

A. INTRODUCTION

As discussed in Chapter 1, “Project Description,” the Proposed Project would include the following elements:

- Installation of a third Main Line track from Floral Park Station to Hicksville
- Elimination of seven existing grade crossings to provide grade-separated crossings (or potentially, in one or two locations, full closures) to vehicular traffic
- Construction of retaining walls along portions of the corridor
- Modifications to passenger rail stations and parking (e.g., modified and improved platforms, pedestrian overpasses, passenger shelters, Americans with Disabilities Act (ADA) enhancements, and parking modifications including new parking facilities at the New Hyde Park, Mineola, Westbury, and Hicksville stations)
- Modifications to railroad infrastructure including signal systems, substations, culverts, interlockings, crossovers, sidings, track bed, stormwater drainage, power systems, communications and signals
- Relocation of utilities along the Long Island Rail Road (LIRR) right-of-way (ROW) and at grade-separated crossings, including electric, signal, communications, gas, water, sewer, and storm sewer conveyances and drainage systems at the grade-separated crossings

Depending on the precise schedule and phasing agreed to with the design-build contractor, active construction of the Proposed Project is expected to take approximately three to four years. Although the goal of the Proposed Project is to complete construction as expeditiously as reasonably possible to minimize the duration of the construction period, to be conservative, the analysis presented in the Draft Environmental Impact Statement (DEIS) assumes that active construction across the 9.8 mile corridor would last as long as four years (although construction in any one community would be active for only a portion of that time).

This chapter summarizes the construction plans for the Proposed Project and assesses the potential for significant adverse impacts during construction. The construction elements of the Proposed Project and the types and sequencing of activities likely to occur during construction are described. In addition, the types of equipment expected to be used during construction and potential construction staging areas are identified. Based on this information and a conservative preliminary construction schedule, an assessment is provided of the potential impacts from construction activities. Potential construction impacts reviewed focus on the projects effects on land use and community character, socioeconomic conditions, environmental justice, visual resources, historic and cultural resources, natural resources, hazardous and contaminated materials, transportation, air quality, and noise and vibration, and safety and security. Any specific measures that have been identified that would avoid, minimize, or mitigate potential

construction-period impacts would be included in the technical provisions of the design-build contract.

B. PRINCIPAL CONCLUSIONS AND IMPACTS

Construction of the Proposed Project—as is the case with any major construction project—would result in some temporary disruptions in the surrounding area. In order to minimize the duration of the construction period, the implementation of an expedited construction schedule by the design build contractor will be emphasized and prioritized in the bid documents. To be conservative, this construction impact analysis assumes that active construction would last as long as four years; however the goal of the design-build contract bidding competition will be to reduce that period and the construction duration at any one location so as to minimize the effects of construction activities on nearby communities.

Construction of the Proposed Project would not result in significant adverse impacts with respect to land use and community character, environmental justice, visual resources, natural resources, and site safety. Construction of the Proposed Project would result in the temporary change of the use of a limited number of individual parcels to be used as staging areas but would not permanently change the patterns of land use and character of the communities within the Study Area; temporary construction impacts would be localized and would not result in disproportionate construction impacts to environmental justice communities; construction activities would be phased to minimize the duration of construction at any particular location so as to lessen overall effects of construction on the surrounding communities; with the implementation of a Stormwater Pollution Prevention Plan (SWPPP), a Remedial Action Plan (RAP) and a Construction Health and Safety Plan (CHASP), construction of the Proposed Project would not result in significant adverse impacts to groundwater, the Nassau/Suffolk Aquifer System, or wetlands. In addition, construction of the Proposed Project would not result in significant adverse impacts to ecological communities, wildlife or any habitat that is of value to wildlife; and construction would follow existing Metropolitan Transportation Authority (MTA) and LIRR operational safety and security programs and processes to provide the riding public and construction employees with a safe and secure environment. The Proposed Project would also implement a construction noise and vibration control plan as well an air quality control plan to minimize the effects of construction.

Additional information relating to the potential for significant adverse impacts during construction for key technical areas is summarized below.

SOCIOECONOMICS

Businesses would not be significantly affected by any temporary change in pedestrian and vehicular access that could occur as a result of construction activities. A Maintenance and Protection of Traffic (MPT) plan would be developed and implemented to ensure that access to existing businesses throughout the Project Corridor would be maintained throughout the construction period.

The construction of the Proposed Project would result in the investment of significant capital into the local and regional economy. The Proposed Project is expected to cost approximately \$2 billion in 2019 dollars, which includes construction, design, contingency, force account, and agency cost. The total effect on the local economy, expressed as economic output or demand for local industries, is estimated at approximately \$3.18 billion for Nassau County, \$47.14 million for Suffolk County, and approximately \$3.33 billion for the New York State economy overall.

HISTORIC AND CULTURAL RESOURCES

The LIRR ROW along the Project Corridor, the identified potential construction staging areas, the proposed grade crossing locations, and property takings locations have been determined to possess little to no archaeological potential. Therefore, construction of project components affecting these areas of the Project Corridor would have no adverse impact on archaeological resources. Should additional takings locations or staging areas be proposed as project design progresses, an assessment of archaeological potential for those locations would be undertaken in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP).

Construction at five of the proposed parking structure locations has the potential to affect archaeological resources, as described below. In consultation with OPRHP, additional background research would be undertaken for each of these five locations to document prior disturbance. Phase 1B subsurface testing, if required, would be undertaken in consultation with OPRHP to avoid the potential for adverse construction-related impacts to archaeological resources.

Construction of the Proposed Project would involve the demolition of two historic architectural resources—the Nassau Tower and the former Mineola LIRR Electrical Substation. No other historic architectural resources would be directly impacted by construction of the Proposed Project.

To ensure that construction activities associated with the Proposed Project that would be undertaken within 100 feet of architectural resources would not cause inadvertent physical impacts to historic architectural resources, LIRR would prepare and implement a Construction Protection Plan (CPP) in consultation with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) for any architectural resources located within 100 feet of the Proposed Project construction. The historic architectural resources that would be subject to the CPP are:

- Floral Park—the Floral Park Public Library, the commercial buildings on Tyson Avenue and South Tyson Avenue, and the commercial buildings on Tulip Avenue;
- Mineola—the commercial buildings at Station Plaza North;
- Westbury—the potential architectural resource at 164 Post Avenue; and
- Hicksville—Top Hat Uniform and the Hicksville USPS Main Post Office.

Measures to mitigate the adverse impact from the demolition of Nassau Tower and the former Mineola Electrical Substation—which is a Project-related impact not limited to construction activities—would be developed in consultation with OPRHP. These mitigation measures, along with the protective measures established in the CPP, would be set forth in a Letter of Resolution (LOR) to be executed among the involved parties.

HAZARDOUS MATERIALS

Construction of the Proposed Project would require subsurface disturbance along the alignment, at LIRR stations, at commercial properties that would be acquired as part of the Proposed Project, and within areas that would require alterations to grade crossings. Given the past land use history of this area, contaminated soil and/or groundwater may be encountered. The potential for adverse impacts would be avoided by ensuring that construction activities are performed in accordance with the following protocols (see Chapter 8, “Contaminated Materials,” for details):

conduct subsurface investigations at areas to be disturbed; prepare a Remedial Action Plan (RAP) and a Construction Health and Safety Plan (CHASP) for implementation during project construction, remove asbestos containing materials (ACM), lead-based paint (LBP), mercury and polychlorinated byphenols (PCBs) in accordance with an approved CHASP; and perform off-site disposal and dewatering in accordance with applicable federal, state, and local requirements.

TRANSPORTATION

Pedestrian connectivity across the tracks would be maintained at each of the grade crossings during construction or would be diverted to nearby crossings; pedestrian access to the passenger rail stations and nearby businesses would also be maintained. During construction, LIRR would operate normal weekday commuter (i.e., peak) service, with periodic suspension of service on weekends to allow for construction activity that could not be performed with active train service. Due to access constraints for large construction equipment and materials, Carle Place station may be temporarily closed for approximately 12 months. If Carle Place station is temporarily closed, shuttles would be provided to take passengers utilizing the Carle Place station to the nearby Westbury station.

Construction of the Proposed Project would generate construction worker vehicle trips and construction truck trips. Satellite parking would be provided to keep personal construction worker vehicles out of residential streets and parking near the stations. In lieu of construction truck deliveries and to reduce the effects of construction truck traffic on local roadways, existing track would also be used to transport materials to and from the work sites to the extent practical. In addition, construction deliveries would be scheduled outside of the school and commuting traffic peak hours to the extent practicable while school is in session.

Grade crossing elimination activities would require temporary lane and roadway closures and has the potential for temporary adverse traffic impacts on nearby roadways during construction. Intersections that have the potential to experience adverse traffic impacts during construction and proposed improvement measures are summarized below in **Table 13-1**.

Given the temporary nature of such lane closures and diversions (targeting no longer than 6 to 9 months depending on location), such impacts could cause temporary inconvenience, but once construction ends would not have a continuing negative impact. In addition, as outlined above, measures can be implemented to reduce these temporary adverse impacts.

AIR QUALITY

Although construction activity in general has the potential to adversely affect air quality as a result of diesel emissions from construction equipment and trucks, construction of the Proposed Project would not result in significant adverse impacts on air quality. The need for an analysis pursuant to NYSDOT's *The Environmental Manual (TEM)* was considered for carbon monoxide (CO) and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM₁₀). Because the Proposed Project would maintain existing traffic flow routes without resulting in continuous construction detour/diversions over more than two CO (winter) seasons along local routes, no microscale detour traffic CO impact analysis was required per NYSDOT's criteria. The annual particulate matter (PM) emissions from construction activity are estimated to be well below the 15-ton per year threshold contained in NYSDOT's *TEM* and thus would not result in significant air quality

Table 13-1
Construction Traffic Analysis Results Summary

Grade Crossing	Affected Intersections	Improvement Measure	Targeted Full or Partial Road Closure Duration	Anticipated Total Construction Duration
New Hyde Park Road	1. New Hyde Park Road at the LIRR Grade Crossing (northbound approach – AM peak hour; southbound approach – PM peak hour)	1. No modification	9 months	9 – 12 months
	2. New Hyde Park Road and Stewart Avenue (northbound approach – AM peak hour; southbound approach – PM peak hour)	2. Signal timing modification		
Covert Avenue	1. Covert Avenue and Stewart Avenue (northbound right-turn movement – PM peak hour)	1. Signal timing modification	9 months	9 – 12 months
	2. Jericho Turnpike and South 12th Street (westbound left-turn movement – PM peak hour)	2. Lane restriping and parking restriction		
	3. Jericho Turnpike and New Hyde Park Road (eastbound through-right and westbound left-turn movements – AM and PM peak hours)	3. Lane restriping and signal timing modification		
	4. New Hyde Park Road and Stewart Avenue (northbound approach – AM peak hour; southbound approach – AM and PM peak hours)	4. Signal timing modification (except for southbound approach in the PM peak hour where there would be no modification is proposed)		
	5. South 12th Street and Stewart Avenue (southbound approach – AM and PM peak hours; northbound approach – PM peak hour)	5. Temporary traffic signal installation		
South 12th Street	Similar to Build Option 2 in Chapter 10, "Transportation"	See Chapter 10, "Transportation"	6 months	6 – 9 months
Willis Avenue	1. Mineola Boulevard and Second Street (southbound shared through-right movement – AM and PM peak hours)	1. Signal modification, lane restriping, and parking restriction	6 months	6 – 9 months
	2. Mineola Boulevard and First Street (westbound approach – AM and PM peak hours)	2. Signal timing modification		
	3. Second Street and Willis Avenue (eastbound approach – PM Peak hour)	3. Signal timing modification		
	4. Roslyn Road and Second Street (southbound approach and eastbound through-right movement – AM and PM peak hours; northbound left-turn movement – AM peak hour)	4. Lane restriping and signal timing modification		
	5. Main Street and Second Street (northbound, southbound, and eastbound approaches – PM peak hour)	5. Temporary signal installation		
Main Street	1. Mineola Boulevard and Old Country Road (westbound through and right-turn movements – AM and PM peak hours; eastbound left-turn movement – PM peak hour)	1. Lane restriping and signal timing modification (except for westbound right-turn movement in the PM peak hour where no there would be no modification is proposed)	6 months	6 – 9 months
	2. Mineola Boulevard and Second Street (southbound shared through-right movement – AM peak hour; westbound approach – PM peak hour)	2. Signal timing modification		
	3. Second Street and Willis Avenue (eastbound – PM peak hour)	3. Signal timing modification		
	4. Old Country Road and Roslyn Road (westbound movement – AM peak hour)	4. Signal timing modification		
	5. Roslyn Road and Second Street (southbound approach – PM peak hour)	5. Signal timing modification		
Urban Avenue	1. Post Avenue and Union Avenue (southbound shared left-through movement – AM and PM peak hours)	1. Lane restriping	6 months	6 – 9 months
	2. Old Country Road and School Street (eastbound left-turn movement – AM and PM peak hours)	2. Signal timing modification		
School Street	1. Post Avenue and Urban Avenue (northbound through movement – AM peak hour; southbound shared left-through movement – AM and PM peak hours)	1. Lane restriping and for AM only, signal timing modification	6 months	6 – 9 months
	2. Old Country Road and School Street (eastbound right-turn movement – PM peak hour)	2. Signal timing modification		
	3. Urban Avenue and Broadway (northbound approach – PM peak hour)	3. Temporary traffic signal installation		

impacts during the construction period on a regional level. Similarly, the emissions for other criteria pollutants generated during construction of the Proposed Project would not result in significant adverse air quality impacts on a regional level.

In order to avoid potential temporary construction air quality impacts on a local level, LIRR is committed to implementing an air quality control plan during construction and would include the following measures: dust control, ultra-low sulfur diesel fuel, the use of best available tailpipe technologies such as diesel particulate filters, and the utilization of equipment that meets stringent pollutant emission standards.

NOISE AND VIBRATION

Noise levels from construction activities along the Project Corridor, although temporary, could be a nuisance at nearby sensitive receptors such as residences, schools and other institutional land-uses. Although the overall construction period is expected to last approximately four years, most construction activities are generally expected to last less than two years at any one location, depending on the type of activity. During this time frame, noise and vibration impacts are expected along the Project Corridor, particularly at sensitive receptors adjacent to the rail alignment and facilities. Potential noise and vibration impacts expected during temporary construction activities would be eliminated or controlled to the extent practicable with Best Management Practices (BMPs). Noise and vibration control measures (such as substituting equipment with lower noise levels, temporary barriers, exhaust mufflers, etc.) would be used to minimize the impact on the surrounding community. Although not applicable to New York State projects, LIRR would comply with work hours specified in local noise ordinances to the maximum extent practicable. Limited exceptions might be needed to accommodate work affecting rail operations such as work relating to a 24-hour or 48-hour bridge replacement. In order to expedite construction to reduce road closures and diversions during construction of the separations at grade crossings, it is anticipated that work would take place outside specified local noise ordinance work hours. In cases where work is performed outside specified work hours in locations adjacent to residential neighborhoods, every effort will be made to keep intrusive noise to a minimum. In addition, to minimize the effects of construction noise and vibration, LIRR is also committed to implementing a community noise and vibration monitoring program, working with local schools and the affected communities and municipalities to schedule nearby construction activity as unobtrusively as practicable and feasible, and implementing a CPP to protect historic architectural resources from vibration impacts.

C. MEASURES TO MINIMIZE COMMUNITY IMPACTS

LIRR would implement the following measures during construction to minimize potential impacts to nearby communities from ongoing construction:

1. COMMUNICATION WITH COMMUNITY

- Give advance notification of any disruptive work or work closures to residents, municipalities, school districts and first-responders
- Provide regular updates to the public in the form of email blasts and online postings
- Perform door-to-door outreach to residents in the affected areas
- Staff the project office with on-site supervision for rapid response to neighborhood concerns

- Maintain a 24/7 hotline assigned to a community outreach representative, to include direct communication with an on-site contractor/supervisor for real-time response
- Create and implement protocol for addressing community complaints
- Coordinate with local school districts to provide alternate transportation to schools where temporary or short-term road closures would either increase walking distance to schools or make on-foot travel to school problematic
- Work with local schools to schedule nearby construction activity as unobtrusively as practicable and feasible
- Coordinate with emergency service providers to ensure continuity of access to the community
- Establish regular meetings for LIRR, community representatives, and the contractor to discuss construction activities and community concerns

2. 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 sites clean and orderly
 - Safely store construction materials in piles/not haphazardly
 - Ensure that construction fences are uniform and neat in material and appearance Neatly clad chain-link fences in uniform green tennis mesh or printed mesh with approved enhancements, such as photos or artwork
 - Entirely fence off all staging areas
 - Prohibit littering and dispersion of personal debris (e.g., cups, cans, cigarettes) on construction site
 - Provide covered trash receptacles that are emptied daily
- 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
- Provide satellite parking for construction workers so as to keep personal construction worker vehicles off of residential streets
- Use existing track to transport materials to and from the work sites to the extent practical
- Schedule construction deliveries outside of school and commuter traffic peak hours to the extent practicable while school is in session

3. ENVIRONMENTAL PERFORMANCE

- Provide environmental monitoring consistent with a Construction Health and Safety Plan (CHASP)
- Implement a Stormwater Pollution Prevention Plan (SWPPP)
- 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 such as diesel particulate filters, and the utilization of newer equipment.
- Conduct pre-construction home inspections
- Create and implement a community noise and vibration monitoring program
- Implement a Construction Protection Plan (CPP) to protect historic architectural resources within 100 feet of the construction activities for the Proposed Project
- In consultation with the community, employ rodent control measures
- Minimize noisy work during nighttime hours where practicable and feasible

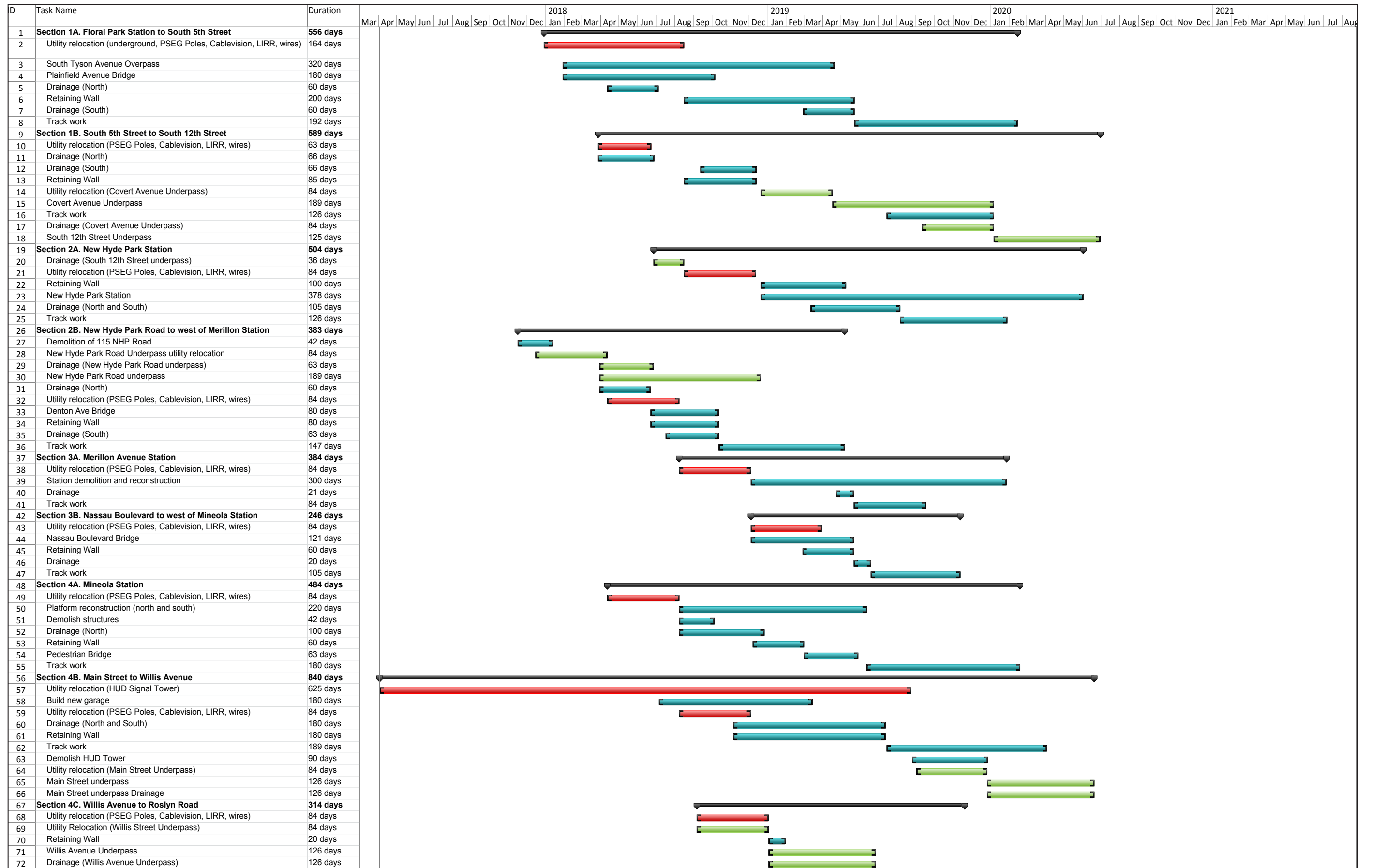
D. CONSTRUCTION DESCRIPTION

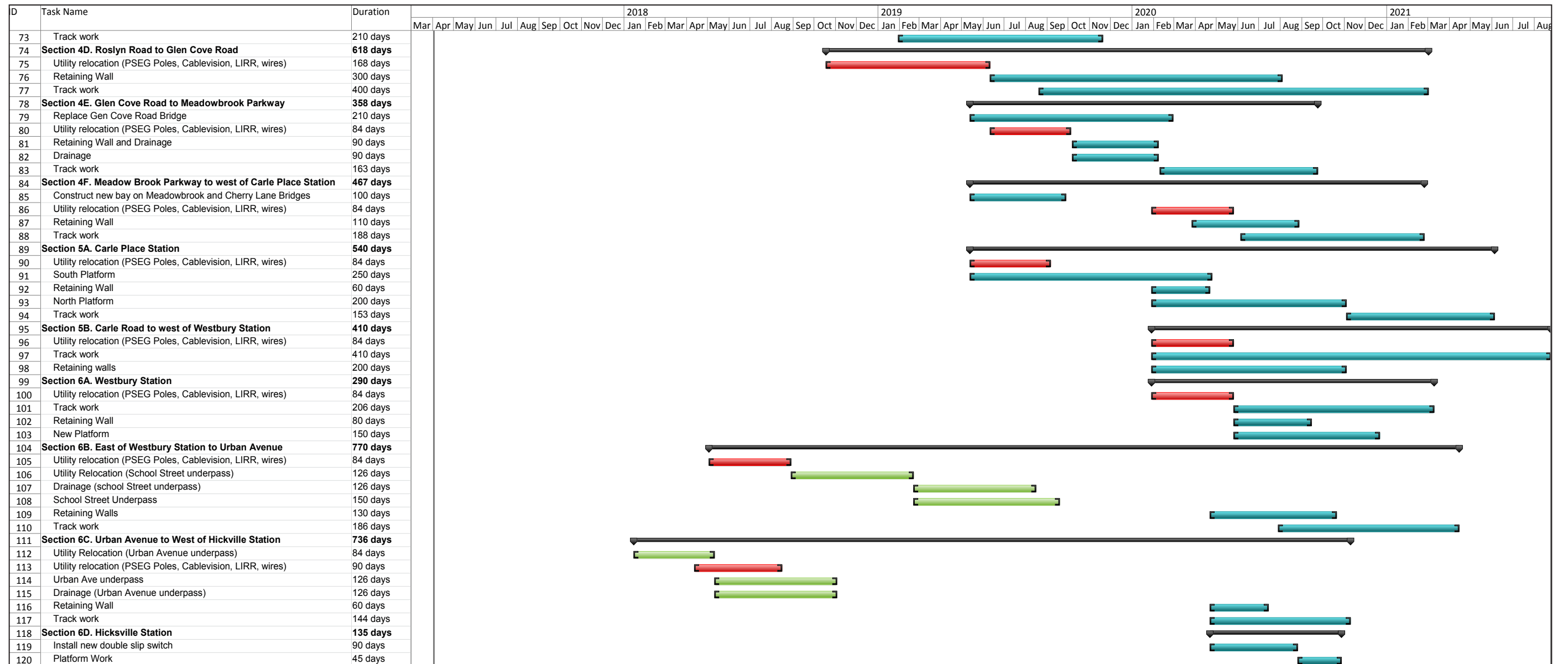
CONSTRUCTION SCHEDULE

For the purposes of this analysis, it is conservatively assumed that construction of the Proposed Project would take approximately four years. The design build contractor will be expected to prioritize an expedited schedule, and implementation of an expedited construction schedule of less than four years by the design build contractor will be emphasized in the bid documents. Further, the assumed four year period is for overall active construction of the Proposed Project throughout the more than a dozen construction segments (see **Figure 13-1**).

In any given segment, the overall construction duration will target to be shorter. Due to the need to sequence some aspects of the work, not all construction segments can proceed in parallel. Therefore, while the overall construction could take up to three to four years, no one location is expected to experience construction activities for that full duration. Furthermore, within each segment, with the exception of major bridge work, construction would proceed in a linear fashion as retaining walls, fill, and track and ballast are installed. For this work, major construction activities at any particular location may occur for several weeks to a few months before proceeding along the ROW.

For example, Covert Avenue underpass activities including utility relocation would take place over approximately 9 to 12 months. This is typical of the two longer grade crossing eliminations with the smaller projects taking 6 to 9 months. New Hyde Park station improvement activity is anticipated to take place over approximately 18 months and is typical of station improvement activities with the exception of Floral Park and Hicksville stations where no major station modifications are expected. Existing bridge structure modification activities would typically take approximately 4 to 10 months to complete. Some work would be longer because tracks and/or a portion of the affected roadway would need to be kept in service. Construction activities would be phased where logistically possible to minimize the duration at any location so as to lessen the effects of construction on the surrounding communities. Construction of the Proposed Project would entail temporary disruptions of varying duration to rail service, certain passenger rail stations, and local traffic operations. Expedited construction techniques for both the construction of the third track segments and the grade crossing eliminations such as temporary road closures, would result in shorter construction periods in general.





CONSTRUCTION ELEMENTS AND PHASING

The main components of the Proposed Project and their proposed phasing are discussed in more detail below.

UTILITY RELOCATIONS

There are existing utilities that would need to be relocated to accommodate the new Main Line third track and the elimination of the existing grade crossings. Utilities located within the Project Corridor include: LIRR signals and communications; gas; electric; fiber optic; telephone; cable; water; sanitary sewer; and storm sewer. In general, electric transmission, LIRR signal and communications, Verizon, and Cablevision lines are located within the ROW. Utility relocation activities with each segment of the Proposed Project must be conducted first before the installation of additional track, the elimination of grade crossings, and various station improvements and modifications could proceed.

For overhead utilities work, augured holes would be used to accommodate the installation of the new poles. The existing utility lines would be relocated from the old pole to the new pole. Flatbed delivery trucks and dump trucks would be used to transport materials and remove soils, respectively. Underground utilities work would typically involve a pavement cutter and a backhoe to excavate the trench, a mobile crane to relocate the utility lines and maintain service, and a compactor to place the backfill. Asphalt trucks and rollers would be used to install any temporary paving cover.

THIRD MAIN LINE TRACK

The Proposed Project includes the installation of additional track to complete a continuous third Main Line track. Between Floral Park and Roslyn Road in Mineola, the new track location is proposed south of the existing alignment. The alignment of the new track would shift to the north side of the existing tracks east of Roslyn Road in Mineola and continue to just east of Carle Place station near the western limit of the Village of Westbury. The entire alignment would gradually shift to the south between the Carle Place station and Westbury station, connecting to the existing tracks and providing a new track south of the existing alignment at Westbury station. East of Westbury station, the new third track would gradually shift to the north, crossing underneath the existing Grand Boulevard Bridge and tying into an existing siding track located west of Hicksville station. In some locations, the two existing Main Line tracks would be shifted slightly to the north or south to facilitate a more desirable alignment and avoid property impacts.

The construction of the third Main Line track would generally proceed in the following stages:

- **Site Preparation.** The first step in construction, general site preparation, involves site mobilization of trailers and equipment and the installation of public safety measures such as fencing and signs. Staging areas within the ROW and at nearby areas would also be established during this stage. Where needed, Work Zone Traffic Control Plans would be developed and implemented to ensure the safety of the construction workers and the public passing through the construction area.
- **Utility Relocations.** Existing utilities in the area of the third Main Line track would be relocated. As discussed above, the relocation of overhead utilities would typically involve an auger for drilling, a mobile crane for pole removal and installation, and a compactor for backfilling. The relocation of underground utilities work would typically involve a pavement

cutter and a backhoe to excavate the trench, relocate the utility lines and maintain service, and place the backfill.

- **Site Clearing.** Installation of the third track and retaining walls would require the clearing and grubbing of vegetation within the ROW. In addition, existing signal huts and electric boxes would be relocated and installed permanently in their new locations.
- **Retaining Wall Construction.** The installation of additional segments of track to complete a continuous third track through the Project Corridor would require the placement of additional structural soil subgrade and ballast within the ROW at the locations to achieve an appropriately level surface to place the tracks. In order to place the appropriate amount of subgrade and ballast without causing spill-over due to sloping onto properties outside of the ROW, construction of retaining walls and, where necessary, sound attenuation walls would be required. The retaining/sound attenuation wall locations and details are presented in Table 1-4. Typically, to construct the wall, supporting piles would first be installed with pile auger rigs. Lagging structures would then be inserted between the piles to retain the soil, followed by installation of pre-cast concrete panels to form the wall structure.
- **Structure Modifications.** To accommodate the third track, seven existing bridge structures along the Project Corridor would be modified, including the South Tyson Avenue Bridge and the Plainfield Avenue Bridge in Floral Park, the Denton Avenue Bridge and the Nassau Boulevard Bridge in Garden City, and the Glen Cove Road Bridge, Meadowbrook State Parkway Bridge, and Cherry Lane Bridge in Carle Place. A new single track bridge would be constructed to accommodate the new third track at the South Tyson Avenue, Plainfield Avenue, and Meadowbrook Parkway structures; the Denton Avenue, Nassau Boulevard, Glen Cove Road, and Cherry Lane structures would be modified to accommodate the third track. Modified bridge structure activities would require utility relocations to be performed before the commencement of abutment work. Temporary traffic and lane closures would be needed to stage the abutment work on both sides of the roadways. In addition, a weekend closure would be needed for the hoisting of bridge structure into place. Structure modifications would involve a variety of equipment including excavators, loaders, and dump trucks for earth moving activities, pile drivers for foundation activities, and a crane to hoist the bridge structures into place.
- **Track Work.** Existing tracks would be relocated, if necessary. After the soil is graded, stabilized, and backfilled, new tracks would be constructed adjacent to the existing main line tracks using track laying equipment. Where necessary, tracks would be raised to the new grade. Once the tracks are laid, ballast consisting of gravel or coarse stone would be placed to form the bed and stabilize the railroad track.
- **Railroad Infrastructure Modifications and Final Finishes.** The proposed project would include modifications to railroad infrastructure such as overpasses, signal systems, substations, culverts, sidings, interlockings, crossovers, track bed, power systems, communications, signals, third rail, and track drainage. This stage generally requires on-track equipment and hand-held tools. After railroad infrastructure modifications and station improvements are complete, the third track would be put into service.

GRADE CROSSING ELIMINATIONS

Along the LIRR Main Line segment between the Floral Park station and Hicksville station are seven locations where the rail line crosses a roadway. These locations are:

- New Hyde Park/Garden City

- Covert Avenue
- South 12th Street
- New Hyde Park Road
- Mineola
 - Main Street
 - Willis Avenue
- Westbury/New Cassel
 - School Street
 - Urban Avenue

Grade crossing elimination activities would occur at no more than one location at a time within each of the three regions (New Hyde Park/Garden City, Mineola, Westbury/New Cassel) specified above. Only one road would be subject to closure at a time to allow for activity to occur simultaneously. Based on current plans, in the New Hyde Park/Garden City area, activities at the New Hyde Park Road crossing would begin first, followed by the Covert Avenue crossing once the New Hyde Park grade-separated crossing is operational, and finally the South 12th Street crossing. In the Mineola area, activities at the Willis Avenue crossing would commence before those at the Main Street crossing. In the Westbury/New Cassel area, activities at the Urban Avenue crossing would occur before those at the School Street crossing.

These seven existing grade crossings would be eliminated to provide grade-separated crossings (e.g., underpasses) or potentially, for the South 12th Street and Main Street crossings, full closures to vehicular traffic. Modification would be based on NYSDOT design criteria, consideration of construction impacts and duration, traffic impacts, and input from the community. A detailed description of the grade crossing options under consideration is provided in Chapter 1, “Project Description.”

Grade crossing elimination activities at each of the seven locations would generally proceed in the following stages:

- **Site Preparation.** The first step in construction is general site preparation and the implementation of the Work Zone Traffic Control Plan; this involves the installation of public safety measures such as fencing, signs, Jersey barriers, and temporary striping.
- **Utility Relocations.** Prior to excavation activities, existing utilities at the grade crossing would be relocated to ensure that grade crossing elimination activities could be conducted without impacting any existing service connections. This stage of work typically involves a pavement cutter and a backhoe to excavate the trench, relocate the utility lines and maintain service, and place the backfill. Flatbed delivery trucks and dump trucks would be used to transport materials and to remove soils, respectively. Asphalt trucks and rollers would be used to install any temporary paving cover.
- **Earthwork, Piers, and Abutments.** This stage requires the installation of shafts and precast cap beams, excavation or material fill for new embankments, and the construction of tunnel walls and bridge abutments. Jackhammers would also be used to remove any existing curbing and sidewalks. This stage of work typically involves an excavator, a loader, and dump trucks for earth moving activities, and vibratory pile drivers for sheeting and drilled piles for pile foundations.
- **Drainage Improvements.** A detailed description of the drainage improvements at the grade crossings is provided in Chapter 9, “Utilities and Related Infrastructure.” Construction of the

underground recharge chamber system and stormwater conveyance pipes would include support of excavation, excavation, chamber construction where needed, and the installation of precast pipes. Following installation of the conveyance and construction of the chambers, the excavated area would be backfilled and restored. This stage of work typically involves an excavator, a loader, and dump trucks for earth moving activities, concrete pumps and concrete trucks for chamber construction, and a mobile crane for the pipe installation.

- **Bridge Structure Construction.** Bridge structure installation would be conducted over a 48-hour weekend (7 total weekends over a three to four year construction period) with no train or roadway traffic at the location of the installation. During this time, sections of the bridge structure would be hoisted into place with the use of a mobile crane.
- **Final Roadway Finishes.** Final finish work would involve striping the streets and crosswalks and installation of new signals and signage (as necessary). Final finishes may also include any other proposed landscaping. This stage generally requires only light-duty equipment and hand-held tools.

STATION IMPROVEMENTS AND MODIFICATIONS

The Proposed Project would include improvements to several of the passenger rail stations within the Project Corridor—New Hyde Park Station, Merillon Avenue Station, Mineola Station, Carle Place Station, and Westbury Station. As part of the separate Hicksville Station and North Track Siding Improvements Project, station improvements at Hicksville Station are currently being implemented. As discussed in Chapter 1, “Project Description,” the five modified stations would accommodate the new third track, enhance pedestrian access and ADA accessibility, improve platforms and passenger waiting areas, and meet the requirements of the LIRR station guidelines and applicable codes. In addition, LIRR will implement Enhanced Station Initiatives such as station art, WiFi, digital signage, and other amenities.

Station improvements and modifications associated with the Proposed Project would generally proceed in the following stages:

- **Site Preparation.** The first step in construction, general site preparation, involves site mobilization of trailers and equipment and the installation of public safety measures such as fencing and signs and temporary stairs and ramps. Where needed, Work Zone Traffic Control Plan would be developed and implemented.
- **Utility Relocations.** Prior to platform construction activities, existing utilities in the area of the new platforms and/or the third track would be relocated. This stage of work would typically involve an auger for drilling, a mobile crane for pole removal and installation, and a compactor for backfilling.
- **Construct New Platform and Associated Access.** Platform construction would involve the installation of support columns and the platform structure itself as well as the associated pedestrian stairs, ramps, overpasses, and/or elevators. The new platforms would be constructed immediately south of the existing platforms at the New Hyde Park, Merillon Avenue, Mineola, Carle Place, and Westbury stations. The north platforms at these stations would also be demolished and replaced. Pedestrian access to the platform and train service would be maintained during this stage of construction. Equipment used during this stage of construction would include pile rigs, mobile cranes, front end loaders, and concrete pumps.
- **Remove Existing Platform.** Once the new platform is constructed, the existing platform would be removed. The existing platform may be removed half at a time to ensure

- pedestrian access to the platform and train service. Provisions would be made through either temporary long bridge plates or temporary platforms to provide access from the new platform to train services on the existing Main Line tracks until the third track is laid and placed in service. Equipment used during this stage of construction would include excavators, front end loaders, and concrete saw cutters.
- **Final Finishes.** Final finish work would involve the removal of temporary stairs and ramps, and installation of benches, ticket machines, and new signage. Final finishes may also include any proposed landscaping. This stage generally requires only light-duty equipment and hand-held tools.

RAILROAD INFRASTRUCTURE MODIFICATIONS

The proposed project would include modifications to railroad infrastructure such as overpasses, signal systems, culverts, sidings, track bed, power systems, communications, signals, third rail, and track drainage. In addition, the Proposed Project would include modifications to rail interlockings and installation of new crossovers. Furthermore, as described in Chapter 1, “Project Description,” there are eight LIRR traction power stations within the project limits. With the exception of the Floral Park Substation which was replaced in 2010, the substations are nearing the end of their operating service life and would be replaced in kind at the same locations as part of the Proposed Project. Railroad infrastructure modifications would typically involve mobile cranes and hand-held tools and may also require on-track equipment. If earthmoving and foundation activities required, equipment such as excavators, backhoes, loaders, and pile rigs would be used.

CONSTRUCTION ELEMENTS IN SUBSECTIONS

For the purpose of describing the construction elements of the Proposed Project, the Project Corridor is broken down into subsections, from west to east. The following describes the anticipated construction work activities, potential truck access routes, and staging areas in each of the subsections. Actual sequence of construction is not proposed as west to east and will be established by LIRR and the selected design-build contractor.

LIRR may use the Belmont Yard or Ronkonkoma Yard to stage work trains that would transport construction equipment, materials, and/or works to work sites along the ROW. This would allow for a reduction in impacts to adjacent property owners and would facilitate work in certain areas of the ROW with constrained access.

SECTION 1 – FLORAL PARK STATION TO NEW HYDE PARK STATION

Section 1A. Floral Park Station to South 5th Street

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Relocate utilities in South Tyson Avenue and Plainfield Avenues
- Rebuild South Tyson Avenue Bridge span
- Construct new bay adjacent to Plainfield Avenue Bridge

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- Construct retaining walls on the south side of LIRR ROW and sound attenuation walls on the north side of LIRR ROW working from Plainfield Avenue east and from Covert Avenue west
- Shave east end of platform by approximately seven inches for approximately 78 feet at Floral Park station
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals
- Construct new universal crossover on Hempstead Branch

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Plainfield Avenue.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- LIRR substation west of Plainfield Avenue south of the tracks
- LIRR ROW adjacent to Terrace Avenue east of Plainfield Avenue

Section 1B. South 5th Street to South 12th Street

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Relocate utilities in Covert Avenue, Second Avenue, and Third Avenue
- Construct retaining walls on the south side of LIRR ROW
- Elevate existing track level by 5 feet at Covert Avenue (average raise of one to two feet per weekend)
- Eliminate Covert Avenue Grade Crossing: Two lane Covert Avenue underpass (this activity would commence after the New Hyde Park Road grade-separated crossing is opened to traffic)
- Eliminate South 12th Street Grade Crossing: underpass or closed
- Construct new Main Line third track (south side)
- Construct track drainage
- Construct track, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to New Hyde Park Road to 4th Avenue to Baer Place.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Western end of Third Avenue between Covert Avenue and Wayne Avenue
- Areas between Covert Avenue and South 12th Street that are proximate to the grade crossings and the LIRR ROW

SECTION 2 – NEW HYDE PARK STATION TO MERILLON AVENUE STATION

Section 2A. New Hyde Park Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Relocate utilities in Second and Third Avenues
- Construct parking garage at South 12th Street (this would be completed before parking is eliminated on the south side of Third Avenue to accommodate construction staging)
- Construct new south platform while maintaining pedestrian access to existing south platform
- Construct new north platform
- Construct new pedestrian overpass and ramps
- Demolish existing south platform; access to train service on existing Main Line track via temporary bridges
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to New Hyde Park Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Areas between South 12th Street and New Hyde Park Road that are proximate to the LIRR ROW
- Portions of station parking on Third Avenue east of Baer Place
- Commercial property at 115 New Hyde Park Road which would require acquisition

Section 2B. New Hyde Park Road to west of Merillon Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Relocate utilities in New Hyde Park Road and Denton Avenue
- Eliminate New Hyde Park Road Grade Crossing: Four or five lane New Hyde Park Road underpass
- Construct retaining walls on the south side of LIRR ROW
- Relocate LIRR signal hut at Denton Avenue

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- Modify Denton Avenue Bridge to accommodate new Main Line third track
- Install new traffic signal heads at Denton Avenue/Railroad Avenue and Denton Avenue/Main Avenue (intersection operations to be coordinated with metering of traffic under LIRR overpass)
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to New Hyde Park Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Commercial property at 115 New Hyde Park Road which would require acquisition
- Portions of Railroad Avenue north of the LIRR ROW
- Portions of the LIRR ROW along Main Avenue

SECTION 3 – MERILLON AVENUE STATION TO MINEOLA STATION

Section 3A. Merillon Avenue Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Construct new south platform while maintaining pedestrian access to existing south platform
- Construct new pedestrian ramps
- Demolish existing south platform; access to train service on existing Main Line track via temporary bridges
- Construct new north platform
- Construct new Main Line third track (south side)
- Construct new sound attenuation walls on south and north side of LIRR ROW
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Hempstead Turnpike to Nassau Boulevard since the vertical clearance (11 feet 6 inches) under the existing Nassau Boulevard Bridge would not be able to accommodate construction trucks.

Staging areas would generally include the LIRR ROW or adjacent property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- LIRR ROW south of the existing station platform
- Portions of the LIRR-owned surface parking lot on the north side of the station

Section 3B. Nassau Boulevard to west of Mineola Station

Construction elements in this subsection would include:

- Relocate LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Construct retaining walls on south side of LIRR ROW
- Modify Nassau Boulevard Bridge to accommodate new Main Line third track
- Elevate existing track level by 2 feet at Nassau Boulevard
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Hempstead Turnpike to Nassau Boulevard.

The primary staging area would be the LIRR ROW or ancillary property (including portions of the access road south of the LIRR ROW west of Herricks Road), though final decisions with regard to Project staging areas will be made by the construction contractor.

SECTION 4 –MINEOLA STATION TO CARLE PLACE STATION

Section 4A. Mineola Station

Construction elements in this subsection would include:

- Relocate Verizon and Cablevision lines from south to north of LIRR ROW
- Demolish substation building at 57 Main Street and Nassau Tower if parking garage is to be construction at this location
- Construct parking garage at 57 Main Street (parking garage construction should be conducted in advance of station platform construct to offset loss of parking during construction)
- Relocate “kiss-and-ride” parking area
- Remove south Mineola station waiting building on Station Road
- Remove pedestrian overpass between Third Avenue and Mineola Boulevard
- Construct retaining walls on south side of LIRR ROW
- Construct new south platform while maintaining pedestrian access to existing south platform
- Construct new north platform
- Construct new pedestrian ramps, stairs, and elevators
- Demolish existing south platform; access to train service on existing Main Line track via temporary bridges
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Mineola Boulevard.

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Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Portions of station parking area between Fourth Avenue and Fifth Avenue south of the LIRR ROW

Section 4B. Main Street to Willis Avenue

Construction elements in this subsection would include:

- Relocate LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Relocate triangle track worker area on Front Street between Main Street and Willis Avenue in the vicinity of Mineola
- Construct retaining walls on the south side of LIRR ROW
- Eliminate Main Street Grade Crossing: underpass or close (Main Street grade-separated crossing would not be constructed until the Verizon facility and copper cables are relocated)
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Main Street.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- LIRR ROW between Main Line and Oyster Bay Branch between Main Street and Willis Avenue

Section 4C. Willis Avenue to Roslyn Road

Construction elements in this subsection would include:

- Relocate LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW; utilities may need to be buried in this area
- Shift alignment of Main Track approximately 7 to 8 feet to the north to accommodate third track
- Potentially replace low height existing retaining wall on the north side of LIRR ROW
- Construct retaining walls on south side of LIRR ROW
- Eliminate Willis Avenue Grade Crossing: One- or two-lane Willis Avenue underpass (Willis Avenue grade-separated crossing would be opened to traffic before activities at Main Street grade crossing commence)
- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Willis Avenue and/or Roslyn Road.

The primary staging areas would be within the LIRR ROW or adjacent property, though final decisions with regard to Project staging areas will be made by the construction contractor.

Section 4D. Roslyn Road to Glen Cove Road

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines
- Construct retaining walls on the south side of LIRR ROW near Roslyn Road and on north side of LIRR ROW near Glen Cove Road
- Shift existing track to accommodate third track
- Construct new Main Line third track (the proposed track alignment would shift to the north side of the existing tracks east of Roslyn Road in Mineola, and would continue to just east of Carle Place Station near the western limit of the Village of Westbury)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Glen Cove Road to Voice Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Commercial properties in the vicinity of East Second Street

Section 4E. Glen Cove Road to Meadowbrook Parkway

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines
- Construct retaining walls on the north side of LIRR ROW
- Modify Glen Cove Road Bridge to accommodate new Main Line third track
- Shift existing track to accommodate third track
- Construct new Main Line third track (north side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Glen Cove Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

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- Macy's existing ramp south of existing tracks west of Meadowbrook State Parkway

Section 4F. Meadowbrook Parkway to west of Carle Place Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines
- Construct retaining walls on the north side of LIRR ROW
- Modify substation located east of Meadowbrook State Parkway south of existing tracks
- Modify Meadowbrook State Parkway Bridge to accommodate new Main Line third track
- Modify Cherry Lane Bridge to accommodate new Main Line third track
- Minor modification to Cherry Lane traffic profile to "harmonize" with Atlantic Avenue
- Shift existing track to accommodate third track
- Construct new Main Line third track (north side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Glen Cove Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Portions of Atlantic Avenue adjacent to the LIRR ROW near Meadowbrook State Parkway and Silver Lake Boulevard

SECTION 5 – CARLE PLACE STATION TO WESTBURY STATION

Section 5A. Carle Place Station

Due to access constraints for large construction equipment and materials, Carle Place station may be closed for approximately 12 months. If Carle Place station is to be temporarily closed, shuttles would be provided to take passengers utilizing the Carle Place station to the nearby Westbury station, approximately a five minute drive away.

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines
- Construct new north platform while maintaining pedestrian access to existing south platform
- Replace pedestrian overpass and construct new pedestrian ramps
- Demolish existing north platform; access to train service on existing Main Line track via temporary bridges
- Construct retaining walls on the north side of LIRR ROW
- Shift existing track to accommodate third track
- Construct new Main Line third track (north side)

- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Cherry Lane to Mineola Avenue to Stonehinge Lane.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Station parking area north of existing station platform

Section 5B. Carle Road to west of Westbury Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines
- Construct retaining walls on the north side of LIRR ROW near Carle Road and on south side of LIRR ROW near Westbury Station
- Shift existing track to accommodate third track
- Construct new Main Line third track (the entire alignment would gradually shift to the south between Carle Place and Westbury stations, connecting to the existing tracks and providing a new track south of the existing alignment at Westbury Station)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Carle Road.

The primary staging area would be within the LIRR ROW west of Madison Avenue toward Ellison Avenue, though final decisions with regard to Project staging areas will be made by the construction contractor.

SECTION 6 – WESTBURY STATION TO HICKSVILLE STATION

Section 6A. Westbury Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Construct new north platform
- Construct retaining walls on the south side of LIRR ROW
- Potentially construct a new parking garage at station parking area on Railroad Avenue
- Construct new south platform while maintaining pedestrian access to existing south platform
- Construct new pedestrian ramps and elevator
- Demolish existing south platform; access to train service on existing Main Line track via temporary bridges

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- Construct new Main Line third track (south side)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Post Avenue to Railroad Avenue.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Portions of the station parking area south of existing station platform

Section 6B. East of Westbury Station to Urban Avenue

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW east of Westbury station then from north to south east of Grand Boulevard
- Install crash poles near Grand Boulevard
- Construct retaining walls on the north and south sides of LIRR ROW near School Street
- Eliminate School Street Grade Crossing: Two lane School Street underpass (activities for the School Street grade crossing would commence after the Urban Avenue grade-separated crossing is open to traffic)
- Elevate existing track level by 3 feet at School Street
- Construct new Main Line third track (the new third track would gradually shift to the north, crossing underneath the existing Grand Boulevard bridge and tying into an existing siding track located west of Hicksville station)
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to School Street or Urban Avenue.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following areas have been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- 167 School Street commercial building east of School Street (to be acquired)
- LIRR area south of existing tracks east of School Street

Section 6C. Urban Avenue to West of Hicksville Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from north to south of LIRR ROW from Urban Avenue to Wantagh State Parkway

- Construct retaining walls on the north side of LIRR ROW from Urban Avenue to Wantagh State Parkway
- Modify substation near Wantagh State Parkway
- Conduct minor rehabilitation activities between Wantagh State Parkway and Hicksville Station
- Eliminate Urban Avenue Grade Crossing: Two lane Urban Avenue underpass
- Elevate existing track level by 3 feet at Urban Avenue
- Construct new Main Line third track (north side) and tie new third track into existing track and “siding” track just west of Wantagh State Parkway
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Urban Avenue.

The primary staging area would be within the LIRR ROW, though final decisions with regard to Project staging areas will be made by the construction contractor.

Section 6D. Hicksville Station

Construction elements in this subsection would include:

- Relocate PSEG electric transmission, LIRR signal and communications, Verizon, and Cablevision lines from south to north of LIRR ROW
- Potentially construct a new parking garage near Hicksville station
- Install new double-slip switch east of Hicksville station platform near Jerusalem Avenue
- Shave east end of platform at Hicksville station
- Construct track drainage, ballast, switches, third rail, traction power, communications, and signals

The primary truck access route to construction areas in this subsection is anticipated to be from Jericho Turnpike to Newbridge Road.

Staging areas would generally include the LIRR ROW or ancillary property. In addition, the following area has been identified as potential staging areas for activities in this subsection, though final decisions with regard to Project staging areas will be made by the construction contractor:

- Station parking area north of existing station platforms east of Newbridge Road

CONSTRUCTION WORK HOURS AND TRACK OUTAGES

Although not applicable to New York State projects, construction of the track component of the Proposed Project would generally be carried out within the work hours specified in local noise ordinances except where not feasible. This is consistent with existing LIRR maintenance practices which include overnight work in the LIRR ROW to minimize disruption to LIRR customers. Accordingly, activities affecting rail operations, such as work relating to bridge replacement, construction of retaining and noise attenuation walls, and grade alteration of track, may be carried out on nights and weekends or other LIRR off-peak hours. Noisy activities adjacent to residential properties would be avoided in overnight hours to the maximum extent

practicable. For any necessary night work, there would be extensive consultation with the community. LIRR would require the selected contractor to develop methods to expedite the construction schedule and to minimize the construction effects on the nearby community.

In order to expedite construction to reduce road closures and diversions during construction of the separations at grade crossings and to keep the work within the targeted 6 to 9 months (and 9 to 12 months for the two longer grade crossing eliminations), it is anticipated that work at the grade crossings would take place outside specified local noise ordinance work hours.

During construction, LIRR may operate modified weekday service in off-peak hours, with periodic suspension of service on a limited number of weekends to allow for construction activity that could not be performed with active train service. Some construction activities would have an adverse impact on off peak and weekend service levels through the Project Corridor, which would temporarily impact LIRR ridership along some of the branches impacted by construction activities. For anticipated mid-day weekday outages, LIRR expects to be able to accommodate service to Oyster Bay, Huntington and Ronkonkoma with schedule adjustments and possible select train cancellations. However, there will be some instances when service to those branches would be impacted, and LIRR would provide advance notice when that occurs. On weekends, however, with the goal of shortening the project's construction duration and maximizing contact time to work along the tracks, service reductions are likely during the construction period. Weekend Huntington service would likely be reduced from half-hourly to hourly, Port Jefferson service levels would be reduced from 90 minutes to 120 minutes, and Ronkonkoma would remain with hourly service. There will also be some track work, including bridge and grade crossing work, which would require both tracks to be taken out of service on a limited number of occasions. Advance notice would be provided on these limited occasions for these major track outages and customers would be provided with alternative transportation information, including bussing.

LIRR service during construction of the Proposed Project would require the following service modifications:

- Single track outages
 - Utility relocation, retaining wall construction, station platforms, and viaduct work where fouling of tracks (i.e., work activities would occur in such proximity that could interfere with a moving train) would occur
 - Rail activities (i.e., shifting of existing rail)
- Weekend double track outages (on limited occasions)
 - Track shifts
 - Interlocking and special track work installation and demolition
 - Bridge installations at grade crossings and other locations
 - Elevation of existing track levels

E. METHODOLOGY

The analysis of significant adverse impacts during the construction period focuses on a variety of technical analysis areas, each with its own methodology. The geographic areas that would be most affected generally are those within or immediately adjacent to the construction activities. However, in some cases, the effects from construction could extend beyond the immediate areas surrounding the construction sites.

For each of the various technical areas presented in this chapter, appropriate construction analysis periods were selected to represent reasonable worst-case conditions relevant to that technical area, which can occur at different times for different analyses. For example, the noisiest part of the construction may not be at the same time as the heaviest construction traffic. Therefore, the analysis periods may differ for different technical analysis areas.

F. POTENTIAL IMPACTS OF THE PROPOSED PROJECT

Similar to many large construction projects, construction activities can be disruptive to the surrounding area for periods of time but such effects are temporary. The following analyses describe the potential impacts that could result from construction of the Proposed Project, with respect to land use and community character, socioeconomic conditions, environmental justice, visual resources, historic and cultural resources, natural resources, hazardous and contaminated materials, transportation, air quality, and noise and vibration, and safety and security.

LAND USE AND COMMUNITY CHARACTER

Construction activities related to the Proposed Project would result in the temporary change of the use of a limited number of individual parcels within the Study Area. These construction activities, however, being of limited duration, would not permanently change the use of these parcels and in any event would not change the patterns of land use in the Study Area. In terms of community character, construction activities would temporarily take place and impact the communities in terms of visual resources and traffic due to road closures and diversions, but overall would not result in a permanent change of the character of the communities within the Study Area. As discussed above, throughout the construction period, LIRR would implement a number of measures to minimize the effects of construction and to control noise, vibration, and dust. Construction fencing would be erected to reduce potentially undesirable views of construction areas and buffer noise emitted from construction activities. A community noise and vibration monitoring program and an air quality control plan including dust control measures would be implemented during construction. In addition, to the extent practicable and feasible, noisy work would be minimized during evening hours. Therefore, no significant permanent adverse impacts to these communities in terms of land use and community character would result during construction of the Proposed Project.

SOCIOECONOMIC CONDITIONS

This section describes the potential socioeconomic effects of construction activities associated with the Proposed Project from two perspectives: (1) it estimates the economic benefits generated by construction; and (2) it considers whether significant adverse socioeconomic effects would result from construction activities.

ECONOMIC AND FISCAL BENEFITS

Economic and fiscal benefits were estimated using IMPLAN (IMpact Analysis for PLANning), an economic input-output modeling system that uses the most recent economic data from sources such as the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau to predict effects on the local economy from direct changes in spending. The IMPLAN model contains data on 536 economic sectors, showing for any given geography how each sector affects every other sector as a result of a change in the quantity of its product or service. This indirect economic activity that is generated through direct investment is often

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referred to as the “ripple,” or multiplier effect. This analysis is based on 2013 IMPLAN models for Nassau County and New York State. Using the Nassau County and New York State models and the estimated construction cost of the Proposed Project, the total effect has been projected for both the County and State. A qualitative discussion of operational economic and fiscal benefits is also provided.

The construction of the Proposed Project would result in the investment of significant capital into the local and regional economy. The Proposed Project is expected to cost approximately \$2 billion in 2019 dollars, which includes construction, design, contingency, force account, and agency cost. The construction benefits analysis was based on the IMPLAN input-output modeling system. The following benefits that would occur during the overall construction period in Nassau County, and Suffolk County, and New York State have been estimated. The following analysis examines this investment in the local economy in terms of employment (in full-time equivalents or FTE), wages and salaries, total economic output (or the total demand for goods and services created by construction of the Proposed Project), and tax revenues generated during the construction period.

The economic effects of construction projects are generally of two kinds: direct benefits, usually measured by specific construction-related expenditures for labor, services, and materials; and indirect benefits, representing expenditures made by material suppliers, construction workers, and other employees involved in the direct activity for the purchase of other goods and services within the region. The “secondary” expenditures support economic activity that, in turn, generates new employment within the region.

Construction of the project is estimated to create 1,297 FTE direct construction employment opportunities in Nassau County. In addition to direct employment, construction of the project would create additional jobs off-site in Nassau County (762 FTE) and Suffolk County (24 FTE) and the rest of the state (46 FTE). In the broader state economy, total employment from construction of the project would be 2,130 FTE.

Direct wages and salaries from constructing the project are estimated at about \$637.07 million. In the broader New York State economy, total direct and indirect wages and salaries from constructing the project would be even greater (approximately \$962.42 million, including \$926.70 million in Nassau and \$10.36 million in Suffolk).

The total effect on the local economy, expressed as economic output or demand for local industries, is estimated at approximately \$3.18 billion for Nassau County, \$47.14 million for Suffolk County, and approximately \$3.33 billion for the New York State economy overall. This output includes indirect and induced employee compensation, taxes, profits, and intermediate goods, in addition to the \$2 billion in direct construction costs.

Constructing the project would also create tax revenues for Nassau and Suffolk Counties and New York State. These taxes include sales tax, personal income tax, corporate and business taxes, and numerous miscellaneous taxes. Construction of the project is estimated to create approximately \$85.20 million in direct non-property related taxes for Nassau County, the MTA, and New York State (this analysis accounts for the fact that LIRR would be exempt from paying sales tax on construction materials). Indirect taxes would amount to approximately \$3.19 million.

POTENTIAL SIGNIFICANT ADVERSE SOCIOECONOMIC EFFECTS ASSESSMENT

Construction of the Proposed Project would require temporary easements for construction access on a number of parcels, some of which may have active businesses. However, such access would be of limited duration and would only be provided by willing property owners. The precise parcels would be selected by the design/build contractor. Construction activities at these locations could, at times, affect pedestrian and vehicular access in the immediate vicinity of the businesses but such effects would be temporary and limited to the construction period at any particular location with the Project Corridor. A plan would be developed and implemented to ensure that access to existing businesses throughout the Project Corridor would be maintained throughout the construction period. In addition, LIRR would ensure that lane and/or sidewalk closures would not obstruct entrances to any existing businesses. Therefore, businesses would not be significantly affected by any temporary change in pedestrian and vehicular access that could occur as a result of construction activities.

ENVIRONMENTAL JUSTICE

Construction of the Proposed Project would occur throughout the Project Corridor over a four-year period. However, temporary impacts associated with construction at localized segments would be of shorter duration, limiting construction impacts. These temporary impacts would be experienced broadly through the Study Area. The Proposed Project would not result in disproportionate construction impacts to environmental justice communities. Further information regarding the Proposed Project's effects on environmental justice communities can be found in Chapter 4 "Environmental Justice."

VISUAL RESOURCES

During construction, there would be an increase in activity within the Study Area, especially along the LIRR ROW and the grade crossings. As construction of the Proposed Project proceeds, large construction equipment such as cranes, excavators, trucks, would be utilized and visible to the public. Construction of the Proposed Project would require the removal of most vegetation within the LIRR ROW, which may cause the ROW to become more visible from adjoining land uses. There would be construction sites that would be visible to residents and businesses located within the Project Corridor.

Most of the activities and staging would be located within the LIRR ROW. In addition, areas near the Project Corridor would be used for construction staging. Staging areas would typically be surrounded by construction fences and barricades and covered from public view. Construction fences would be uniform and neat in material and appearance, i.e., neatly clad in green mesh or printed mesh with approved enhancements. The staging areas could have trailers and portable toilets and could be used to stockpile construction materials as well as equipment and truck staging. In addition, as discussed above, contractors are required to keep construction sites clean and orderly and would store construction materials in piles and not haphazardly. Construction staging would be temporary in nature and the areas would be restored as soon as they are no longer needed. Temporary lane and/or road closures would be needed during the construction of the Proposed Project. In such cases, the temporarily closed lanes could be used as staging where equipment and materials would be stored. LIRR is committed to using directional lighting at night to protect residences from light pollution and to avoid the potential for adverse visual impacts during construction. As discussed above, construction of the Proposed Project was conservatively assumed for the purpose of this study to take approximately four

years. However, construction activities would be phased to minimize the duration of construction at any particular location so as to lessen the effects of construction on the surrounding communities. Once each phase is complete, the construction areas would be restored to an improved condition. Although the character and quality of views of the Project Corridor during construction of the Proposed Project would be modified, such effects would be temporary in any given location. Therefore, construction of the Proposed Project would not result in significant adverse impacts to visual and aesthetic resources.

HISTORIC AND ARCHAEOLOGICAL RESOURCES

ARCHAEOLOGICAL RESOURCES

The LIRR ROW along the 9.8-mile length of the Project Corridor has been determined to possess little to no precontact or historic period archaeological potential. Therefore, construction of the proposed track alignment and station modifications would have no adverse impact on archaeological resources. The seven proposed grade crossing locations have experienced extensive prior disturbance. Therefore, it is highly unlikely that construction at the proposed grade crossing locations would have the potential to impact any intact archaeological resources at these locations. In addition, none of the anticipated property taking locations possess archaeological potential. Should additional takings be proposed as project design progresses, an assessment of archaeological potential would be undertaken in consultation with OPRHP. The use of the staging areas during construction would have no effect on archaeological resources because all work would occur on the paved surfaces with no subsurface disturbance.

Construction at five of the proposed parking structure locations has the potential to affect archaeological resources. These sites are in Mineola—Option 1/Willis Avenue site and an existing surface parking lot in west of Mineola Boulevard; in Westbury—an existing surface parking lot north of the train station; and in Hicksville—two existing surface parking lots north of the train station. Additional background research would be undertaken for each of these five locations to document potential prior disturbance. Phase 1B testing, if required, would be undertaken in consultation with OPRHP to avoid the potential for adverse construction-related impacts to archaeological resources.

ARCHITECTURAL RESOURCES

The Proposed Project would involve the demolition of two historic architectural resources within the LIRR ROW, south of the tracks along the Project Corridor—the Nassau Tower and the former Mineola LIRR Electrical Substation. The demolition of these properties would constitute an Adverse Impact to historic resources under SEQRA and Section 14.09. No other historic architectural resources would be directly impacted by modifications to the track alignment.

The proposed modifications to the seven Project Corridor train stations, construction-related activities at the preliminary construction staging areas, and demolition associated with property takings would not directly impact any historic architectural resources. Further, the proposed alterations to the grade crossings and bridges would not directly impact any historic architectural resources.

To ensure that construction activities associated with the Proposed Project that would be undertaken within 100 feet of architectural resources would not cause inadvertent physical impacts to historic architectural resources, LIRR would prepare and implement a CPP in consultation with the OPRHP for any architectural resources located within 100 feet of the

Proposed Project construction. The CPP would set forth the specific measures to be implemented to protect historic architectural resources during construction of the Proposed Project. The historic architectural resources that would be subject to the CPP are:

- Floral Park—the Floral Park Public Library, the commercial buildings on Tyson Avenue and South Tyson Avenue, and the commercial buildings on Tulip Avenue;
- Mineola—the commercial buildings at Station Plaza North;
- Westbury—the potential architectural resource at 164 Post Avenue; and
- Hicksville—Top Hat Uniform and the Hicksville USPS Main Post Office.

Measures to mitigate the adverse impact from the demolition of Nassau Tower and the former Mineola Electrical Substation, which is a Project-related impact not limited to construction activity, would be developed in consultation with OPRHP. These mitigation measures, along with the protective measures established in the CPP, would be set forth in an LOR to be executed among the involved parties.

NATURAL RESOURCES

GROUNDWATER AND WETLANDS

Construction of the Proposed Project would require excavation and grading of the ground surface. Erosion and sediment control measures would be implemented during these soil disturbing activities in accordance with the 2016 New York State Standards and Specifications for Erosion and Sediment Control (“Blue Book”) and the Stormwater Pollution Prevention Plan (SWPPP) prepared to meet the requirements of SPDES General Permit GP-0-15-002. Implementation of erosion and sediment control measures as outlined in the SWPPP would allow for groundwater recharge and minimize the potential for sediment discharges to existing infiltration basins. The SWPPP would include procedures for stormwater runoff and sediment control to prevent contaminated sediment runoff into groundwater and nearby wetlands.

As described in Chapter 8, “Contaminated Materials,” hazardous materials encountered during construction would be managed to minimize the potential for adverse impacts to groundwater or wetlands, in accordance with state and federal regulations. Based on the results of subsurface investigations, a RAP and CHASP would be prepared for implementation during project construction. These plans would address both known and potential environmental conditions that could be encountered during all subsurface disturbance associated with construction of the Proposed Project such as during the installation of the 60-inch stormwater conveyance pipe from the Urban Avenue grade crossing to the Nassau County Recharge Basin SWB 51. The plans would present measures for management of contaminated soil, groundwater and underground storage tanks in accordance with applicable federal, state and local regulations. If dewatering is required for construction, testing would be performed to ensure compliance with applicable discharge regulatory requirements. If necessary, pre-treatment would be conducted prior to discharge. With these measures implemented, construction of the Proposed Project would not result in significant adverse impacts to groundwater, the Nassau/Suffolk Aquifer System, or wetlands.

ECOLOGICAL COMMUNITIES

Construction of the proposed project would result in the removal of some trees, shrubs and herbaceous pioneer non-native species. The number of trees to be removed would be confirmed

as necessary for any site plan approval through an inventory of trees within the potential areas of disturbance. As discussed in Chapter 7, “Natural Resources,” ecological communities within the Study Area are limited to railroad, paved road/path, and urban structure exterior communities. These communities are sparsely vegetated by ruderal species and have limited ecological value. Overall, construction of the Proposed Project would not result in significant adverse impacts to ecological communities. Overall, construction of the Proposed Project would not result in significant adverse impacts to ecological communities.

WILDLIFE

Vegetation removal would be limited to trees and shrubby and herbaceous ruderal and non-native species that offer no habitat of value to native wildlife. The loss of these habitats would not result in significant adverse impacts to the urban-adapted species using these habitats. Disturbance during construction of the Proposed Project due to increased noise and human activity has the potential to temporarily displace wildlife, such as the non-native house sparrow (*Passer domesticus*) and the eastern gray squirrel (*Sciurus carolinensis*), within the vicinity of the construction. Suitable habitat for these urban-adapted generalist species would be available nearby for any displaced individuals. Individuals of these species would be expected to return to the Project Corridor after completion of the construction. Replacement trees would be planted as necessary and where feasible in accordance with any local tree replacement requirements. Overall, construction of the Proposed Project would not result in significant adverse impacts to wildlife or any habitat that is of value to wildlife.

HAZARDOUS AND CONTAMINATED MATERIALS

The potential for significant adverse impacts depends on the extent and type of materials that are currently present in the subsurface in the Study Area and their location relative to or within the Study Area, their levels, and whether exposure to the contaminated materials would be associated with construction of the Proposed Project. Construction of the Proposed Project would require subsurface disturbance along the alignment, at LIRR stations, at properties that would be acquired as part of the Proposed Project, and within areas that would require alterations to grade crossings.

As presented in Chapter 8, “Hazardous and Contaminated Materials,” the potential for adverse impacts would be avoided by ensuring that construction activities are performed in accordance with the following protocols:

- Once the limits of subsurface disturbance associated with the Proposed Project have been determined, subsurface (Phase II) investigations would be conducted at all of the acquisition Category B sites and all other Category B sites¹ with subsurface disturbance (based on proximity, depth of disturbance, type/mobility of contaminants, etc.). The Phase II investigation would include the collection and laboratory analysis of soil, soil vapor and groundwater samples to ascertain if past on-site operations have affected subsurface

¹ A Category B site is defined as sites that had some reasonable potential to have been impacted by the presence of contaminated materials and thus additional analysis is prudent. The identification of a site as “Category B” does not necessarily indicate that the site is contaminated. Subsurface investigations, which would only be performed at the sites within or close to an area where subsurface disturbance would be required for the Proposed Project, would be required to determine that contamination actually exists.

conditions. Specifically, the samples would be tested for an extensive array of chemicals based on the anticipated contaminants to determine if they were released into the environment. The testing may include subsurface imaging (i.e., geophysical survey) to search for suspected underground storage tanks and other chemical and petroleum bulk storage containers, followed by sampling in these areas to determine if a release has occurred. Analytical results of the investigation would be compared to the cleanup standards established by the NYSDEC appropriate to the proposed site use.

- Based on the results of the subsurface investigations, a RAP and a CHASP would be prepared for implementation during project construction. These plans would address both the remediation of known or potential environmental conditions that may be encountered during all subsurface disturbance associated with proposed construction and development activities. The purpose of the RAP is to present measures for handling and managing contaminated on-site soil, and removing any potentially unknown underground petroleum storage tanks in accordance with applicable federal, state, and local regulations. Contaminated soil management protocols will include guidelines for temporary on-site stockpiling such as stockpiles management to control run-off, and off-site transportation and disposal. The plans would incorporate safety and other measures to minimize the potential for impacts to the community and construction workers. The RAP would also specify the need for engineering controls as warranted based on the testing, such as the incorporation of vapor mitigation systems into the project design.

To minimize the potential for impacts on the community and construction workers, all demolition, excavation, and construction work involving soil disturbance would be performed under a site-specific environmental CHASP. The CHASP would also be based on the results of the Phase II study and would specify appropriate testing and/or monitoring, and detail appropriate measures to be implemented (including notification of regulatory agencies, dust suppression techniques, appropriate air monitoring action levels and responses, etc.) if underground storage tanks, soil and groundwater contamination, or other unforeseen environmental conditions are encountered. If dewatering is required for construction, testing would be performed to ensure compliance with applicable discharge regulatory requirements. If necessary, pre-treatment would be conducted prior to discharge.

- Removal and disposal of mercury- and/or PCB-containing electrical equipment would be performed in accordance with applicable federal, state and local regulations.
- Prior to any activities required as part of the Proposed Project that could disturb potential ACM, a comprehensive asbestos survey of areas (including underground utility vaults) to be disturbed by the Proposed Project would be conducted that included the sampling of all suspect materials to confirm the presence or absence of asbestos. All identified ACM would be removed and disposed of prior to construction in accordance with all federal, state, and local regulations. Asbestos abatement procedures and containment requirements will be based on the type and quantities of ACM to be removed.
- Any demolition activities with the potential to disturb LBP would be performed in accordance with applicable Occupational Safety and Health Administration regulations including OSHA 29 CFR 1926.62 - Lead Exposure in Construction Methods for lead abatement will comply with LIRR abatement procedures and containment requirements.
- All material that needed to be disposed of (e.g., miscellaneous debris, tires, contaminated soil and any excess fill) would be characterized and disposed of off-site in accordance with applicable federal, state, and local requirements. Transportation of all construction waste

leaving the site would be in accordance with applicable requirements covering licensing of haulers and trucks, truck routes, manifesting, etc.

With the implementation of these protocols, no significant adverse impacts related to contaminated materials would result from demolition and/or construction activities related to the Proposed Project.

TRANSPORTATION

The Proposed Project would include construction along the length of the Project Corridor, including activities at each of the seven grade crossings that would be eliminated. Pedestrian connectivity across the tracks would be maintained at each of the grade crossings during construction or would be diverted to nearby crossings; pedestrian access to the passenger rail stations and nearby businesses would also be maintained.

During construction, LIRR would operate normal weekday commuter (i.e., peak) service, with periodic suspension of service on weekends to allow for construction activity that could not be performed with active train service. A list of construction activities that may require the LIRR service modifications is provided above under “Construction Work Hours and Track Outages.” Due to access constraints for large construction equipment and materials, Carle Place station may be temporarily closed for approximately 12 months. If Carle Place station is temporarily closed, shuttles would be provided to take passengers utilizing the Carle Place station to the nearby Westbury station, approximately a 5 minute drive away.

Construction of the Proposed Project is anticipated to have approximately 15 construction workers on site per day for each of the grade crossings. There would be approximately 30 workers for improvement activities at each of the stations, and approximately 75 workers for bridge and viaduct elements work. In addition, at each of the subsections defined above, there would be approximately 20 workers for utility relocation, approximately 30 workers for retaining wall construction, and approximately 50 workers for track work. These workers would be spread out over specific construction areas that would be active for specific periods throughout the Project Corridor. As discussed above, satellite parking would be provided to keep personal construction worker vehicles out of residential streets and parking near the stations. In addition, construction worker trips would primarily occur outside of the typical commuter peak hours.

Construction of the Proposed Project would generate truck trips for the delivery of construction materials and hauling away excavated materials. It is anticipated that construction relating to the elimination of the grade crossings would require approximately three truck trips per hour per site. For the various types of construction activities that occur at subsections including utility relocation, station improvement activities, bridge and viaduct elements work, retaining wall construction, and/or track work, a maximum of approximately 10 to 15 truck trips per day per subsection would be required. The time period needed for these peak activities could extend for a period of two to three months when multiple activities would occur simultaneously within the subsection. Trucks would primarily use truck routes discussed in Section C, “Construction Description,” to access the construction areas along the Project Corridor. In lieu of construction truck deliveries and to reduce the effects of construction truck traffic on local roadways, existing track would also be used to transport materials to and from the work sites to the extent practical. In addition, construction deliveries would be scheduled outside of the school and commuting traffic peak hours to the extent practicable while school is in session.

The LIRR grade crossings at South 12th Street in New Hyde Park, Willis Avenue and Main Street in Mineola, and Urban Avenue and School Street in Westbury/New Cassel would be closed to traffic during construction for up to approximately 6 months, though only one in each community would be closed at the same time. At the LIRR grade crossing on Covert Avenue, one-way northbound traffic would be maintained across the tracks and southbound traffic would be diverted to parallel routes for up to approximately 9 months. Covert Avenue may be closed to all traffic for an approximately six to eight week period to allow for LIRR to raise the track. At the LIRR grade crossing on New Hyde Park Road, two-way traffic would be maintained across the tracks with reduced capacity for up to approximately nine months. A maximum of one grade crossing in each of the three study areas would experience roadway closures at any given time to minimize impacts to traffic in each of the three study areas. Given the temporary roadway/lane closures and diversions during grade crossing activities, detailed traffic studies at each of the grade crossing locations, as well as proposed improvement measures, are provided below. Temporary lane closures may also be needed to stage the abutment work for the seven existing bridge structures along the Project Corridor.

GRADE CROSSING ELIMINATIONS

Employees would be expected to arrive at the site before the peak traffic impact analysis hour, when traffic volumes are typically lower than the peak hours and were not assigned to the roadway network for analysis. In the analysis presented below three trucks trips were assigned to and from the site during each of the AM and PM peak hours to account for deliveries of construction materials and hauling away excavated materials.

In the New Hyde Park area, the grade crossing at New Hyde Park Road would be eliminated first and the nine months of construction would be completed in two phases. During the first phase of construction, traffic would be shifted to the northbound side of the roadway and one lane of traffic in each direction would cross the existing tracks. Clinch Avenue at New Hyde Park Road would be closed. During the second phase of construction, one lane of traffic in each direction would pass under the tracks in the newly constructed underpass on the southbound side of the roadway; Clinch Avenue at New Hyde Park Road would be closed. For the impact assessment, the first phase of construction at this location was analyzed due to the closure of one lane of traffic in each direction with the grade crossing still operational, which constitutes the worst-case construction impact condition.

The grade crossing on Covert Avenue would be the second grade crossing to be eliminated. Southbound Covert Avenue would be closed at the grade crossing during the first phase of construction and one lane of northbound traffic would cross the tracks. Southbound traffic would be diverted to South 12th Street and New Hyde Park Road. During the second phase of construction, one lane of traffic in each direction would pass under the tracks in the newly constructed underpass on the west side of the roadway. Access to Second and Third Avenues from Covert Avenue would be restricted. Covert Avenue may be closed to all traffic for an approximately six to eight week period to allow for necessary track work. For the impact assessment, the first phase of construction at Covert Avenue was analyzed due to the potential for adverse impacts caused by diversions of traffic from southbound Covert Avenue, which constitutes the worst-case construction impact condition.

If permanent closure of South 12th Street is not selected, South 12th Street at the tracks would be closed completely for the duration of construction at that crossing. This construction scenario was not analyzed since diversions away from South 12th Street would be comparable to Build

Option 2, which included completed underpasses at both Covert Avenue and New Hyde Park Road and complete closure of South 12th Street at the tracks. Expected levels of service for that condition can be found in Chapter 10, “Transportation.”

In the Mineola area, Willis Avenue and Main Street would be closed for the duration of construction at each of their respective grade crossings and traffic would be diverted to parallel north-south routes. Construction at the Willis Avenue grade crossing would be performed first, and would be completed before construction on Main Street begins. The construction scenario with full closure of the Willis Avenue grade crossing was analyzed to assess the adverse impacts of the diversion of traffic from Willis Avenue to alternate routes.

The construction scenario of a one-way southbound Willis Avenue underpass (as analyzed in Build Option 2) combined with the full closure of Main Street constitutes the worst-case construction impact condition and was also analyzed since it assesses the diversions of both Main Street and northbound Willis Avenue traffic to alternate routes. The construction scenario of a two-way Willis Avenue underpass (as analyzed in Build Option 1) combined with full closure of Main Street was not analyzed since traffic diversions and levels of service would be comparable to those expected under Build Option 1.

In the Westbury area, each of the two grade crossings would be closed completely during construction of each of the underpasses, but Urban Avenue construction would be completed before construction on School Street begins so that Urban Avenue could be used in place of the closed crossing, as would other parallel crossings in the Westbury area. Traffic would be diverted to parallel routes during each of their respective construction stages. Both closures are analyzed in detail below.

A summary of the construction scenarios analyzed is presented below in **Table 13-2**.

ANALYSIS OF ADVERSE IMPACTS TO TRAFFIC AT GRADE CROSSINGS

A comparison of these proposed construction scenarios for 2020 conditions without the Proposed Project was done to assess adverse impacts to traffic during construction. Detailed traffic levels of service during grade-crossing construction are presented in Appendix 11. A summary of the adverse traffic impacts during the construction scenarios analyzed in each of the three study areas is detailed below along with improvement measures.

New Hyde Park

New Hyde Park Road

For the purposes of this analysis, it was assumed that northbound traffic on Clinch Avenue would divert to New Hyde Park Road primarily via Stewart Avenue and secondarily via Stratford Avenue. Southbound traffic on Clinch Avenue was assumed to divert to southbound New Hyde Park Road to eastbound Stewart Avenue or eastbound Stratford Avenue. Emergency vehicles that currently cross the LIRR tracks on New Hyde Park Road could be expected to continue using New Hyde Park Road since one lane of traffic would be maintained in each direction. Emergency vehicles that currently access Clinch Avenue would divert using the same routes as general traffic.

Table 13-2
Grade Crossing Construction Scenarios

Grade Crossing Constructed	Construction Condition Analyzed	Targeted Full or Partial Road Closure Durations	Anticipated Total Construction Duration
New Hyde Park Road	1. One lane in each direction at LIRR grade-crossing 2. LIRR gates remain operational 3. Clinch Avenue closed at New Hyde Park Road	9 months (one-lane remains open in each direction)	9 – 12 months
Covert Avenue	1. Closure of SB Covert Avenue at LIRR grade crossing 2. LIRR gates remain operational for NB Covert Avenue 3. Diversion of SB Covert Avenue traffic to parallel north-south routes 4. New Hyde Park Road underpass operation before beginning of construction	9 months	9 – 12 months
South 12th Street	Similar to Build Option 2 in Chapter 10, "Transportation"	6 months*	6 – 9 months*
Willis Avenue	1. Full closure of Willis Avenue at LIRR tracks 2. Diversion of traffic to parallel north-south routes	6 months	6 – 9 months
Main Street	1. Full closure of Main Street at LIRR tracks 2. Diversion of traffic to parallel north-south routes 3. One-way SB Willis Avenue underpass operational before closure of Main Street grade crossing	6 months*	6 – 9 months*
Urban Avenue	1. Full closure of Urban Avenue at LIRR tracks 2. Diversion of traffic to parallel north-south routes	6 months	6 – 9 months
School Street	1. Full closure of School Street at LIRR tracks 2. Diversion of traffic to parallel north-south routes	6 months	6 – 9 months
Note: * If full closure is selected for either of these grade crossings, the construction duration would be significantly shorter than the six to nine months shown.			

New Hyde Park Road at the LIRR grade crossing would be adversely impacted during the 9 to 12 months construction period and would deteriorate from LOS C to LOS F in the northbound direction during the AM peak hour and would deteriorate from LOS C to LOS E in the southbound direction during the PM peak hour, and would remain unimproved.

The northbound approach of New Hyde Park Road at Stewart Avenue would be adversely impacted during the AM peak hour and the southbound approach of New Hyde Park Road at Stewart Avenue would be adversely impacted during the PM peak hour. These adverse impacts could be improved by modifying the signal timing plan.

Covert Avenue

Existing traffic on Covert Avenue was assumed to divert to New Hyde Park Road and South 12th Street primarily via Jericho Turnpike and secondarily via First Avenue. The proposed underpass that would carry New Hyde Park Road beneath the LIRR tracks would be operational before construction on Covert Avenue begins. Emergency vehicles that currently cross the LIRR tracks on Covert Avenue in the northbound direction would continue using Covert Avenue since one northbound lane of traffic would be maintained. Emergency vehicles that currently cross the

LIRR tracks on Covert Avenue in the southbound direction would divert to South 12th Street or New Hyde Park Road.

The northbound Covert Avenue right-turn movement at Stewart Avenue would be adversely impacted during the PM peak hour and could be improved by modifying the signal timing plan.

The westbound Jericho Turnpike left-turn at South 12th Street would be adversely impacted during the PM peak hour and could be improved by restriping the westbound approach as one 13-foot left-turn lane and two 10-foot through lanes and by prohibiting parking on the eastbound Jericho Turnpike approach and restriping the approach as two 10-foot through lanes and one 10-foot right-turn lane.

The eastbound through-right and westbound left-turn movements at Jericho Turnpike and New Hyde Park Road would be adversely impacted and could be improved by prohibiting parking on the eastbound and westbound Jericho Turnpike approaches and restriping both approaches as one 11-foot left-turn lane, two 10-foot through lanes, and one 10-foot right-turn lane; and by modifying the signal timing plan.

The northbound New Hyde Park Road approach at Stewart Avenue would be adversely impacted during the AM peak hour and the southbound New Hyde Park Road approach at Stewart Avenue would be adversely impacted during both AM and PM peak hours. The adverse impacts could be improved during the AM peak hour by modifying the signal timing plan. The southbound New Hyde Park Road approach would be adversely impacted and deteriorate from LOS C to LOS F in the PM and would remain unimproved.

The southbound South 12th Street approach at Stewart Avenue would be adversely impacted during both AM and PM peak hours and the northbound South 12th Street approach would be adversely impacted during the PM peak hour. These impacts could be improved by installing a temporary traffic signal at the intersection for the duration of construction.

South 12th Street

South 12th Street would be closed during construction at that grade crossing; construction at South 12th Street would commence after completion of the underpasses at Covert Avenue and New Hyde Park Road. Adverse traffic impacts would be similar to those for Build Option 2 and can be found in Chapter 10, "Transportation." Emergency vehicles would be expected to divert to New Hyde Park Road and Covert Avenue.

Mineola

Willis Avenue

Willis Avenue would be closed to traffic in both directions near the LIRR grade crossing for the duration of construction at that crossing. The LIRR grade crossing at Main Street would remain operational in both directions. Existing traffic on Willis Avenue would be expected to divert to parallel north-south routes, including Mineola Boulevard, Main Street, and Roslyn Road. Emergency vehicles would similarly be expected to divert to these roads.

The southbound Mineola Boulevard shared through-right movement at Second Street would be adversely impacted during the AM and PM peak hours and could be improved by modifying the traffic signal timing plan and by prohibiting parking on the westbound Second Street approach and restriping it as one 10-foot left-turn lane and one 10-foot shared through-right lane.

At Mineola Boulevard and First Street, the westbound approach would be adversely impacted during both the AM and PM peak hours and could be improved by modifying the traffic signal timing plan.

The eastbound Second Street approach at Willis Avenue would be adversely impacted during the PM peak hour and could be improved by modifying the traffic signal timing plan.

At the intersection of Roslyn Road and Second Street, the southbound approach and eastbound through-right movement would be adversely impacted during the AM and PM peak hours and the northbound left-turn movement would be adversely impacted during the AM peak hour. These impacts could be improved by restriping the eastbound approach as one 10-foot left-turn lane, one 10-foot through lane, and one 11-foot right-turn lane; and by modifying the traffic signal phasing and timing plan.

The northbound, southbound, and eastbound approaches at Main Street and Second Street would be adversely impacted during the PM peak hour and could be improved by installing a temporary traffic signal at the intersection for the duration of construction.

Main Street

Main Street would be closed to traffic in both directions during construction at the grade crossing; construction would commence after completion of the underpass at Willis Avenue. If the underpass at Willis Avenue is a two-way underpass (Option 1), the adverse impacts and potential improvement measures would be similar to those identified for Option 1. The construction scenario analyzed below encompasses either construction to close Main Street in both directions near the LIRR crossing, as well as construction to create an operational one-way southbound underpass that carries Willis Avenue underneath the LIRR tracks. Existing traffic on Main Street would be expected to divert to parallel north-south routes, including Mineola Boulevard, Willis Avenue, and Roslyn Road. Emergency vehicles would similarly be expected to divert to these roads.

At Mineola Boulevard and Old Country Road, the westbound through and right-turn movements would be adversely impacted during the AM and PM peak hours and the eastbound left-turn movement would be adversely impacted during the PM peak hour. Adverse impacts could be fully improved in the AM peak hour and partially improved in the PM peak hour by restriping the westbound Old Country Road approach as one 10-foot left-turn lane, two 10 foot through lanes, and one 14-foot right-turn lanes; and by modifying the traffic signal timing plan. The westbound right-turn movement would be adversely impacted and deteriorate from LOS D to LOS F and would remain unimproved during the PM peak hour for the 6 to 9 months construction period.

At Mineola Boulevard and Second Street, the southbound Mineola Boulevard shared through-right movement would be adversely impacted in the AM peak hour and the westbound approach would be adversely impacted in the PM peak hour. These impacts could be improved by modifying the traffic signal timing plan.

The eastbound Second Street approach at Willis Avenue would be adversely impacted during the PM peak hour and could be improved by modifying the traffic signal timing plan.

At Old Country Road and Roslyn Road, the westbound Old Country Road movement would be adversely impacted during the AM peak hour and could be improved by modifying the traffic signal timing plan.

The southbound Roslyn Road approach at Second Street would be adversely impacted during the PM peak hour and could be improved by modifying the traffic signal timing plan.

Westbury

Urban Avenue

In Westbury, the underpass that would carry Urban Avenue under the LIRR tracks would be constructed before the underpass on School Street. Urban Avenue would be closed to traffic in both directions near the LIRR tracks during construction. Traffic would be expected to divert to nearby parallel north-south routes, including Grand Boulevard, School Street, and Post Avenue. Emergency vehicles would similarly be expected to divert to these roads.

The southbound Post Avenue shared left-through movement at Union Avenue would be adversely impacted during the AM and PM peak hours and could be improved by restriping the southbound approach as one 12-foot left-turn lane and one 12-foot through lane.

At Old Country Road and School Street, the eastbound left-turn movement would be adversely impacted during the AM and PM peak hours and could be improved by modifying the traffic signal timing plan.

School Street

The underpass on School Street would be constructed after completion of construction on Urban Avenue and the opening of that underpass. School Street would be closed to traffic in both directions near the LIRR tracks during construction and traffic would be expected to divert to nearby parallel north-south routes, including Post Avenue, Grand Boulevard, and Urban Avenue. Emergency vehicles would similarly be expected to divert to these roads.

At Post Avenue and Urban Avenue, the northbound Post Avenue through movement would be adversely impacted during the AM peak hour and the southbound Post Avenue shared left-through movement would be adversely impacted during the AM and PM peak hours. These impacts could be improved in the AM and PM peak hours by restriping the southbound approach as one 12-foot left-turn lane and one 12-foot through lane and by modifying the traffic signal timing plan during the AM peak hour.

The eastbound Old Country Road right-turn movement at School Street would be adversely impacted during the PM peak hour and could be improved by modifying the traffic signal timing plan.

At Urban Avenue and Broadway, the northbound approach would be adversely impacted during the PM peak hour. This impact could be improved by installing a temporary traffic signal at the intersection for the duration of construction.

TRAFFIC IMPACTS FROM THIRD MAIN LINE TRACK AND STATION IMPROVEMENTS

No extensive road and/or lane closures are anticipated during track alignment and station improvement activities. There would be intermittent lane and/or road closures for utility relocations, bridge abutment construction, and the setting of bridge elements, but such closures would be limited to weekends. As discussed above, track alignment and station improvement activities are estimated to attract approximately 20 to 75 construction employees per day for the different construction elements and a maximum of approximately 10 to 15 truck trips per day per subsection during peak construction activities would be required. The time period needed for these peak activities could extend for a period of two to three months when multiple activities would occur simultaneously within the subsection. These traffic volumes are typically much

lower than the existing peak hour volumes at roadways near the Project Corridor. In addition, the construction work vehicle trips would primarily occur outside of the typical commuter peak hours. LIRR is committed to a number of measures to minimize the effects of construction, including providing satellite parking for construction worker vehicles and using of existing tracks to the extent practical to transport materials to and from the work sites. Therefore, track alignment and station improvement construction activities are not expected to result in significant adverse traffic impacts.

AIR QUALITY

Chapter 11, “Air Quality,” provides information on air pollutants and the relevant regulations. This section examines the potential air quality impacts from project construction.

It is expected that the Proposed Project would maintain existing traffic flow routes without resulting in continuous construction detour/diversions over more than two CO (winter) seasons along local routes. Therefore, in accordance with the NYSDOT’s *TEM*, no microscale detour traffic CO impact analysis is warranted.

Although traffic disruption during the construction period at certain locations would likely occur, detours/diversions would not last more than five years along any routes. Therefore, in accordance with the NYSDOT’s *TEM*, mesoscale emissions analysis for construction detour traffic is not required.

Since the Proposed Project has estimated construction periods of more than 3 years, a project-level non-road construction equipment exhaust PM analysis is conducted for both PM₁₀ and PM_{2.5}. Construction-related PM emissions were estimated and compared with the 15 tons per year threshold for both PM₁₀ and PM_{2.5} established in the NYSDOT’s final policy to determine potential construction emissions significance. Other criteria pollutant emissions and greenhouse gas (GHG) emissions in terms of CO₂ levels were also estimated for construction activities for EIS disclosure purposes.

The type of equipment that would be used for station, bridge, and crossing construction and demolition activities would include, but is not limited to:

- Loaders.
- Cherry pickers.
- Compressors.
- Cranes.
- Drill rig and augurs.
- Dump trucks.
- Excavators.
- Front end loaders.
- Portable generators.

According to an approximately four-year construction schedule that would span five calendar years, construction equipment and truck usage resource data (i.e., type, size, average daily operating hours for each equipment type, etc.) were developed for the entire construction period. Estimates of emissions from construction equipment operations were developed based on the estimated hours of equipment use associated with and the future year fleet-average emission

factors for each type of equipment. Criteria pollutants and GHG emission factors for both equipment and trucks were forecasted using EPA's MOVES2014a emission factor model in association with the default model input parameters applicable for Nassau County.

Emission factors (in grams of pollutant per hour per horsepower) were multiplied by the estimated running time and equipment average horsepower to calculate the total grams of pollutant from each piece of equipment. Finally, the total grams of pollutant were converted to tons of pollutant.

Annual construction emissions associated with the construction activity only are presented in **Table 13-3**. The annual PM emissions from construction activity would be well below the 15-ton per year threshold and would result in no significant regional air quality impacts during the construction period. The construction period emissions for other criteria pollutants and GHG are also shown in Table 13-3 for the purpose of EIS disclosure. Given their temporary nature, these emissions would not be considered significant. Emissions would be even lower due to the air quality control plan that would be implemented during construction of the Proposed Project as described below.

Table 13-3
Emissions from Construction Activities (Tons)

Year	Pollutants						
	VOC	NOx	CO	PM ₁₀	PM _{2.5}	SO ₂	CO ₂
2017	0.05	0.36	0.11	0.03	0.02	0.00	144.79
2018	2.48	18.72	5.68	1.28	0.99	0.04	6,914.01
2019	4.54	33.03	10.43	2.33	1.77	0.08	12,907.76
2020	2.63	19.68	5.92	1.44	1.07	0.05	7,402.03
2021	0.57	4.09	1.23	0.30	0.22	0.01	1,674.28

In order to minimize potential temporary construction air quality impacts to the nearby community, LIRR is committed to implementing an air quality control plan during construction and would include the following measures:

- *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.* ULSD² fuel will be used exclusively for all diesel engines used during construction.
- *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

² 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 ULSD fuel sulfur levels in non-road diesel fuel are limited to a maximum of 15 parts per million.

(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 (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the project) including but not limited to concrete mixing and pumping trucks would utilize the best available tailpipe (BAT) technology for reducing DPM emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel nonroad engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer (OEM) or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board (CARB). Active DPFs 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, NO_x, and hydrocarbons. All diesel-powered nonroad construction equipment with a power rating of 50 hp or greater would meet at least the Tier 3³ 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 impacts (no more than 2 years in any location), construction of the Proposed Project would not result in any adverse air quality impacts.

NOISE AND VIBRATION

Noise levels from construction activities along the Project Corridor, although temporary, could be a nuisance at nearby sensitive receptors such as residences, schools and other institutional land-uses. Similar to the air quality discussion above, potential noise and vibration levels during construction would be minimized to the maximum extent feasible by implementation of the project's Noise and Vibration Control Plan. Noise levels during construction would vary depending on the types of activity and equipment used for each stage of work. Heavy machinery, the major source of noise in construction, would be moving regularly from location to location. For example, construction activities would include laying new track, rehabilitating bridges, relocating utilities, reconstructing street intersections, grade crossing separation activities, rehabilitating passenger station platforms and other ancillary facilities (e.g., third rail contact system, traction power substations, etc.).

Based on the nature and duration of the construction of the Proposed Project, it is expected that temporary noise and vibration impacts would occur at some locations along the Project Corridor

³ The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including PM, hydrocarbons (HC), NO_x and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

during construction of the project. In addition to noise and vibration impacts that would occur along the Project Corridor, impacts would also be expected occur at locations near staging and/or material lay-down areas. Temporary noise impacts may also occur along routes where traffic would be detoured during construction of the Proposed Project and/or along routes used by construction trucks traveling to and from the construction work areas. This analysis makes conservative assumptions regarding construction noise and vibration so that potential maximum impacts are analyzed and disclosed consistent with SEQRA requirements.

CONSTRUCTION NOISE AND VIBRATION FUNDAMENTALS

Chapter 12, “Noise,” provides a detailed description on noise and vibration fundamentals and descriptors.

Various sound levels are used to quantify noise from transit sources, including a sound’s loudness, duration, and tonal character. For example, the A-weighted decibel (dBA) is commonly used to describe the overall noise level because it more closely matches the human ear’s response to audible frequencies. Since the A-weighted decibel scale is logarithmic, a 10 dBA increase in a noise level is generally perceived as a doubling of loudness, while a 3 dBA increase in a noise level is just barely perceptible to the human ear.

Several A-weighted noise descriptors are used to determine impacts from construction sources, including:

- **Maximum Noise Levels (L_{max}):** represents the maximum noise level that occurs during an event
- **Average Hourly Equivalent Noise Level (L_{eq}):** represents a level of constant noise with the same acoustical energy as the fluctuating noise levels observed during a given interval, such as one hour (L_{eq}(h))
- **Average 24-hour Day-night Noise Level (L_{dn}):** includes a 10-decibel penalty for all nighttime activity between 10:00 p.m. and 7:00 a.m.

To describe the human response to vibration, the average vibration amplitude (called the root mean square [RMS] amplitude) is used to assess impacts. The RMS velocity level is expressed in inches per second (ips) or vibration velocity levels in decibels (VdB). All VdB vibration levels are referenced to one micro-inch per second.

CONSTRUCTION NOISE AND VIBRATION IMPACT CRITERIA

Construction noise criteria are based on the guidelines for a Detailed Assessment provided in the (Federal Transit Administration)’s guidance manual on *Transit Noise and Vibration Impact Assessment* (2006). These criteria, summarized in **Table 13-4** below, are based on land use and time of day, and are given in terms of the combined noise level over an 8-hour or 30-day period. In addition, local town and village ordinances provide for permissible hours of construction, as summarized in **Table 13-7** below. These ordinances do not provide for noise limits that apply to New York State projects, and applicable law permits the MTA/LIRR, as a state public authority,

as well as NYSDOT as a state agency, to continue construction operation outside the permissible hours of operation provided by these local ordinances.⁴

Table 13-4
FTA Construction Noise Criteria for a Detailed Assessment (dBA)

Land Use	8-Hour L_{eq}		30-Day
	Daytime (7 AM – 10 PM)	Nighttime (10 PM – 7 AM)	Average
Residential	80	70	75 L_{dn} or Ambient + 10
Commercial	85	85	80 L_{eq}
Industrial	90	90	85 L_{eq}

Source: FTA 2006.

Similar to noise, construction vibration criteria are based on the guidelines provided in the FTA Guidance Manual. For potential damage effects, the FTA criteria shown in **Table 13-5** range from 0.5 inches per second (in/sec) for Category I buildings to 0.12 in/sec for more fragile Category IV buildings. For evaluating potential annoyance or interference with vibration-sensitive activities due to construction vibration, the criteria shown in **Table 13-5** were applied. These are the same criteria used to assess ground-borne vibration from trains.

Table 13-5
FTA Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_v 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 building	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Note: ¹ RMS velocity in decibels (VdB*) re 1 micro-inch/second.

Source: FTA 2006.

CONSTRUCTION NOISE AND VIBRATION ANALYSIS

An analysis was conducted to estimate the noise and vibration levels associated with individual pieces of construction equipment expected to be used in construction of the Proposed Project and the distances from these equipment that noise and vibration levels would have the potential to exceed the FTA impact threshold levels. L_{max} noise and vibration levels were determined for various construction equipment proposed for use on the Proposed Project and are summarized below in **Table 13-6**. The L_{max} noise level was used in lieu of the $L_{eq(8h)}$ or 30-day average L_{dn} as a conservative representation of noise levels, because the exact equipment usage is not currently known. Without such usage schedule information, the equipment L_{max} noise levels provide worst-case levels for evaluation.

⁴ See N.Y. Pub. Auth. § Law 1266(8). “The local laws, resolutions, ordinances, rules and regulations of a municipality or political subdivision, heretofore or hereafter adopted, conflicting with this title or any rule or regulation of the authority or its subsidiaries, or New York city transit authority or its subsidiaries, shall not be applicable to the activities or operations of the authority and its subsidiaries . . . except such facilities that are devoted to purposes other than transportation or transit purposes.”

Table 13-6
Construction Equipment Noise and Vibration Reference Levels
and Impact Distances with the Proposed Project

ID	Construction Equipment	HP	Reference Levels ¹			Distance to Impact (in feet) ²				
			Noise dBA (L _{max})	Vibration		Daytime 80 dBA (L _{max})	Nighttime 70 dBA (L _{max})	Residences 72 VdB	Institutions 75 VdB	Sensitive Damage
				RMS, VdB	PPV, ips					
1	Soilmec SM4 Pile Rig	154	85	87	0.089	89	281	141	100	<5'
2	Flatbed Truck	180	84	86	0.076	79	251	125	89	<5'
3	Tadano Cherry Picker	200	85	58	0.003	89	281	5	4	<5'
4	Dump Truck	217	84	86	0.076	79	251	125	89	<5'
5	Cat 325 Excavator	204	85	87	0.089	89	281	141	100	<5'
6	Air Compressor (900 cfm)	275	80	58	0.003	50	158	5	4	<5'
7	Pickup Truck	170	55	58	0.003	3	9	5	4	<5'
8	966 Loader	260	80	87	0.089	50	158	141	100	<5'
9	Light Plant	100	82	58	0.003	63	199	5	4	<5'
10	Manitowec Crane	340	85	58	0.008	89	281	5	4	<5'

Note:
1. All noise reference levels are reported at a distance of 50 feet.
2. The distances to impact are based on the selected FTA criteria: noise daytime (80 dBA), noise nighttime (70 dBA), vibration annoyance at residences or Category 3 land-uses (72 VdB), vibration annoyance at institutional or Category 3 land-uses (75 VdB) and vibration damage at sensitive structures in FTA Category I (0.5 inches per second).
Source: FTA *Transit Noise and Vibration Impact Assessment*, Federal Highway Administration *Roadway Construction Noise Model User's Manual*.

As examples, reference noise levels at a distance of 50 feet range from 55 dBA for a pickup truck to 85 dBA for pile-drilling rig. Augers are proposed for construction in lieu of impact pile drivers (with a reference noise level of 101 dBA) to minimize noise impacts in the community.

As a result, distances to impact at which the FTA daytime noise limit of 80 dBA at residences would be exceeded depends on the noise level associated with the specific piece of equipment, the duration of its operation, and the number of other pieces of equipment in operation at the same time. For example, for a single pickup truck, noise impacts in exceedance of the criteria would occur up to three feet from the noise source; for a single pile rig, excavator, cherry picker or crane, noise impacts would extend up to 90 feet from the noise source. The sound level and the duration of each piece of equipment operating would determine whether exceedances of one-hour or eight-hour Leq thresholds set forth in the criteria occur.

As shown in **Table 13-6**, distances to impact at which the FTA nighttime noise limit of 70 dBA at residences would be exceeded range from nine feet from the noise source for a pickup truck to 280 feet from the noise source for the pile rig, excavator, cherry picker and crane. Since receptors, including residences and institutional receptors, are located within these distances from the expected construction work areas, construction of the Proposed Project would have the potential to result in noise levels exceeding the FTA construction noise impact criteria, depending on the duration and noise level of the respective equipment in operation. While intrusive and annoying, these exceedances would be episodic and temporary in nature. As outlined below, various measures can be implemented to further minimize or avoid temporary increased noise levels.

Similarly, distances to impact at which the FTA *frequent* vibration limit of 72 VdB for annoyance would be exceeded at residences and other FTA Category 2 land-uses range from 5 feet for a pickup truck, cherry picker, compressor, crane and light plant to 140 feet for the pile rig, excavator and loader. At nonresidential receptors, distances to impact at which the FTA *frequent* vibration limit of 75 VdB for annoyance would be exceeded at institutional and other FTA Category 2 land-uses range from less than 5 feet for a pickup truck, cherry picker, compressor, crane, and light plant to 100 feet for the pile

rig, excavator and loader. Since receptors, including residences and institutional receptors, are located within these distances from the expected construction work areas, construction of the Proposed Project would have the potential to result in vibration levels exceeding the FTA vibration impact criteria for human perception and annoyance.

Due to the selected equipment types, the potential for damage from vibration at highly sensitive structures (FTA Category I buildings or 0.5 inches per second [ips] PPV) is less than 5 feet. This threshold of damage, 0.5 ips PPV, is typically applied to sensitive or structurally weak buildings. Standard residential timber buildings are typically resistant to damage from construction vibration below 2.0 ips. Therefore, there is no likelihood of damage from any of the proposed construction activities unless they are conducted immediately adjacent to any residences.

The bulk of the construction would normally occur during daylight hours when many residents are not at home, and when other community noise sources contribute to higher ambient noise levels. However, as noted, some construction activities may also occur during the nighttime and on weekends to complete the Proposed Project sooner and reduce the overall duration of construction-related impacts on the community and to minimize the loss of train service. Construction activities are generally expected to last for only a portion of the overall construction period at any one location, depending on the type of activity, and the overall Project Corridor construction period is expected to last approximately 3 to 4 years. During this time frame, work relating to grade crossing eliminations, bridge replacement, station improvements, construction of retaining and noise attenuation walls, and installation of the third Main Line track are expected to employ several pieces of equipment simultaneously at any one location. Given the potential impact distances as discussed above, exceedances of the FTA daytime and night time noise and vibration criteria may occur for certain periods along the Project Corridor. However, the Proposed Project would seek to minimize these periods to the maximum extent practicable, particularly at sensitive receptors adjacent to the rail alignment and facilities. LIRR is committed to requiring its construction contractors to implement extensive noise and vibration control measures as detailed below that would minimize exceedances of the criteria and extended disruption of normal activities.

NOISE AND VIBRATION CONTROL MEASURES

LIRR's selected construction contractor would use noise control measures and BMPs to minimize construction-related noise levels. The FTA recommends $L_{eq(8h)}$ noise level limits of 80 dBA during the daytime period from 7:00 a.m. to 10:00 p.m. and 70 dBA during the night time period from 10:00 p.m. to 7:00 a.m. at residences to avoid or minimize impacts in the community. In addition, local noise ordinances, both at the town and village levels, regulate construction noise and the operation of mechanical equipment, primary through restrictions on the permissible hours of construction, which are summarized below **Table 13-7**.

Table 13-7
Local Noise Ordinances

Municipality	Hours for Construction
Town of Hempstead	7AM – 6PM
Town of North Hempstead	7:30AM – 6PM
Town of Oyster Bay	7AM – 10PM
Village of Garden City	8AM – 8PM
Village of Mineola	No Direct Restrictions
Village of Westbury	7AM – 8PM
Village of Floral Park	8AM - 7PM
Village of New Hyde Park	7AM – 7PM

While these work hour restrictions would apply to typical construction projects, MTA and LIRR are exempt from the jurisdiction of municipalities pursuant to Section 1266(8) of the Public Authorities Law.⁵ As noted, the Proposed Project would nevertheless comply with the work hour restrictions within residential areas, except where not feasible to accommodate work affecting rail operations such as work relating to bridge replacement, construction of retaining walls and grade alteration of track. DOT grade crossing construction is anticipated to take place outside of specified work hours in order to minimize the construction period and concomitant disruption. In cases where work is performed outside specified work hours in locations adjacent to residential neighborhoods, every effort would be made to keep intrusive noise to a minimum.

The agencies would make every effort to minimize the noise impacts of construction and would seek to comply with FTA's recommended noise limits at sensitive receptors. A construction noise and vibration monitoring program would be performed during construction to ensure contractor compliance with FTA noise and vibration criteria. Mitigative action would be taken in the event that there are exceedances of the FTA noise and vibration criteria during the monitoring process. In addition, to protect owners of properties adjacent to construction, a pre-construction survey program would be developed and implemented to assess buildings' structural elements and facades prior to the start of construction. Consistency with aforementioned FTA guidelines and work hours contained in local ordinances where feasible, as well as implementation of noise and vibration control measures and BMPs, would minimize exceedances of the FTA criteria within the Project Corridor at noise-sensitive land uses. Typical types of noise control measures and BMPs that the Proposed Project would seek to have its contractors implement include, but would not be limited to, the following:

- Submit noise and vibration control plans to demonstrate that each new phase of construction work would comply with the FTA construction noise criteria.
- Place temporary noise barriers around the construction site.
- Place localized barriers around specific items of equipment or smaller areas.
- Use alternative back-up alarms/warning procedures.
- Use high-performance mufflers on equipment operated during nighttime hours.
- Provide portable noise sheds for smaller, noisy, equipment, such as air compressors, dewatering pumps, and generators.

Similarly, BMPs 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.

⁵ "The local laws, resolutions, ordinances, rules and regulations of a municipality or political subdivision, heretofore or hereafter adopted, conflicting with this title or any rule or regulation of the authority or its subsidiaries, or New York city transit authority or its subsidiaries, shall not be applicable to the activities or operations of the authority and its subsidiaries . . . except such facilities that are devoted to purposes other than transportation or transit purposes." See also New York State Highway Law, § 30 which is applicable to the activities of NYSDOT.

N.Y. Pub. Auth. Law § 1266 (McKinney)

- 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.

All specific noise control measures and BMPs would be confirmed by LIRR during later stages of design when the details of the Proposed Project construction activities are developed and finalized as part of the construction bid contracts.

SAFETY AND SECURITY

Many transit industry safety and security standards and processes described in Chapter 15, “Safety and Security,” apply not only to the design and operational phases, but also to construction phases. Construction of the Proposed Project would follow existing MTA and LIRR operational safety and security programs and processes to provide the riding public and construction employees with a safe and secure environment. Safety and security requirements would be specified in the construction contracts for the Proposed Project.

Measures taken to ensure the avoidance of adverse construction impacts in terms of safety and security would include the adherence to current MTA and LIRR safety and security policies, guidelines, procedures, and requirements. Incorporation of specific features to protect adjacent communities, the traveling public, and workers during construction will continue to be a major focus of project planning and design. The development and incorporation of these features will be coordinated with federal, state, and local agencies having jurisdiction over safety and security issues. *