

A. INTRODUCTION

This chapter discusses the existing utilities and related infrastructure in the Study Area that may be affected by the Proposed Project. Utilities considered include gas and electric lines, fiber optic and telephone lines, cable television lines, water and sanitary sewer lines, and stormwater drainage. Both publically- and privately-owned utilities were included, as well as specific LIRR-related utilities, including signal, electric power, and communications.

The Proposed Project would require new LIRR-specific utility infrastructure and the relocation of some existing utilities both within the LIRR right-of-way and grade crossings where improvements are proposed. As these improvements are made, in close coordination with the respective utility companies, LIRR will explore opportunities to improve the existing infrastructure or upgrade it to current design standards. For example, in the case of utility poles carrying overhead electric power lines, design standards were modified after Hurricane Sandy to avoid or minimize impacts that may occur from similar storms in the future. As a result, all overhead electric power lines running longitudinally in the Project Corridor that would be relocated for the Proposed Project would be installed on new, approximately 90-foot-tall steel poles.

Since all existing utilities would be replaced in-kind or redundant utilities removed during construction of the Proposed Project, and since no long-term disruptions in service to Study Area customers would result, there would be no significant adverse impacts to utilities within the Study Area.

B. EXISTING CONDITIONS

A number of utilities run longitudinally along the Project Corridor such as LIRR signal and communications lines and PSEG-LI electric lines. Other utilities cross the Project Corridor in a number of different locations in order to continue service from one side to the other. Due to the historical development pattern in Nassau County and the fact that the Main Line has existed for a long time, these crossing utilities have, for the most part, been installed at grade crossings along the Project Corridor. As a result, in addition to discussion of utilities running longitudinally in the Project Corridor, much of the following discussion and the data provided in tables will focus on the utilities located within the grade crossings.

An inventory of utilities and related infrastructure was compiled for a Study Area encompassing 100 feet on either side of the LIRR right-of-way¹. The inventory shows type, location, condition,

¹ At stations, substations, and other ancillary facilities, such as parking lots, the Study Area boundary was expanded to encompass 100 feet around these elements.

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and ownership of utilities and related infrastructure within the Study Area, including at grade crossings, adjacent roadways, and other adjacent areas in which Proposed Project elements might be constructed. This inventory was based on information and record plans obtained from local utility companies and public agencies, including municipalities located within the Study Area. At grade crossings, field verification was performed either by conventional surveying for surface utility features or by using an electronic tone-out detector to identify horizontal location of underground utility facilities. **Table 9-1** provides a list of utility providers in the Study Area by type of utility. The following is a summary of these utilities and related infrastructure based on the preliminary inventory.

**Table 9-1
Study Area Utility Providers by Type**

Utility Type	Utility Provider
Signals and Communication Lines	LIRR
Gas Lines	National Grid
Electric Power Lines	PSEG-LI (LIPA)
	LIRR
Fiber Optic and Telephone Lines	Verizon
	Verizon Business Solutions
	AT&T
	Lighttower
	Crown Castle
	Level 3
Cable Television Lines	Altice
Water and Sanitary Sewer Lines	Nassau County Department of Public Works (NCDPW)
	Village of Garden City
	Village of Mineola
	Water Authority of Western Nassau County (WAWNC)
	Westbury Water District
	Hicksville Water District

SIGNALS AND COMMUNICATION LINES

Between Floral Park and New Hyde Park, LIRR overhead signal and communication lines hang on utility poles along the north side of the LIRR right-of-way. In New Hyde Park, between Baer Place and Millers Lane, the signal and communication lines switch to the south side of the right-of-way and remain there to Hicksville.

GAS LINES

National Grid 60-psi gas lines (gas pressure inside lines equals 60 pounds per square inch) are present in various locations throughout the Project Corridor. Gas lines traverse the LIRR right-of-way, station platforms, and the adjoining roadways. (see **Appendix 1-A**). Aside from standard commercial and residential service connections, gas lines are typically between two and eight inches in diameter and made of steel, polyethylene, or plastic. Gas lines are generally within roadway limits, although one two-inch line crosses the right-of-way at Millers Lane, inside a four-inch steel sleeve.

ELECTRIC POWER LINES

Longitudinal overhead electric lines on utility poles, generally 50-80 feet in height, run east-west through the Study Area consisting of power lines for commercial and residential service along the north and south sides of the right-of-way and dedicated rectifier feeds for LIRR substations. Utility poles along the LIRR ROW are between 70 and 80 feet in height; at grade crossings they are approximately 55 feet in height. A direct-burial underground electric power line also runs through the Study Area, along a portion of the north side of the LIRR right-of-way. Voltages for these electric utilities range from 13.2 kV and 69 kV AC transmission lines to 120/240 volts for service to commercial and residential properties within the Study Area.

PSEG-LI

PSEG-LI (Public Service Enterprise Group-Long Island), by leasing arrangement with the LIRR, operates and maintains utility poles with overhead power lines and underground lines in conduit within LIRR right-of-way (see **Table 9-2**). PSEG-LI operates five transmission districts within the Study Area from which it provides transmission and distribution services along local streets to the LIRR and its other customers. While PSEG-LI operates and maintains these electric utilities under contract, Long Island Power Authority (LIPA) owns the equipment and pays for annual capital and maintenance expenditures.

Within the Study Area, utility poles carrying overhead power lines typically range from 50 to 80 feet in height. Utility poles 50 or more feet tall are considered high tension utility poles. Both high tension utility poles and high tension utility towers (truss systems) run along the LIRR right-of-way, in addition to utility poles less than 50 feet in height ^ used for distribution lines to customers.

LIRR SUBSTATIONS

LIRR has eight traction power substations within the Project Corridor:

- Substation G13 in Floral Park, on Plainfield Avenue opposite 111 Plainfield Avenue.
- Substation G14 in New Hyde Park, at Third Avenue and South 9th Street on the south side of the Project Corridor.
- Substation G15, the Merillon Avenue substation, at Atlantic Avenue and Hilton Avenue.
- Substation G16 in Mineola, at the southwest corner of Main Street and Front Street.
- Substation G17 in Carle Place, in the southeast quadrant of Meadowbrook State Parkway and the LIRR just north of Mallard Road.
- Substation G18 in Westbury, southeast of Union Avenue and Sullivan Street on the north side of the Project Corridor.
- Substation G19 in New Cassel, at Broadway and Bond Street on the north side of the Project Corridor. Substation G20 in Hicksville, on the northwest corner of West Barclay Street and Wyckoff Street.

With the exception of the recent replacement of G13 Substation in Floral Park in 2010, the remaining seven substations are approximately 40 years old, nearing the end of their expected operating service life.

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**Table 9-2
PSEG-LI Electric Utilities**

Type	Location/Side	Side of ROW or Approx. Length in Feet (within footprint of roadway)
Longitudinal in the Project Corridor		
Overhead	Floral Park Station to Covert Avenue	No PSEG-LI transmission lines in this segment. LIRR utility poles and electric lines along the north and south sides of the ROW.
Overhead	Covert Avenue to New Hyde Park Station	PSEG-LI utility poles and transmission lines on the south side of the ROW.
Overhead	Whitehall Boulevard to Mineola Station	PSEG-LI utility poles and transmission lines along the south side of the tracks outside the ROW beyond the station limits. Within the Mineola Station, PSEG-LI utility poles on the north side of the station.
Underground	Whitehall Boulevard to Mineola Station	PSEG-LI transmission lines along the south side of the tracks outside the ROW beyond the station limits.
Overhead	Mineola Station to Russell Drive	PSEG-LI utility poles and transmission lines on the north outside ROW along East 2nd Street.
Overhead	Russell Drive to Swalm Street	PSEG-LI utility poles and transmission lines on the north side of the ROW.
Overhead	Swalm Street to Wantagh Parkway	PSEG-LI utility poles and transmission lines on the north side of the ROW.
Overhead	Wantagh Parkway to Hicksville Station	Poles and transmission lines on the north side of the ROW, adjacent to East 2nd Street
^ Grade Crossings		
Covert Avenue Grade Crossing		
Overhead	East and west sidewalks crossing and north and south of tracks	1,870
South 12th Street Grade Crossing		
Overhead	East and west sidewalks crossing and north and south of tracks	680
Overhead	Northeast corner at 3rd Avenue intersection	60
New Hyde Park Road Grade Crossing		
Overhead	West sidewalk south of tracks	250
Overhead	Along Greenridge Ave and crossing New Hyde Park Rd	250
Overhead	West sidewalk crossing and north of tracks and crossing New Hyde Park Road	550
Overhead	Plaza Avenue north sidewalk	40
Main Street Grade Crossing		
	West sidewalk and crossing roadway south of tracks	210
	East sidewalk south of tracks	60
	Along 3rd Street	60
Overhead	Along east and west sidewalks south of tracks	310
Overhead	Crossing roadway south of tracks	90
Overhead	East sidewalk north of tracks	330
	East sidewalk north of tracks	70
Overhead	Crossing sidewalks and roadway north of tracks (3)	130
	SB lane north of tracks	160
Willis Avenue Grade Crossing		
Overhead	West sidewalk south of tracks and crossing roadway north and south of tracks	450
Overhead	East sidewalk crosses and at north and south of tracks	900
Overhead	East sidewalk crosses and at north of tracks	510
Overhead	East sidewalk crosses and at south of tracks	390
Overhead	East sidewalk crosses and at north and south of tracks	900
School Street Grade Crossing		
Overhead	North and south sidewalks and crossings	670
Urban Avenue Grade Crossing		
Overhead	West sidewalk crosses and at north and south of tracks	740
Note: (1) Most of the existing utilities are within the roadway limits. Length measured within the footprint of the roadway construction.		

FIBER OPTIC CABLE AND TELEPHONE LINES

Several companies maintain underground and overhead fiber optic cable and telephone lines throughout the Study Area, including Verizon, Verizon Business Solutions, and AT&T. In addition, Lightower, Crown Castle, and Level 3 each maintain a limited number of cables or lines. Lightower maintains overhead fiber optic lines at two crossings of the LIRR right-of-way: one at Covert Avenue and the other at School Street. Crown Castle leases fiber optic lines from Lightower at Covert Street and School Street. Level 3 has fiber optic lines crossing Covert Avenue and New Hyde Park Road.

VERIZON

Verizon maintains overhead telephone lines on both its own utility poles and on PSEG-LI utility poles along streets immediately adjacent to the LIRR right-of-way throughout the Study Area. Service connections also enter LIRR right-of-way from 3rd Avenue at South 10th Street and from 2nd Avenue east of Herkomer Street. In addition, Verizon has underground fiber optic lines in conduit at several locations crossing the LIRR right-of-way (see **Appendix 1-A** for additional detail). Most of the existing utilities are within the roadway limits.

VERIZON BUSINESS SOLUTIONS (VBS)

VBS (formerly MCI) has both underground and overhead fiber optic lines within the LIRR right-of-way. Underground VBS lines run along the south side of the right-of-way from the eastern end of Greenridge Road to 4th Avenue, along the north side of the right-of-way from Kilburn Avenue to the vicinity of Whitehall Boulevard, along the south side of the right-of-way from Glen Cove Road to the vicinity of Hollis Place, and for a short distance along the south side of the right-of-way at Ellison Avenue.

Overhead VBS fiber optic lines run along the south side of the right-of-way from Plainfield Avenue to the eastern end of Greenridge Road, along the north side of the right-of-way from 4th Avenue to Kilburn Road and from Whitehall Boulevard to Russell Drive and along the south side of the right-of-way from Russell Drive to Glen Cove Road and from the vicinity of Hollis Place to Jerusalem Avenue.

VBS fiber optic lines traverse the LIRR Main Line at:

- South Tyson at Tulip Avenue and Plainfield Avenue in Floral Park – underground.
- Mineola Boulevard and Willis Avenue in Mineola – underground.
- Glen Cove Road – overhead.
- Ellison Avenue – underground and overhead.
- Post Avenue – underground.
- School Street – underground.
- Urban Avenue – underground.
- East of Charlotte Street – overhead.

AT&T

AT&T maintains overhead and underground fiber optic lines at seven locations along and across the LIRR right-of-way carrying local network service (LNS):

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- Crossing along South Tyson Avenue – LNS lines are carried in both AT&T conduit and Verizon conduit.
- Crossing along Herricks Road – LNS lines are carried in both AT&T conduit and in Verizon conduit.
- Crossing along Washington Avenue – LNS lines are carried in both AT&T conduit and in Verizon conduit.
- Crossing along Quentin Roosevelt Boulevard NB – LNS lines are carried in both AT&T conduit and in Verizon conduit.
- Crossing along Cherry Lane – LNS lines are carried in Verizon conduit.
- Along the south side on Railroad Avenue between Post Avenue and School Street – LNS lines are carried overhead on utility poles.
- Crossing along Charlotte Avenue – LNS lines are carried overhead together with Lighttower lines.

CABLE TELEVISION LINES

Altice (formerly Cablevision-NC) provides cable television to the various municipalities surrounding the Study Area. Cable lines generally follow the alignments of local overhead and underground power (PSEG-LI) and telephone (Verizon) lines. In addition, Altice facilities are tied to VBS fiber optic lines on utility poles in the LIRR right-of-way.

WATER AND SANITARY SEWER LINES

Several municipalities and regional agencies own water and sanitary sewer lines paralleling or crossing the LIRR right-of-way: Nassau County Department of Public Works (NCDPW), Village of Garden City, Village of Mineola, Water Authority of Western Nassau County (WAWNC), Westbury Water District, and Hicksville Water District. Water lines, also called mains, generally are between six and 16 inches in diameter. Sanitary sewer lines generally are between eight and 24 inches in diameter. There is also a sewer manhole in Covert Avenue, where it is intersected by Wayne Avenue (see **Appendix 1-A** for additional detail).

DRAINAGE FACILITIES

LIRR is a Municipal Separate Storm Sewer System (MS4) and has developed and implemented a Stormwater Management Program under the requirements of the SPDES General Permit for MS4s (GP-0-15-003).

There is very little stormwater drainage infrastructure within the [^] LIRR ROW. As confirmed by information received from local utilities and review of publicly available topographical mapping, virtually no drainage structures exist within the [^] LIRR ROW, i.e., neither perforated storm pipe, leaching pits or basins, nor buried storm pipe. However, based on review of valuation maps, sporadic drainage pipe systems exist paralleling the right-of-way to both the north and south; the functionality of these systems has not been verified at this time. There may also be some under-drain pipe installed, but not shown on existing topographical and utility survey information.

Stormwater infrastructure serving the surrounding residential, commercial, and industrial properties is provided by a combination of village, town, and county conveyance lines to Nassau County recharge basins.

Stormwater from the LIRR right-of-way predominantly discharges directly into soil consisting mostly of sand and gravel with little silt through ditches and channels on either side of the LIRR right-of-way. The existing ditches or channels on either side of the right-of-way appear to handle the drainage runoff during typical storm events. Since groundwater table elevations are approximately 45 to 50 feet deep below the surface, sufficient room for the surface runoff to percolate deep into the sub soil layers exists.

It should be noted that in some fill sections along the Project Corridor, drainage runoff appears to flow outside of the LIRR right-of-way to adjacent properties. In a few cut sections, the reverse also occurs, storm water runoff from adjacent properties appears to flow into and contribute to Project Corridor drainage discharge. There are at least six drainage culverts crossing the LIRR right-of-way with pipe diameters ranging from 12-inches to 48-inches. Some of these crossings may be inactive or plugged, since they were built prior to 1916. If functional, these culvert crossings allow water to pass through the LIRR right-of-way, but do not contribute to the Project Corridor drainage runoff. At each cross street intersection along the LIRR right-of-way, a separate nearby roadway storm drainage system exists, owned and maintained by Nassau County, which eventually discharges into recharge basins well off the LIRR right-of-way. It appears that no stormwater runoff from LIRR property contributes to the Nassau County drainage system.

FEMA Flood Insurance Rate maps (FIRMs) indicate that the Project Corridor lies above the 100-year flood elevation.

C. FUTURE WITHOUT THE PROPOSED PROJECT

The utility inventory compiled for the Study Area, including grade crossings and adjacent roadways, also requested utility companies to provide information on any planned utility and related infrastructure work in the Study Area within the next five years (through 2020). One project was identified that would require close coordination with the Proposed Project:

- A 13kV feeder, maintained by PSEG-LI, which supplies power to three substations along the LIRR right-of-way in the Study Area, has been planned for relocation. Relocating this feeder during construction of the Proposed Project will require extensive coordination between LIRR and PSEG-LI, especially in locations where right-of-way is restricted, in particular, immediately east of Roslyn Road and east of the Carle Place Station. One segment of the feeder (Mineola Feeder Replacement) has been scheduled for replacement in the near future. PSEG-LI may consider delaying implementation of this initial feeder segment replacement in order to better coordinate it with the Proposed Project.

In addition, as discussed in Section A, Existing Conditions, under Electric Power Lines, all but one of the LIRR substations within the Project Corridor, have reached the end of their design life. With or without the Proposed Project, these substations will require replacement in the near future.

D. POTENTIAL IMPACTS OF THE PROPOSED PROJECT

The following subsections describe potential impacts of the Proposed Project to utilities and related infrastructure in the Study Area and measures to mitigate these potential impacts. The Proposed Project would not result in a significant increase in demand for any utilities serving the Study Area. Since all existing utilities would be replaced in-kind, or redundant utilities removed during construction of the Proposed Project, and since no long-term disruptions in service to

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Study Area customers would result there would be no significant adverse impacts to utilities within the Study Area. Potential visual impacts of new poles carrying overhead utilities are addressed in Chapter 6, “Visual Impacts.” Potential construction-period impacts to utilities are addressed in Chapter 13, “Construction.”

SIGNALS AND COMMUNICATION LINES

As a result of the Proposed Project, all signal equipment in the Study Area would be replaced and/or updated. In many cases, existing signal equipment lies in the path of the Proposed Project, either the track itself or ancillary facilities, such as retaining walls. Equipment that could remain would still be updated, since existing signal houses have insufficient space for new equipment, cases, and cables and cable trays. New signal equipment would be installed and made active before the Proposed Project would be constructed.

New signal houses and cases would be procured via pre-wired signal enclosure specification package built and delivered by a contractor. Design of the new signal system would include hardware and software to accommodate all staging for construction of new track and interlockings. Remaining signal equipment, such as signals, switches, switch heaters, cables, cable tray, and all applicable equipment required for a complete working signal system, would be procured by the LIRR. Installation of all signal equipment would be paid for by LIRR signal force account.

GAS LINES

With the Proposed Project, relocation of gas lines would be required at each of the seven grade crossings. Some gas line relocations might also be required at the seven bridge widening locations. During the design process for each grade crossing and bridge widening, the number and extent of gas line relocations would be further detailed and quantified. The Preliminary Engineering Technical Memorandum (October 2016) (**Appendix 1-A**) summarizes gas utility conflicts and potential relocations.

ELECTRIC POWER LINES

PSEG-LI

The Proposed Project would require the relocation of PSEG-LI utility poles and overhead and underground power lines in certain locations. For the replacement of existing timber utility poles, and for the addition of more load on existing timber utility poles, PSEG-LI policy requires the use of composite steel and concrete utility poles approximately 90 feet high. These utility poles are considered more resilient to severe storm events, as the material is stronger than wood and power lines are at a height above most trees. Specific relocation requirements for PSEG-LI utility poles and overhead and underground power lines would be determined on a case-by-case basis during the final design phase of the Proposed Project. It is generally expected that utilities poles would be replaced [^] at increased spacing ranging from 200 to 220 feet. It also is expected that the [^] hybrid concrete-steel utility poles would be used for transmission lines along the LIRR ROW, while wood poles approximately 55 feet in height would be used [^] for distribution lines crossing the ^ LIRR ROW.

It is anticipated that the proposed construction in the LIRR ROW will require adjustments to PSEG-LI's pole-mounted aerial and underground transmission lines at the following locations:

- From Covert Avenue to South Denton Avenue:

The existing north side poles will be upgraded to PSEG-LI hybrid concrete-steel poles, placed within LIRR ROW, and their aerial lines relocated to the new poles. The existing south side utilities will be relocated to the north side poles and south side poles will be removed.

- From West of Glen Cove Road to East of Elmwood Street:

In this segment, the south side poles will be upgraded to PSEG-LI hybrid concrete-steel poles placed further south within LIRR ROW. Existing south side aerial lines that are located within and outside the LIRR ROW, aerial lines that leave the ROW, and underground transmission lines inside the ROW will all be relocated to the new poles. Existing aerial lines inside the north side of the LIRR ROW as well as north side lines that leave the ROW will also be relocated to the south side poles.

- East of Elmwood Street to West of Post Avenue:

At this location, the south side pole line will switch to the north side of the tracks and their aerial lines will be relocated to PSEG-LI hybrid concrete-steel poles placed within the north side of the LIRR ROW.

- West of School Street to West of Swalm Street:

The existing north side poles will be upgraded to PSEG-LI hybrid concrete-steel poles placed within LIRR ROW, and their aerial lines relocated to the new poles. Existing underground lines along the north side of the ROW will also be relocated to the new poles.

- Swalm Street to West of Wantagh Parkway:

The existing north side poles will be upgraded to PSEG-LI hybrid concrete-steel poles, placed within LIRR ROW, and their aerial lines relocated to the new poles. Existing underground lines along the north side of the ROW will also be relocated to the new poles.

Overhead and underground power lines cross each of the seven bridge locations proposed for widening and the seven at-grade crossings proposed for elimination. Relocations may be required to accommodate proposed construction.

Relocations resulting from Proposed Project construction are detailed in [^] **Appendix 1-A** _^. Potential construction-period impacts to PSEG-LI utility poles and overhead power lines are addressed in Chapter 13, "Construction."

The increased use of efficient electrical fixtures along the LIRR ROW may offset any increased electricity use attributable to the Proposed Project.

LIRR SUBSTATIONS

The Proposed Project would require the relocation or protection of PSEG-LI underground power lines in certain locations, summarized in the following list (see also Figure 9-13):

- A 13kV feeder, maintained by PSEG-LI, which supplies power to three substations along the corridor, would require relocation. The feeder must be maintained at all times to each of three substations in order to avoid compromising the power supply to the LIRR. Relocating this feeder during construction of the Proposed Project will require extensive coordination between LIRR and PSEG-LI, especially in locations where right-of-way is restricted, in

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particular, immediately east of Roslyn Road and east of the Carle Place Station. One segment of the feeder (Mineola Feeder Replacement) is scheduled for replacement in the near future. PSEG-LI is considering delaying implementation of this initial feeder segment replacement to coordinate with the Proposed Project.

- 345kV underground duct bank at Roslyn Road – This major feed for PSEG-LI cannot be relocated. It will require protection during Proposed Project construction.
- LIRR Power Preservation at Floral Park near Plainfield Avenue – LIRR’s underground power lines between the PSEG-LI and LIRR substations on opposite sides of the LIRR right-of-way may need to be protected or relocated due to construction of retaining walls for the Proposed Project in this area.

As discussed in Section A, Existing Conditions, under Electric Power Lines, all but one of the LIRR substations within the Project Corridor, have reached the end of their design life. Replacement substations would occupy the same parcels as the present equipment. To accomplish this, prefabricated substation equipment would be used to expedite the implementation of the new units. This strategy would allow the continued functioning of existing substations, while the prefabricated buildings would be constructed and factory tested offsite, until it is deemed necessary to de-energize the existing equipment.

The existing traction power system in the Project Corridor was designed to accommodate one of the full service substations being out of service, so this approach is assumed viable. ^ In addition, proposed replacement of the existing steel contact rail with a composite-type aluminum contact rail will help to limit voltage drop throughout the system, which would also support the proposed replacement strategy. While the conceptual size of each prefabricated substation is roughly 36 feet wide, 92 feet long, and 12 feet in height, each substation could be configured differently, should site conditions dictate.

FIBER OPTIC AND TELEPHONE LINES

VERIZON

Verizon overhead conflicts and relocations will be determined during the final design phase of the proposed improvements. **Appendix 1-A** lists potential conflicts and relocations for underground Verizon ^ utilities as a result of the Proposed Project. For all Verizon utilities, relocations would be coordinated with PSEG-LI.

OTHER FIBER OPTIC AND TELEPHONE LINES UTILITIES

Overhead and underground fiber optic and telephone line conflicts and relocations will be determined during the final design of proposed improvements for: Verizon Business Solutions (VBS), AT&T, Lighttower, Crown Castle, and Level 3. If necessary, VBS, Lighttower, Crown Castle, and Level 3 relocations would be coordinated with PSEG-LI. AT&T relocations would be coordinated with Verizon and Lighttower and Crown Castle relocations would be coordinated with PSEG-LI and Lighttower.

CABLE TELEVISION LINES

Specific relocation requirements for Altice cable facilities will be determined on a case-by-case basis in conjunction with electric, telephone, and fiber optic utility relocations. Construction of cable facility relocations within the LIRR right-of-way will be coordinated with the relocations

of LIRR utility poles and VBS fiber optic relocations. Construction of off-right-of-way relocations should be coordinated with PSEG-LI pole relocations required for grade crossings and bridge widening work.

WATER AND SANITARY SEWER LINES

As a result of the Proposed Project, there could be potential impacts to water and sanitary sewer lines for: Nassau County Department of Public Works (NCDPW), Village of Garden City, Village of Mineola, Water Authority of Western Nassau County (WAWNC), Westbury Water District, and Hicksville Water District. **Appendix 1-A** lists these potential conflicts and likely relocations.

The Proposed Project is not expected to create additional demand on existing water and sewer services.

DRAINAGE FACILITIES

Installation of the Proposed Project, including the third track, new station platforms, new parking lots and garages, and new grade crossings, presents an opportunity to install stormwater best management practices that would help to manage stormwater flows from existing and new impervious surfaces, alleviate any existing flooding problems, and to prevent future flooding from storms up to the 100-year design storm. Due to differences in the elevation of the LIRR right-of-way and the proposed NYSDOT grade crossing improvements, separate stormwater management strategies have been developed for the LIRR right-of-way and the NYSDOT grade crossings. All stormwater management strategies implemented for the Proposed Project would comply with the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-15-002).

LIRR ROW DRAINAGE

The Proposed Project track vertical alignment predominantly follows existing ground topography. Where the proposed alignment will be raised from the existing elevation, retaining walls will be used to minimize or avoid impacts to property outside of the LIRR right-of-way. Ten drainage areas, separated by high points along the alignment, will be affected by changes in the vertical profile for the Proposed Project. In most cases, project improvements will occupy the existing ditch line along the south side of the right-of-way and/or will displace station platform areas. This in turn will increase surface runoff volume, since bare ground will need to be converted to ballasted area; soil below ballasted areas is generally compacted and may not have adequate infiltration compared to natural soils away from ballasted areas. As a result, modifying certain station facilities and relocating and upgrading the drainage ditches/channels will be necessary.

For purposes of conducting a conservative analysis of potential stormwater volume, it has been assumed that any existing stormwater management structures within the Project Corridor would not be able to accommodate additional stormwater flow and that drainage structures for the 100-year storm event volume would be provided within the LIRR right-of-way. The preferred option for providing adequate stormwater storage volume is to increase the size of existing drainage ditches alongside the track structure . Where feasible, these ditches would be grass-lined. Periodic maintenance of ditches/channels would be necessary to ensure the quality of water infiltrating into the groundwater table.

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In some cases, another alternative for managing stormwater discharge could be considered using the nearest Nassau County recharge basins. This option would have to be approved by Nassau County and coordinated with NYSDOT for the design of the buried storm pipe system necessary to connect to these basins. Also, some existing recharge basins may need to be deepened to accommodate the additional flow from the Proposed Project.

As discussed in Section A, Existing Conditions, under LIRR Drainage, at least six drainage culverts cross the LIRR right-of-way with pipe diameters ranging from 12-inches to 48-inches. If any of these culverts remain active, which would be investigated further during the design process for the Proposed Project, they would be extended, maintained, and protected during construction or either replaced in-kind, if damaged, or upgraded to handle the appropriate design flow rate without causing stormwater to rise above the top of rail elevation.

Any existing longitudinal drainage pipes along the north or south sides of the LIRR right-of-way could be maintained and protected during construction, as long as they are not in direct conflict with Proposed Project facilities. If damaged, existing pipes would not need to be replaced, unless they currently receive storm runoff from outside of the LIRR right-of-way or from station buildings or platforms.

DRAINAGE AT GRADE CROSSINGS

Drainage improvements for local roadways at the seven proposed grade crossing improvement projects are discussed in this section. Stormwater volumes, based on the 100-year storm event, were calculated in order to determine the approximate size of the proposed stormwater management system. Stormwater management system designs may change as the Proposed Project advances. By designing the stormwater management practices to NYSDEC design standards the Proposed Project would not result in any significant adverse impacts from stormwater runoff and may result in local area benefits where inadequate stormwater drainage practices exist.

Subsequent to the release of the DEIS, NYSDOT conducted additional consultation with Nassau County Department of Public Works (DPW). It was determined that the underground retention and infiltration systems described as options in the DEIS were not acceptable to Nassau County DPW; however, connection to existing Nassau County recharge basins using gravity flow to convey stormwater is acceptable. Nassau County DPW also rejected the use of pump stations due to concerns over long-term maintenance. Nassau County DPW further informed NYSDOT that open-cut trenching would not be allowed on Old Country Road; a trenchless form of A trenchless means of construction would allow for construction of new stormwater infrastructure under Old Country Road. A revised drainage report incorporating Nassau County DPW comments and recommendations is included in **Appendix 9**.

County recharge basins #51, #121, #232, and #315 would receive additional stormwater from the Proposed Project. Basins #121, #232, and #315 would have to be enlarged to accommodate additional stormwater flow. These basins could be enlarged through excavation and/or construction of retaining walls to increase the basin volume.

Covert Avenue Grade Crossing

^ Stormwater drainage ^ from the Covert Avenue grade crossing ^ would be provided through a gravity sewer to the existing county recharge basin #121 with the installation of ^ approximately ^ 3,270 feet of ^ 36-inch ^ reinforced concrete pipe^ (RCP). This system would be approximately 22 feet deep to allow for gravity inflow without the use of pumps.^

^ South 12th Street Grade Crossing

^ Closure of South 12th Street to vehicular traffic would not require any new stormwater management practices. Should a pedestrian underpass be selected as the preferred option for maintaining pedestrian access across the railroad tracks, drainage for the underpass would be routed to existing 36-inch drainage lines in 1st Avenue and in Plaza Avenue that connect to county recharge basins #121 and #232.

New Hyde Park Road Grade Crossing

^ Stormwater drainage from the proposed five-lane New Hyde Park Road underpass would be provided through a gravity sewer to the existing county recharge basin #121. The new 1,350-foot 36-inch diameter gravity sewer would be constructed parallel to the LIRR ROW and behind residences to the existing recharge basin to the east.

Main Street ^ Grade ^ Crossing

^ Closure of Main Street to vehicular traffic would not require any new stormwater management practices. Any additional drainage ^ generated by the ^ traffic roundabouts on the north and south sides of the railroad tracks would be integrated with new drainage infrastructure serving the Willis Avenue grade crossing ^ (see below).

Willis Avenue Grade Crossing

Stormwater drainage from the Willis Avenue grade crossing would be provided by installation of a stormwater conveyance pipe (varying in size from 48-inches up to 60-inches in diameter) at minimum slope for cleanout velocity, approximately 5,000 feet west to the existing Nassau County Recharge ^ basin #123, west of the intersection of Old Country Road and Herricks Road. This pipe would pick up runoff from both the Willis Avenue underpass and roadway improvements at Main Street^. This system ranges from 25 feet deep near each underpass approach to 20 feet deep at Basin SWB 123 to allow for gravity flow without the use of pumps.
^

^ School Street Grade Crossing

^ Stormwater drainage ^ from the School Street grade crossing ^ would be provided by installation of a 30-inch diameter storm water conveyance pipe at minimum slope to maintain proper flow, approximately 3,300 feet south to the existing Nassau County ^ recharge basin #315 south of Linden Avenue. This system ranges from 25 feet deep near the underpass approach to approximately 15 feet deep at ^ basin #315 to allow for gravity flow without the use of pumps.
^

^ Urban Avenue Grade Crossing

^ Stormwater drainage from the Urban Avenue grade crossing would be provided by installation of a 60-inch stormwater conveyance pipe at minimum slope for cleanout velocity, approximately 3,500 feet south to the existing Nassau County ^ recharge basin #51, south of Old Country Road. This system ranges from 25 feet deep near the underpass approach to 15 feet deep at ^ basin #51 to allow for gravity flow without the use of pumps. Pre-treatment water quality devices would be located within the underpass to allow for ease of access. *

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