to estimate noise levels for the first nine months of the construction phase at the nearest receptor site to each proposed train station. Table 19-4 provides a summary of the Roadway Construction Noise Model-estimated construction generated noise levels. The analysis shows that one-hour noise level (Leq (1hr) dBA) estimates at the nearest residential properties are expected to remain below the Leq 90 dBA daytime impact threshold. The highest estimated noise exposure is expected to occur at a residential property adjacent to the Co-op City Station shown in Figure 19-4. At this receptor location, peak daytime noise levels from construction activities are projected to reach 82 dBA. Therefore, construction noise exposure based on the FTA General Assessment Screening Criteria would remain below the FTA 90 dBA impact threshold.

Table 19-4. Estimated Station Construction Noise Exposure at Nearest Residential Properties – FTA General Assessment

Proposed Station	Receptor	Approximate Distance (feet)	Estimated Noise Level (dBA)1 L(Day)	FTA Impact Day
Hunts Point	R1	140	79	No Impact
	R2	150	79	No Impact
Parkchester-Van Nest	R3	150	80	No Impact
Morris Park	R4	240	76	No Impact
	R5	400	71	No Impact
Co-op City	R6	120	82	No Impact

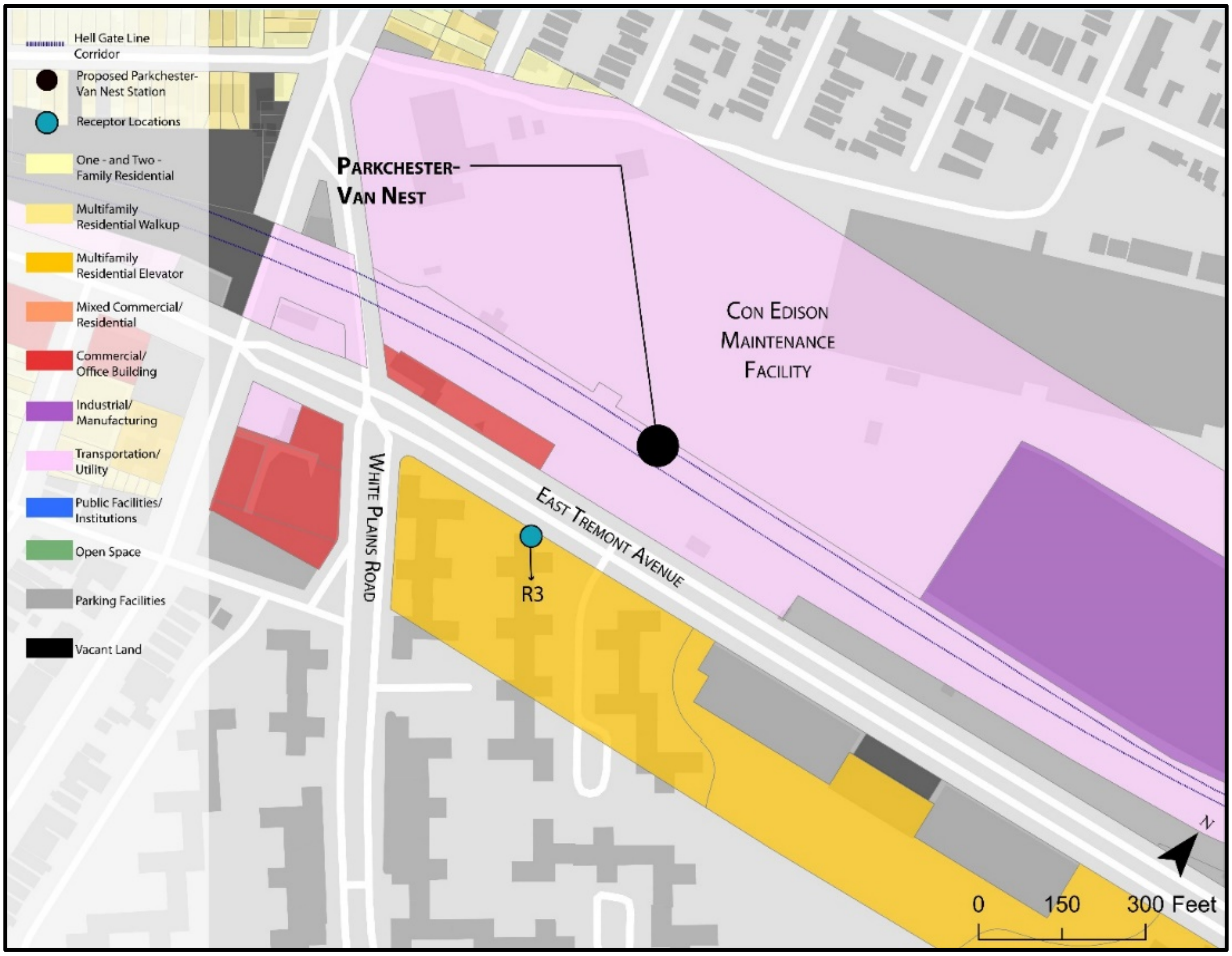
Source: WSP, 2019
(1) Worst case construction noise exposure is expected to occur during the weekday daytime time-period. No station platform weekend construction work is assumed in this analysis.
(2) The noisiest construction elements are expected to take place over a continuous 9-month period.

Figure 19-1. Hunts Point Station Area Construction Noise Analysis Sensitive Receptor Locations



Source : WSP, 2019

Figure 19-2. Parkchester-Van Nest Station Area Construction Noise Analysis Sensitive Receptor Locations

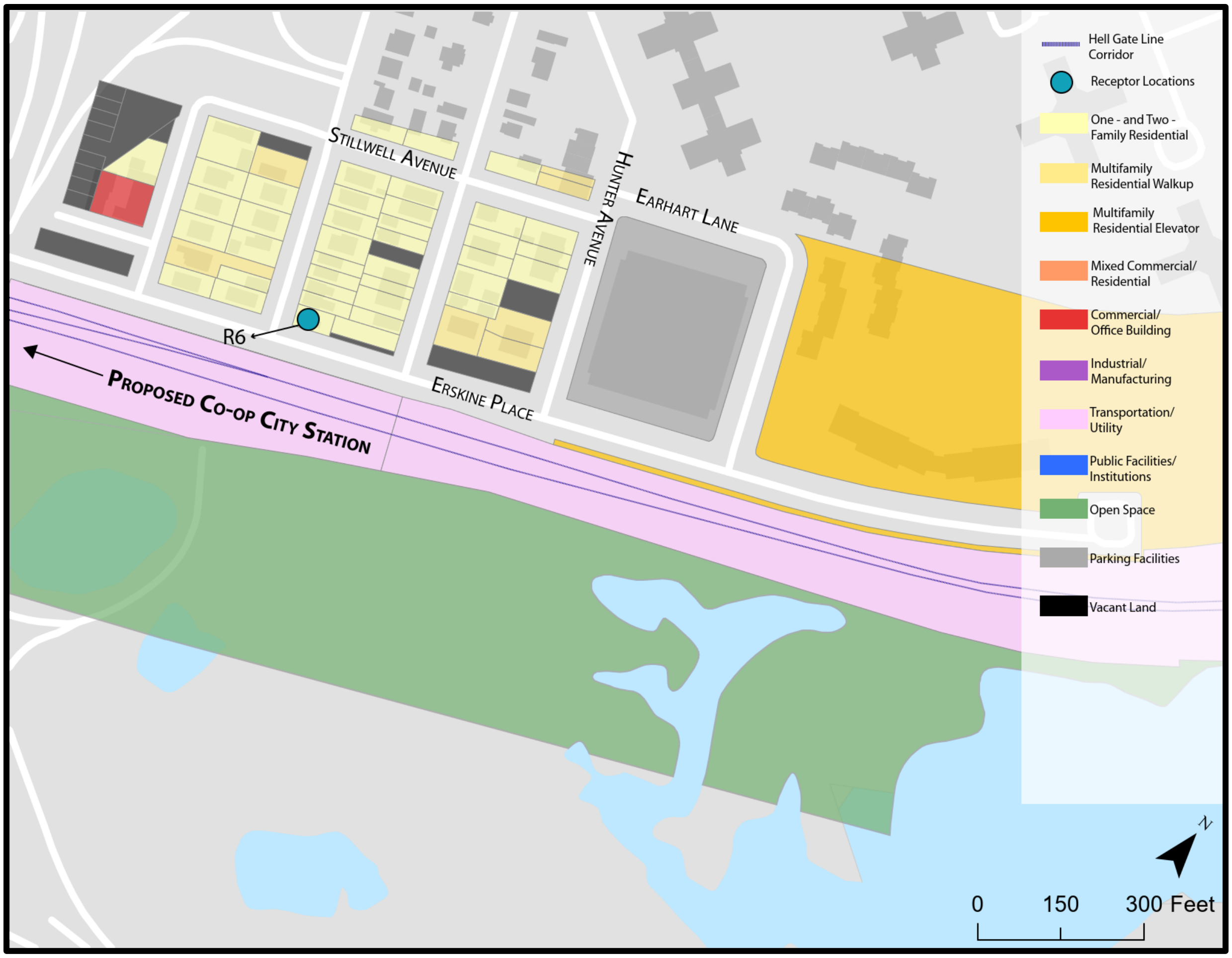


Source : WSP, 2019

Figure 19-3. Morris Park Station Area Construction Noise Analysis Sensitive Receptor Locations

Source : WSP, 2019

Figure 19-4. Co-op City Station Area Construction Noise Analysis Sensitive Receptor Locations



Source : WSP, 2020

19.5.13.2 New York City CEQR Construction Noise Assessment

A second construction noise exposure assessment was completed applying the CEQR impact assessment methodology and noise criteria at each of the same four representative noise sensitive properties shown in Figure 19-1 through Figure 19-4. A detailed CEQR construction noise assessment is typically completed when the construction phase exceeds 24 months. For the Proposed Project, construction activity would not take place in any one location for more than 24 months. However, because the construction work at the four proposed stations would occur relatively close to several residential properties, a quantitative assessment was conducted.

The CEQR assessment relies on establishing worst case noise exposure over the relatively short construction phase during which each proposed station would be built. The noisiest construction period associated with the station platform work is expected to take place during the first 9 months of station construction. The CEQR analysis differs from the FTA screening assessment by determining noise levels for all equipment that would be operating at the construction site for each month, instead of just from the two loudest pieces of equipment that would be in use at the same time. In addition, the applicable noise criteria impact thresholds differ between the two methodologies. The FTA criteria allows daytime construction exposure to reach a peak L_{eq} of 90 dBA, whereas the CEQR considers acceptable daytime noise exposure to be equal to or less than an L_{10} of 70 dBA. The CEQR Noise Exposure Guidelines are presented in Table 19-5. As noted, unacceptable noise impacts are typically not deemed significant impacts under the CEQR criteria unless such impacts occur for a period of greater than 24 months.

As with the FTA criteria, the CEQR noise exposure guidelines use the “A” weighting decibel scale which corresponds well with the normal hearing range of humans. The Leq or equivalent noise level is the time averaged sum of the sound energy for a given time-period duration whereas the L_{10}, matrix is a statistical value defined as the noise level estimated to exceeded ten percent of the time. In general, over a one-hour time-period, the L_{10} level is found to be 3 decibels greater than the corresponding Leq value. The L_{10} values shown in Table 19-5 represent one-hour impact thresholds. Noise exposure is broken down into four general exterior exposure categories, in order of low to high noise exposure, defined as: Acceptable, Marginally Acceptable, Marginally Unacceptable and Clearly Unacceptable. An impact occurs once project noise levels exceed the Marginally Acceptable range (i.e., above 70 dBA).

Daytime construction noise levels were estimated using the FHWA’s Roadway Construction Noise Model (version 1.1) for each of the nine months of heaviest station construction. The analysis conservatively assumed that all the equipment would be operating at the same time in a given month (the reasonable worst-case scenario). In reality, only several pieces would likely be operating simultaneously, while others would be idle. A summary of the estimated hourly maximum noise levels for the reasonable worst-case scenario per month over the proposed 9-month construction period is provided in Table 19-6. Ambient peak hour noise levels at each receptor site would all be at the lower end of the Marginally Unacceptable range and largely the result of existing traffic movements on nearby roadways and Amtrak rail service.

Table 19-5. Noise Exposure Standards for Use in City Environmental Impact Reviews[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA							
2. Hospital, Nursing Home		$L_{10} \leq 55$ dBA	----------$L_{dn} \leq 60$ dBA----------	$55 < L_{10} \leq 65$ dBA	----------$L_{dn} \leq 65$ dBA----------	$65 < L_{10} \leq 80$ dBA	---------- (I) $L_{dn} \leq 70$ dBA---------- ---------- (II) $L_{dn} \leq 75$ dBA----------	$L_{10} > 80$ dBA	----------$L_{dn} > 75$ dBA----------
3. Residence, residential hotel or motel	7 AM–10 PM	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM–7 AM	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
4. School, museum, library, court, house of worship or transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)	
5. Commercial or office		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)	
6. Industrial, public areas only[4]	Note[4]	Note[4]		Note[4]		Note[4]		Note[4]	

Source: New York Department of Environmental Protection (adopted policy 1983).
(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more.

1 Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute Standards; all values are for the worst hour in the time period.

2 Tracts of land where serenity and quiet are extraordinarily important and serve an important public need and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and old-age homes.

3 One may use the Federal Aviation Administration (FAA)-approved Ldn contours supplied by the Port Authority of New York & New Jersey, or the noise contours may be computed from the federally approved INM Computer Model using data supplied by the Port Authority of New York & New Jersey.

4 External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Table 19-6. Estimated Daytime (7a.m. to 10 p.m.) Construction Noise Exposure (Hourly Maximum per Month) at Nearest Residential Properties to Proposed Station

Proposed Station	Receptor ID	Distance from Construction (feet)	Peak Existing Noise Level L10 (dBA)	Estimated Hourly Maximum Construction Noise Levels per Month [L10 (dBA)]								
				M1	M2	M3	M4	M5	M6	M7	M8	M9
Hunts Point	R1	140	71	78	79	79	79	78	79	79	79	79
	R2	150	71	78	78	79	79	78	78	79	79	79
Parkchester-Van Nest	R3	150	72	82	82	83	83	82	82	83	83	83
Morris Park	R4	240	71	78	78	79	79	78	78	79	79	79
	R5	400	71	74	74	74	74	73	73	74	74	74
Co-op City	R6	120	72	84	84	84	84	84	84	85	85	85

Source: WSP, 2019
(1) Worst case construction noise exposure is expected to occur during the weekday daytime time-period. No station platform weekend construction work is assumed in this analysis.
(2) The noisiest construction elements are expected to take place over a continuous 9-month period.

The Roadway Construction Noise Model analysis findings indicate that the greatest construction noise exposure would occur at residential properties nearest the proposed Parkchester-Van Nest and Co-op City stations (R3 and R6 in Table 19-6). Noise exposure at the Hunts Point Station would be lower than at those two stations, despite the short distance to the receptors, because the station platform would be below grade, providing shielding that would reduce the noise exposure from certain construction equipment. Construction noise levels at Parkchester-Van Nest are expected to be above 80 dBA during the nine-month construction phase. The greatest noise exposure is expected to occur at the Co-op City receptor site R6, shown in Figure 19-4, where noise levels during Months 7, 8 and 9 are expected to reach a maximum level of 85 dBA. Conversely, noise exposure at receptors nearest the proposed Morris Park Station would be 5 to 10 dBA lower since the receptor nearest this proposed station is more than double the distance from the construction zone, thus resulting in much lower noise exposure.

The overall findings indicate that construction noise exposure at all proposed station locations would temporarily exceed CEQR threshold limits during the 9-month construction phase, but such impact would not be deemed significant given the short duration of the construction noise impact time period. The highest noise exposure within the Clearly Unacceptable range is expected to occur at noise sensitive receptor sites at two out of the four proposed station locations and, therefore, abatement measures to reduce these projected elevated noise levels would be implemented during construction as outlined in Section 19.5.13.4. In addition, the design-builder will prepare a Noise Control Plan in accordance with NYC Department of Environmental Protection regulations.

19.5.13.3 Construction Vibration Assessment

FTA and CEQR utilize the same set of construction vibration guidelines and criteria. Although ground-borne vibration related to human annoyance is generally expressed in units of "VdB", structural damage caused by construction-related vibration of a building over time is expressed as peak particle velocity in units of inches per second. Table 19-7 shows the measured source vibration levels generated from various construction equipment. The worst vibration generating construction activities occur from both impact and vibratory pile driving where peak particle velocity values can approach or exceed one inch per second at 25 feet from the pile driver. The primary concern regarding construction vibration relates to the potential damage to buildings;

therefore, the FTA-specified vibration limits cannot be exceeded anytime during the construction phase (Table 19-8). FTA's construction vibration damage criteria indicate that for non-engineered timber and masonry buildings, the peak particle velocity should not exceed 0.2 inch per second, representing the upper limit to ensure no building damage would occur at the nearest sensitive properties throughout the HCL corridor. Fortunately, neither impact nor vibratory pile driving construction activities are expected to be utilized during the station construction. Therefore, based on the short duration of the construction of the Proposed Project, any vibration generating construction activities would be temporary.

Table 19-7. Vibration Source Levels for Construction Equipment[1]

Equipment		Peak Particle Velocity at 25 feet (in/sec)	Approximate Lv[2] at 25 feet
Pile Driver (Impact)	Upper Range	1.518	112
	Typical	0.644	104
Pile Driver (Vibratory)	Upper Range	0.734	105
	Typical	0.170	93
Clam shovel drop (Slurry Wall)		0.202	94
Hydromill (Slurry Wall in Soil)		0.017	75
Hydromill (Slurry Wall in Rock)		0.210	94
Hoe Ram		0.089	87
Large Bulldozer		0.089	87
Caisson Drilling		0.089	87
Loaded Trucks		0.076	86
Jackhammer		0.035	79
Small Bulldozer		0.003	58

Source: Transit Noise and Vibration Impact Assessment, FTA, 2018
[1] FTA damage criterion is 102 Vdb for fragile buildings and, 90 VdB for extremely fragile historic buildings
[2] RMS Velocity in decibels (VdB) re: 1 micro-inch/second

Table 19-8. Construction Vibration Damage Criteria

Building Category	Peak Particle Velocity (in/sec.)	Approximate Lv[1]
I. Reinforced-concrete, steel or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, 2018
[1] RMS velocity in decibels (VdB) re 1 micro-inch/second

19.5.13.4 Abatement and Noise and Vibration Control Measures During Construction

Although the noise exposure analysis findings indicate there would be no exceedance under the FTA criteria and no significant adverse construction noise impact under CEQR. However, noise exposure levels from construction activities (particularly during the construction of the four proposed stations) are expected to reach the CEQR Clearly Unacceptable range of in excess of 80 dBA at the exterior of residential properties and other noise sensitive sites within a 200-foot radius of each station platform construction area for all or part of the nine-month construction period. Therefore, abatement measures to reduce these projected elevated noise levels are included in the Proposed Project.

Table 19-9 summarizes the proposed noise reduction levels at each proposed station. These minimum noise reduction levels would ensure exterior areas at each of the representative during the nine-month construction period. Various noise control methods and measures to achieve the necessary reductions are outlined below. Furthermore, the New York City Department of Environmental Protection has mandated that construction equipment not exceed the noise emission levels (Lmax, dBA) shown in Table 19-10 at 50 feet from the construction equipment. These mandated noise emission levels can be achieved by using newer technology, better engine mufflers and improved hydraulic systems. The contractor will be required to ensure construction equipment does not exceed these emission limits and must file a Noise and Vibration Control Plan in accordance with NYC Department of Environmental Protection Construction Noise Regulations.

Table 19-9. Noise Reduction Requirements at Construction Site to Ensure Exterior and Interior Noise Levels remain within CEQR Acceptable limits

Proposed Station	Receptor ID	Maximum Construction Noise Exposure	Required Minimum Noise Reduction Levels at Construction Boundary to Achieve CEQR Marginally Acceptable Exterior Noise Levels (dBA)
Hunts Point	R1	79	10
	R2	79	10
Parkchester-Van Nest	R3	83	14
Morris Park	R4	79	10
	R5	74	5
Co-op City	R6	85	16

Source: WSP, 2019

Table 19-10. Noise Emission Reference Levels (A-weighted decibels with RMS "slow" time constant)

Equipment Description	Usage Factor (%)	Lmax @ 50 Feet
All Other Equipment > 5 HP	50	85
Auger Drill Rig	20	85
Backhoe	40	80
Bar Bender	20	80
Blasting	N/A	94
Boring Jack Power Unit	50	80
Chain Saw	20	85
Clam Shovel (dropping)	20	93
Compactor (ground)	20	80
Compressor (air, less than or equal to 350 cfm)	40	75A
Compressor (air, greater than 350 cfm)	40	80A
Concrete Batch Plant	15	83
Concrete Mixer Truck	40	85
Concrete Pump Truck	20	82

Table 19-11. Noise Emission Reference Levels (A-weighted decibels with RMS "slow" time constant)

Equipment Description	Usage Factor (%)	Lmax @ 50 Feet
Concrete Saw	20	90
Crane	16	85
Dozer	40	85
Drill Rig Truck	20	84
Drum Mixer	50	80
Dump Truck	40	84
Dumpster/Rubbish Removal	20	78
Excavator	40	85
Flat Bed Truck	40	84
Front End Loader	40	80
Generator	50	82
Generator (< 25 KVA, VMS signs)	50	70
Gradall	40	85
Grader	40	85
Grapple (on Backhoe)	40	85
Horizontal Boring Hydr. Jack	25	80
Hydra Break Ram	10	90
Impact Pile Driver	20	95
Jackhammer	20	85
Man Lift	20	85
Mounted Impact Hammer (Hoe Ram)	20	90
Pavement Scarafier	20	85
Paver	50	85
Pickup Truck	40	55
Pneumatic Tools	50	85
Pumps	50	77
Refrigerator Unit	100	82
Rivet Buster / Chipping Gun	20	85
Rock Drill	20	85
Roller	20	85
Sand Blasting	20	85
Scraper	40	85
Shears (on Backhoe)	40	85
Slurry Plant	100	78
Slurry Trenching Machine	50	82
Soil Mix Drill Rig	50	80
Tractor	40	84
Vacuum Excavator (Vac-truck)	40	85
Vacuum Street Sweeper	10	80
Ventilation Fan	100	85
Vibrating Hopper	50	85
Vibratory Concrete Mixer	20	80
Vibratory Pile Driver	20	95
Warning Horn	5	85
Water Jet Deleading	20	85
Welder / Torch	40	73

Source: *2014 CEQR Technical Manual:* : Local Law 113 and the New York City Department of Environmental Protection Notice of Adoption of Rules for Citywide Construction Noise Mitigation: 15 RCNY 28-109, Appendix.

Notes: As per Local Law 113 of 2005, §24-228(a)(1) Construction, Exhausts, and other Devices, "Sound, other than impulsive sound, attributable to the source or sources, that exceeds 85 dBA as measured 50 or more feet from the source or sources at a point outside the property line where the source or sources are located or as measured 50 or more feet from the source or sources on a public right-of-way" is prohibited.

Applying noise control and abatement measures at the impacted locations would ensure exterior noise levels remain within the CEQR Marginally Acceptable limits during construction. Further, based on the relatively short duration of construction phase, the predominantly non-residential character of the area adjacent to the rail corridor, the relatively high existing noise levels, as well as abatement measures that would be included in the Proposed Project, there would be no adverse noise effects from construction. Noise control measures to be employed include the following:

- Comply with all the requirements of the New York City Department of Environmental Protection Noise Control Regulations.
- Require the contractor to file a Noise and Vibration Control Plan in accordance with New York City Regulations.
- Comply with NYSDEC Regulations for idling vehicles.
- For back-up alarms, use either audible self-adjusting back-up alarms or manual adjustable alarms.
- Equip all impact and drilling equipment such as jackhammers, hoe rams, core drills, direct push soil probes (e.g., Geoprobe), and rock drills with a muffler.
- Use electrically operated hoists and compressor plants unless otherwise permitted by the resident engineer.
- Use maximum sized intake and exhaust mufflers on internal combustion engines.
- Use gears on machinery designed to reduce noise to a minimum.
- Use concrete crushers or pavement saws for concrete removal, demolitions, or similar construction activity.
- Line hoppers and storage bins with sound-deadening material.
- Use pre-auguring equipment to reduce the duration of impact or vibratory pile driving.
- Prohibit the use of air or gasoline driven saws unless otherwise permitted by the resident engineer.
- Dump rock or other material and carry it away in trucks so that noise is kept to a minimum.
- Route construction equipment and vehicles carrying rock, concrete, or other materials over streets that will cause the least disturbance to noise-sensitive locations.
- Prohibit slamming of dump truck tail gates.
- Use silencers on air intakes and air exhaust of equipment.
- Mitigate noise from construction devices with internal combustion engines by ensuring that the engine doors are kept closed, and by using noise-insulating material mounted on the engine housing that does not interfere with the manufacturer guidelines and by operating the device at lower engine speeds to the maximum extent possible.
- Operate equipment to minimize banging, clattering, buzzing, and other annoying types of noises.
- Provide shields, acoustic fabric, soundproof housings or other physical barriers at the construction site to restrict the transmission of noise.

- Use smallest and quietest necessary hoe rams. Wrap a noise shroud enclosure around the head (i.e., chisel) of the hoe ram.
- Equip auger drill rigs with well-maintained and effective mufflers. Lubricate all moving parts to avoid unnecessary noise squeaking parts. Remove debris from the drill bit without quick twisting, jerking, or hammering the bit.
- Properly install street plates to minimize vehicular tire impact on the plate and minimize noise.
- Use the local power grid to reduce the use of generators.

Similarly, best management practices that could be implemented by the construction contractor to minimize vibration in the community include, but would not be limited to, the following types of control measures:

- Use less vibration-intensive construction equipment or techniques near vibration-sensitive locations.
- Route heavily laden vehicles away from vibration-sensitive locations.
- Operate earthmoving equipment as far as possible from vibration-sensitive locations.
- Sequence construction activities that produce vibration, such as demolition, excavation, earthmoving, and ground impacting so that the vibration sources do not operate simultaneously.
- Use devices with the least impact to accomplish necessary tasks.

Finally, potential vibration levels during construction would be minimized to the maximum extent feasible by implementation of the Proposed Project's Noise and Vibration Control Plan.

19.5.14 Contaminated Materials

As described in Section 19.5.8, "Archaeological Resources," the anticipated depth of construction disturbance for the installation of new track and the realignment of existing track in the right-of-way is 2 to 3 feet below existing grade directly below tracks, 4 to 6 feet below existing grade for installation of underdrains and up to 10 feet below existing grade for dry wells. For OCS and elevator installation, the depth of construction disturbance may extend up to 20 feet below the existing grade. As presented in Chapter 17, "Contaminated Materials," areas of contaminated soil and/or groundwater may be encountered during construction of the Proposed Project. Any adverse effects during construction would be avoided by ensuring that construction activities are performed in accordance with a Hazardous Materials Management Plan and Health and Safety Plan as documented in Chapter 17. These plans would be prepared by the design-builder as part of the design process, with participation from FTA, and reviewed and approved by MTA prior to the start of construction. The Hazardous Materials Management Plan would address safe handling, storage, treatment and disposal of hazardous materials encountered at or brought onto the construction site. The Health and Safety Plan would incorporate safety measures to minimize the potential for adverse effects to the community and construction workers. Potentially contaminated materials would be characterized and disposed of in accordance with applicable regulations. With the implementation of these plans, Proposed Project construction activities would not result in adverse effects associated with contaminated materials.

19.5.15 Safety and Security

Many transit industry safety and security standards and processes described in Chapter 18, "Safety and Security," apply to construction work. Construction of the Proposed Project would follow MTA and Amtrak safety and security standards and guidelines to provide communities along the HGL Corridor, and construction employees with a safe and secure environment during construction. Construction area access gates would be locked and construction staging areas properly secured. The development and incorporation of these features would be coordinated with federal, state, and local agencies having jurisdiction over safety and security issues.

19.6 MEASURES TO MINIMIZE COMMUNITY IMPACTS

MTA would require in its contract that the design-builder implement the following measures during construction to minimize potential effects to nearby communities from ongoing construction:

- Communication with Community
  - Give advance notification of any disruptive work or work-related closures to community boards, residents, schools, hospitals, and first-responders.
  - Provide regular updates to the public in the form of email blasts and online postings.
  - Maintain a 24/7 hotline assigned to a community outreach representative, to include direct communication with on-site contractor/supervisor for a real-time response.
  - Create and implement a protocol for addressing community complaints.
  - Coordinate with emergency service providers to ensure continuity of access to the community.
  - Establish regular meetings with MTA, community representatives, and the contractor to discuss construction activities and community concerns.

- Community Safety and Quality of Life
  - Create an active program of construction security to ensure community safety.
  - Ensure the following are performed by the contractor at construction sites:
    - Keep construction site clean and orderly.
    - Safely store construction materials in piles/not haphazardly.
    - Ensure that construction fences are uniform and neat in material and appearance.
    - Perform street cleaning as appropriate to ensure construction debris and dirt will not affect the local community.
    - Install onsite/portable bathroom facilities that are unobtrusive to local communities.
    - Protect access to existing businesses.
    - Use existing rail to transport materials to and from the work site to the extent practical.

- Environmental Performance
  - Provide environmental monitoring consistent with a Health and Safety Plan.
  - Best management practices, including silt fences, netting and other sediment containment techniques.
  - Meet USACE wetlands permit requirements and implement a Stormwater Pollution Protection Plan.
  - Establish a Quality Control program to confirm compliance with environmental requirements.
  - Use directional lighting at night to protect residences from light pollution.
  - Implement Work Zone Traffic Control plans.
  - Implement an air quality control plan to include dust control measures, ultra-low sulfur diesel fuel, the use of best available tailpipe technologies and the utilization of newer equipment.
  - Conduct preconstruction home inspections for adjacent residences.
  - Create and implement a community noise and vibration monitoring program.
  - Implement a Construction Protection Plan to protect historic structures.
  - In consultation with the community, employ rodent control measures.
  - Implement a Dust Control Plan.
  - Implement a Community Air Monitoring Plan.
  - Implement a Noise and Vibration Control Plan.
  - Minimize noise work during nighttime hours where practicable and feasible.

19.7 CONCLUSION

Construction of the Proposed Project would result in temporary visual, air quality, noise and vibration effects along the railroad right-of-way and in areas adjacent to sections of the right-of-way where passenger stations, bridge modifications, and other project elements are proposed. To further minimize any potential adverse effects during construction, specific measures would be implemented as described in this chapter.