TECHNICAL REVIEW OF DRAFT ENVIRONMENTAL IMPACT STATEMENT

Long Island Rail Road Expansion Project
Villages of Floral Park, New Hyde Park and Garden City, New York

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List of Attachments

1.0 Introduction

The Vertex Companies, Inc. (VERTEX) is pleased to submit this technical review of portions of the Draft Environmental Impact Statement (DEIS) for the Long Island Rail Road (LIRR) Expansion project (Proposed Project). This technical review addresses certain aspects of the Proposed Project with respect to potential impacts to the Incorporated Villages of Floral Park, New Hyde Park and Garden City, New York (Villages).

The primary document reviewed by VERTEX is the Long Island Rail Road Expansion Project from Floral Park to Hicksville – Draft Environmental Impact Statement, Long Island Rail Road, November 28, 2016, (DEIS). VERTEX's review of the DEIS was focused on the Villages (the Study Area), shown in Attachment A as well as the following topic areas:

- DEIS Conformance;
- Contaminated Materials;
- Civil/Rail Design;
- Construction Schedule; and
- Traffic.

Each of these topic areas are addressed in Sections 2 through 6, respectfully, which each contain the following subsections:

- Documents Reviewed;
- Reviews Conducted/Evaluations Performed;
- Summary of Findings;
- Additional Documentation Needed; and
- Conclusions.

VERTEX reviewed the documents identified including overall regulatory conformance, extent of subsurface investigation data, mitigation measures for contamination, construction constraints, feasibility of utility relocation, impacts of construction staging, noise impacts, reasonableness of the proposed project schedule, accuracy of the traffic analysis, potential additional traffic impacts, potential additional schedule impacts, and other relevant topics.

VERTEX recommends that the Villages request revisions to the DEIS to address discrepancies and missing information identified in this review. VERTEX also recommends that the DEIS be included in the contract documents for the Proposed Project to ensure that mitigation measures are upheld by the contractors completing the construction work associated with the Proposed Project.

Supplemental information requested by the Villages is provided in Attachment E.

This report has been compiled solely based on the documents identified in this review.

2.0 DEIS Conformance

2.1 Documents Reviewed

VERTEX reviewed the following documents:

- Final State Environmental Quality Review Act (SEQRA) Scoping Document - Long Island Rail Road (LIRR) Expansion Project (Floral Park to Hicksville) dated August 26, 2016;
- New York Code of Rules and Regulations (NYCRR) Title 6, Part 617 - State Environmental Quality Review;
- The SEQR Handbook, 3rd Edition - 2010, published by the New York State Department of Environmental Conservation, Division of Environmental Permits (The SEQR Handbook);
- Federal National Environmental Policy Act (NEPA) documents and guidelines;
- Draft Environmental Impact Statement - Greater East Midtown Rezoning Proposal, New York City Planning Commission (NYCPC), dated December 30, 2016; and
- Final Environmental Impact Statement (FEIS) - The Western Railyard, Metropolitan Transportation Authority (MTA) and NYCPC, dated October 9, 2009.

VERTEX focused its review of the DEIS on the following sections:

- Executive Summary
- Chapter 1 – Project Description
- Chapter 8 – Contaminated Materials
- Chapter 9 – Utilities and Related Infrastructure
- Chapter 10 – Transportation
- Chapter 12 – Noise
- Chapter 13 – Construction
- Chapter 18 – Alternatives
- Appendix 1-A – Technical Memorandum

2.2 Reviews Conducted/Evaluations Performed

- Overall DEIS Document Conformance – this consists of a review of the DEIS document in terms of its relative content when compared to the guidance and standards typical of these documents. The following two areas are specifically addressed:
  - Overall Regulatory Conformance; and
  - Comparison to Other EIS Documents.
- Specific DEIS Topic Areas – this consists of a review of the following topic areas addressed in the DEIS:
  - Contaminated Materials;
  - Civil/Rail Design;
  - Construction Schedule; and
  - Traffic.

2.3 Discussion of Findings

2.3.1 Overall DEIS Document Conformance

VERTEX evaluated the overall completeness of the DEIS with respect to the requirements of the New York Codes, Rules and Regulations (NYCRR) Part 617 regulations as well as the guidance document The SEQR Handbook. Based on this review, VERTEX identified several areas that do not conform to the requirements of a DEIS. Specifically, LIRR has not provided the public with an appropriate level of detail to understand the timing, magnitude, and duration of potential adverse impacts resulting from the Proposed Project and the effectiveness of proposed mitigation measures.

The SEQR Handbook (Page 118) states the following with respect to the required content of an EIS:

> *"The EIS therefore needs to contain sufficient descriptions of the proposed action and its setting to provide appropriate context for a reader to understand the analyses of impacts, alternatives, and mitigation, but should not be an "encyclopedic" or overly technical document."*

In several instances, which are addressed further in VERTEX's review of the DEIS, the DEIS fails to provide "sufficient descriptions" of the proposed actions and mitigation measures. Although the regulations clearly do not require an overly technical or encyclopedic document, the details VERTEX has identified as deficient in the DEIS would not rise to that level. Instead, the missing information is considered basic and fundamental to understanding the "analyses of the impacts, alternatives, and mitigation" of the Proposed Project.

Ultimately, the DEIS does not provide the public with all the information needed to perform an informed evaluation of the potential impacts of the Proposed Project. The SEQR Handbook (Page 133) states the following when discussing the required adequacy of a DEIS:

> *"…one of the major purposes of a draft EIS is to give the public an opportunity to comment on the environmental issues raised, as well as the possible alternatives and mitigation offered to address those issues."*

Sections 3 through 6 describe specific areas where the DEIS fails to provide appropriate information as required by the SEQR Handbook.

2.3.2 Comparison to Other EIS Documents

VERTEX also conducted a comparison of the DEIS to similar studies to evaluate its overall conformance to the standard content typical of projects of this type and magnitude. VERTEX conducted this review by benchmarking the DEIS against other EIS documents for projects in New York State, including projects undertaken by the MTA and New York City Planning Commission (NYCPC). Based on this review, VERTEX identified an area lacking detail that is important in defining potential impacts and mitigation to limit the impacts.

It is expected that the content of a DEIS will vary from project to project based on the specific proposed actions and potential environmental impacts. However, given the magnitude of the Proposed Project, which extends 9.8 miles through densely settled residential and commercial areas, and the significance of the

potential impacts to the communities, which include almost 100,000 residents within 0.5-miles of the corridor[1], we would expect that the DEIS would be structured to be more detailed.

Specific examples of where the DEIS does not conform to the level of effort for comparable EIS documents are provided in the following sections.

2.3.3 Examples of Deficiencies

2.3.3.1 Hazardous and Contaminated Materials

Section 3 of this report provides our Hazardous and Contaminated Materials review, which identifies that, due to the lack of subsurface investigation data for the Proposed Project, the DEIS fails to identify the adverse impacts to the surrounding communities.

The SEQR Handbook (Page 123) states that:

> *"Specifically, the discussion of impacts may include quantitative or qualitative information as long as it is sufficient to determine:*
> - *How likely it is that an impact will occur;*
> - *How large the impact will be;*
> - *How important the impact will be; and*
> - *the time frame during which the impact is likely to occur."*

Because the DEIS provides a generalized discussion of the potential impacts across the Proposed Project without identifying specific conditions and mitigation measures, the DEIS does not provide sufficient information to evaluate any of the above conditions described on Page 123 of The SEQR Handbook.

In comparison, the FEIS for The Western Railyard (Chapter 12, Page 12-4) provides a significant amount of subsurface data for a project that is only approximately 0.15 miles by 0.15 miles in size. Specifically, the FEIS for that project references the installation of 80 soil borings, 6 test pits, and the collection of at least 215 soil samples and 32 groundwater samples for laboratory analysis. The results of these analyses were provided in Section C "Existing Conditions" of that FEIS and a high-level summary of actual soil and groundwater conditions within the study area was provided in the Hazardous Materials chapter. The DEIS for the Proposed Project does not provide information of this type.

2.3.3.2 Civil/Rail Design

Section 4 of this report provides our Civil/Rail design review which identifies that the proposed improvements will likely require more space than is indicated on the plans provided due to the smaller than standard space allotted to traffic lanes and the structural elements in the conceptual layout, missing design elements or reserved space for missing design elements on the plans, and the high probability that utility relocation will require more space than provided in the project limits. Due to these factors, VERTEX has concluded that either more land will likely need to be acquired to accommodate the proposed improvements, or a redesign will need to be performed to find a solution that can fit within the indicated limits.

[1] https://populationexplorer.com/

With respect to the required design plans for the Proposed Project, The SEQR Handbook (Page 121) states that:

> *"While final plans are not necessary, the EIS should contain enough detail on size, location and elements of the proposal to allow a reader to understand the proposed action, the associated impacts, and to determine the effectiveness of any proposed alternatives or mitigation. As a general rule, the amount of detail regarding a specific impact in an EIS should depend on the magnitude and importance of the impact."*

In this instance, the DEIS does not provide important information such as layouts for the proposed utility relocations in the DEIS, and it is therefore not possible to identify whether the proposed utility relocations are feasible. Without this information, the public cannot evaluate whether something as fundamental as the Proposed Project size and location will be constructed as presented. As such, the detail for the design plans is not sufficient to meet the requirements of The SEQR Handbook.

2.3.3.3 Construction Schedule

Section 5 of this report provides our Construction Schedule review. The SEQR Handbook (Page 122) indicates that the following information is necessary regarding the timing and scheduling of a proposed action:

> *"For proposed physical development activities, the description should recognize four major project stages: (1) planning and design, (2) construction, (3) operation and maintenance, and, where appropriate, (4) termination."*

Section 5 provides an evaluation of the Proposed Project schedule and identifies that the first major project stage, planning and design, is not addressed at all in the proposed construction schedule provided in Chapter 13 of the DEIS. The schedule for the Proposed Project does not include engineering and procurement activities nor does it provide milestones to identify the expected start or completion date of key stages of work such as stages of design development, detailed design, and long-lead items. As such, the estimated duration of these activities or planned dates of milestones are unknown and, therefore, deficient with respect to the SEQR Handbook.

2.3.3.4 Traffic

Section 6 of this report provides our Traffic review. One requirement of the EIS process is to evaluate the proposed alternatives against a "no action" alternative. This requirement is detailed on Page 126 of The SEQR handbook as follows:

> *"The "no action" alternative must always be discussed to provide a baseline for evaluation of impacts and comparisons of other impacts. The substance of the "no action" discussion should be a description of the likely circumstances at the project site if the project does not proceed. "*

Section 6 identifies that the DEIS inappropriately defines the "no action" alternative with respect to peak direction ridership. In Chapter 10 (Transportation) of the DEIS, there is an assumption made that increases in peak direction ridership will occur without the Proposed Project, even though it also states that the Proposed Project is required to realize these increases. The DEIS therefore fails to provide a true baseline for comparison and understates the impacts of the Proposed Project by not providing mitigation for impacts based on these ridership increases.

2.4 Conclusions

As described in the following sections of this report, the DEIS is deficient with respect to the level of detail required by the SEQRA regulations and with respect to the information we identified which has been presented in comparable EIS documents.

3.0 Contaminated Materials

3.1 Documents Reviewed

The following documents were reviewed to assess technical issues related to the assessment and mitigation of contaminated materials:

- DEIS Chapters:
  - Executive Summary
  - Chapter 8 – Contaminated Materials
  - Chapter 9 – Utilities and Related Infrastructure
  - Chapter 13 – Construction
  - Appendix 1-A – Preliminary Engineering Technical Memorandum
  - Appendix 8 – Contaminated Materials
- Nassau County Land Records Viewer
  - 115 New Hyde Park Road, New Hyde Park, New York

3.2 Reviews Conducted/Evaluations Performed

- Subsurface Investigation Data
- Mitigation Measures
- Schedule Impacts
- Examples of Deficiencies
  - New Hyde Park Road Grade Crossing Elimination
  - Denton Avenue/Tanners Pond Road Bridge
  - Plainfield Avenue Bridge

3.3 Discussion of Findings

3.3.1 Subsurface Investigation Data

According to Chapter 8 of the DEIS, "The potential for significant adverse impacts depends on the types of materials present and their location relative to or within the Study Area, their levels, and whether exposure to the contaminated materials would be associated with the Proposed Project, either during construction or during subsequent operations." However, no information related to the location of such materials or their location relative to the Study Area is provided in Chapter 8 of the DEIS or its appendices. Although Chapter 8 of the DEIS identifies 153 properties that have "some reasonable potential to have been impacted by the presence of contaminated materials and thus additional analysis is prudent" (denoted as "Category B" sites) including 7 such sites within the Study Area (the footprint of properties to contain physical elements of the Proposed Project), no such analysis in the form of subsurface investigation data was provided for review. In addition, Chapter 8 of the DEIS acknowledges that there are potential contaminated materials impacts along nearly the entirety of the Study Area related to railroad operations and associated infrastructure. Again, no specific information regarding soil or groundwater conditions in these areas was provided for review.

Instead, the DEIS describes how impacts will be determined at some future point. The DEIS states that "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 sites where significant subsurface disturbance (based on proximity, depth of disturbance, type/mobility of contaminants, etc.) is proposed." From an impact review perspective, this statement in the DEIS is not reasonable because the areas of major construction (grade crossing eliminations, retaining wall construction, etc. as shown in Attachment C of this report), and the properties considered for acquisition are all reasonably well known according to the preliminary design plans provided in Appendix 1-A of the DEIS. As noted in Section 2, subsurface investigations should have been performed at the acquisition parcels and the areas of major construction along the Project corridor prior to the issuance of the DEIS to provide the level of detail regarding the likelihood, magnitude, importance, and timing of potential impacts required by The SEQR Handbook. The DEIS does not contain any Project-specific data.

Without any subsurface investigation data for the Proposed Project, the DEIS fails to identify what the actual adverse impacts could be to the surrounding communities.

3.3.2 Mitigation Measures

The above-noted absence of subsurface investigation data also does not allow the Villages to determine the effectiveness and evaluate the potential impact of the proposed mitigation measures outlined in the DEIS. Although general measures to address hazardous and contaminated materials are described in Chapter 8 of the DEIS, which include such items as the implementation of Remedial Action Plans (RAPs), and Construction Health and Safety Plan (CHASPs), tank removals, on- and off-site contaminated soil management, dust suppression, and air monitoring, the details and specific areas of implementation are not identified in the DEIS. As no written plans are included in the DEIS, the specific mitigation measures that LIRR is relying on to address potential adverse impacts cannot be reviewed for adequacy, and the Villages are unable evaluate the impact that their implementation may have on their residents and businesses.

Chapter 8 of the DEIS states that "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. Following construction, there would be no further potential for significant adverse impacts." However, the validity of this statement is not possible to assess without knowing the specific adverse impacts and mitigation measures.

If subsurface investigation data had been gathered prior to the issuance of the DEIS, there could be a reasonable understanding of which homes could be affected by contaminated dust, which businesses could be impacted by significant off-site soil disposal trucking traffic, and what other of the multitude of practical concerns could affect these communities. Without this information, these impacts cannot be understood and the effectiveness of the mitigation measures cannot be critically evaluated.

3.3.3 Schedule Impacts

Due to the lack of subsurface investigation data and specific mitigation measures, there is not sufficient information in the DEIS to evaluate whether there is reasonable time and contingency incorporated into the schedule for the Proposed Project to accommodate the investigation and remediation needed to address hazardous and contaminated materials. Although the text of Chapter 13 of the DEIS discusses the general need to perform subsurface investigations, potential remediation, and contaminated materials management,

there is no information provided regarding the timing of those activities in relation to the construction schedule. In addition, without an understanding of where significant subsurface contamination may be present, it is not known whether the preliminary design plans will need to be modified to address such impacts and what the resulting changes will be to the project limits and schedule. As such, there is no basis to assess whether the schedule for the Proposed Project provided in the DEIS is credible due to the lack of any specific information relating to contaminated materials conditions.

There is also limited information provided in Chapter 13 of the DEIS to suggest that there would be contingency built in to the construction schedule for the Proposed Project to address unexpected subsurface conditions potentially encountered during construction. The preliminary subsurface investigations described in the DEIS will not fully assess all potential areas of contamination and there will always be the risk that unanticipated underground storage tanks and/or soil and groundwater impacts will be identified during the construction. The Proposed Project may be further delayed if, during the excavation work, a release is identified which has not previously reported to the New York State Department of Environmental Conservation (NYSDEC). The identification of such a release would require specific submittals and compliance with the requirements of the particular NYSDEC program applicable to the type of release identified. Had subsurface investigations been conducted in the areas of significant disturbance, such potential releases would have been identified and could have been communicated to the Villages, and accounted for in the DEIS and the preliminary design and schedule for the Proposed Project. However, because subsurface investigation data is not provided in the DEIS, it is not possible to evaluate potential data gaps and understand where unplanned environmental actions may be likely to occur. It is common practice in the industry to expect and plan to accommodate some amount of time to address unknown subsurface conditions. Such a schedule contingency should be included in the Project schedule for subsurface disturbances in historically commercial and industrial areas associated with the Proposed Project.

Despite the lack of data identifying subsurface conditions, the schedule for the Proposed Project appears to be sequential in many instances, so that a delay in one area could potentially cause cascading changes and delay throughout the Project's implementation. Significant hazardous and/or contaminated materials impacts associated with the Proposed Project could require specialized health and safety precautions, additional remediation and/or soil excavation activities, or even redesign to avoid certain areas. Given that no pertinent soil and groundwater data is provided in the DEIS, it is not possible to identify whether such instances are likely and that there is sufficient available time in the schedule to allow for the impacts to be fully defined and effectively managed during construction. The uncertainties surrounding these concerns could have been avoided or at least reduced had adequate subsurface investigations been undertaken.

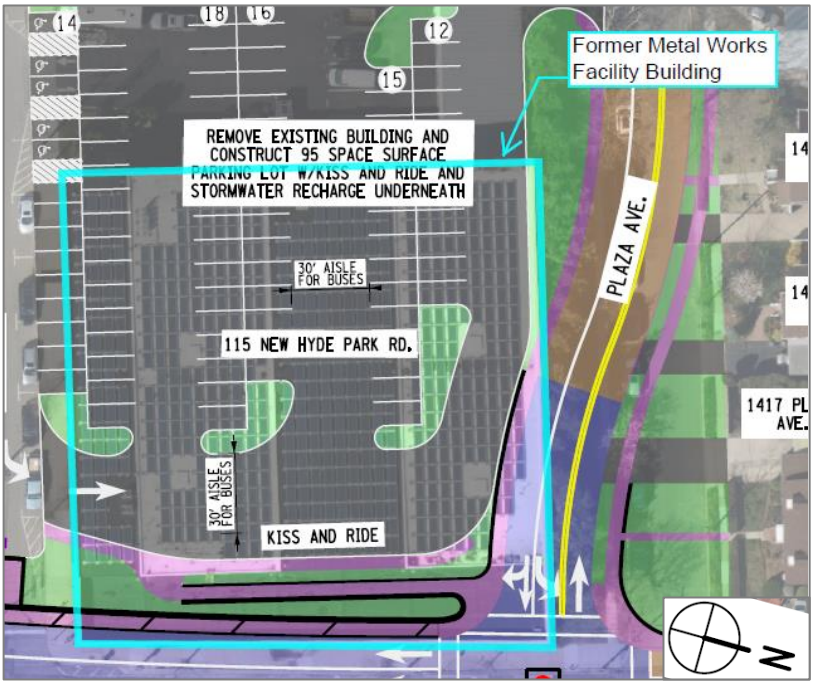
3.3.4 Examples of Deficiencies

Although the above concerns relate to the entirety of the handling of hazardous and contaminated materials in the DEIS, the following describes a few specific examples of these deficiencies in the DEIS and/or the preliminary design plans.

- **New Hyde Park Road Grade Crossing Elimination (New Hyde Park)** – One of the design options for the grade crossing elimination at New Hyde Park Road (Option 1) includes the acquisition and full demolition of the self-storage building at 115 New Hyde Park Road beginning in November 2017 according to Chapter 13 of the DEIS. Once the structure is demolished, an excavation to a depth of up to 31 feet will be completed at the parcel, planned to begin in spring

2018. According to Chapter 8 of the DEIS, 115 New Hyde Park Road is a Category B site (#156) due to the historic presence of a metal works facility at the parcel, as depicted in the 1950 through 1969 Sanborn Fire Insurance Maps. According to the Nassau County Land Records Viewer, the current self-storage structure at the parcel was constructed in 1946 and, therefore, present at the time of metal works operations. Given the absence of reported releases identified for the parcel address in the DEIS regulatory records search and the presence of the historic structure on the majority of the parcel footprint, it is likely that no significant subsurface investigation and/or excavation has been performed since the cessation of industrial activities at the parcel. However, despite the historical use of the site, no soil or groundwater data for the parcel or surrounding properties was included in the DEIS. An annotated detail from DWG GCC04 (Page 169 of DEIS Appendix 1-A) showing the location of the current building (former metals works facility) in relation to the proposed Project construction plan is provided as Figure 3.1.

Figure 3.1 – 115 New Hyde Park Road



According to the DEIS, a subsurface investigation will be conducted at all of the acquisition Category B sites. Even though 115 New Hyde Park Road is stated to be a known acquisition Category B site, there is no information provided to suggest that due diligence activities, including a subsurface investigation, are identified to have been initiated at this parcel. As such, the schedule for the Proposed Project will need to accommodate the due diligence subsurface investigation, regulated building materials (asbestos, lead-based paint, etc.) surveys, the potential incorporation of specific site conditions into a RAP, and the preparation of a CHASP, all before November 2017. These technical and regulatory tasks will need to be complete as will also real estate negotiations and the relocation of the current self-storage customers, etc. Since the current building covers nearly the entire parcel footprint, any pre-demolition subsurface investigation would likely be limited in nature and would need to be supplemented with post-demolition assessment between the completion of building demolition at the end of 2017 and the start of earthwork in early spring 2018. Even if all of these activities were able to be conducted in time to meet the stated schedule,

there would likely be limited time allowed for the surrounding community to be able to review and comment on a RAP and CHASP prior to implementation (As noted earlier, this type of information should have been included in the DEIS). Such review would be needed to allow the neighboring residents and business owners to assess whether concerns they might have including the migration of metals-impacted dusts and the spread of metals-impacted soils by truck tires are properly anticipated and addressed in the construction plans.

As shown on Page 169 of Appendix 1-A of the DEIS, a stormwater recharge system would be constructed within the footprint of the former metal works facility at 115 New Hyde Park Road under Option 1. The preliminary drainage design includes installing an underground recharge chamber system to either a depth of 14 or 31 feet below ground surface, depending on the specific design chosen. The Appendix 1-A Technical Memorandum states that this design is based on preliminary borings at the site but no results or boring logs are included in the DEIS. The DEIS notes that if such a recharge system could not be constructed, another alternative drainage design would connect underpass drainage into an existing Nassau County recharge basin utilizing existing Nassau County drainage systems. The existing drainage systems may require upgrades or replacement to accommodate this alternative approach to the construction of the underground recharge chamber.

If subsurface investigations performed at 115 New Hyde Park Road were to identify soil and/or groundwater impacts related to the historic metal works operations, the ability to recharge stormwater on this parcel might be limited, or not possible, depending on the type and depth of the impacts. The infiltration of stormwater to soil above the groundwater table has the potential to mobilize soil contamination to groundwater and/or exacerbate and mobilize existing groundwater contamination. In addition, the cost for the excavation and off-site disposal of potentially metals-impacted soils (including possible characteristic hazardous wastes) to accommodate the recharge infrastructure may be higher than budgeted. If these impacts could not be addressed prior to the planned installation of the drainage system, it is likely that the alternative drainage design option of improving and connecting to existing drainage systems would be needed (Section 4 of VERTEX's report addresses concerns with this alternative drainage design). Since significant subsurface investigation of the parcel is unlikely to be implemented prior to the completion of building demolition in December 2017, it is not clear that the schedule would allow for the comprehensive evaluation of subsurface data, development of appropriate remedial plans, and the implementation of potential contingency design changes prior to the start of utility relocation activities in December 2017 and northern drainage excavation in April 2018. As noted previously, any schedule delays or design changes at this grade elimination would likely affect the start of construction on other parts of the Proposed Project, thereby extending the overall schedule of the work and increasing the period of time that residents and commercial businesses in the Village would be subject to impacts such as traffic and noise.

- **Denton Avenue/Tanners Pond Road Bridge (Garden City) –** According to Appendix 1-A of the DEIS, a portion of the existing masonry abutment and foundation of the existing bridge over Denton Avenue/Tanners Pond Road in Garden City will be removed and replaced to accommodate the planned third track. As shown in the Appendix for Chapter 8 of the DEIS, this bridge is located immediately adjacent to sites #145 and #146, both of which are classified as Category B. Site #145 is a former auto salvage facility that has reportedly operated since at least the 1930s and is listed as an active Solid Waste Facility/Landfill due to vehicle dismantling operations. Site #146 is a former

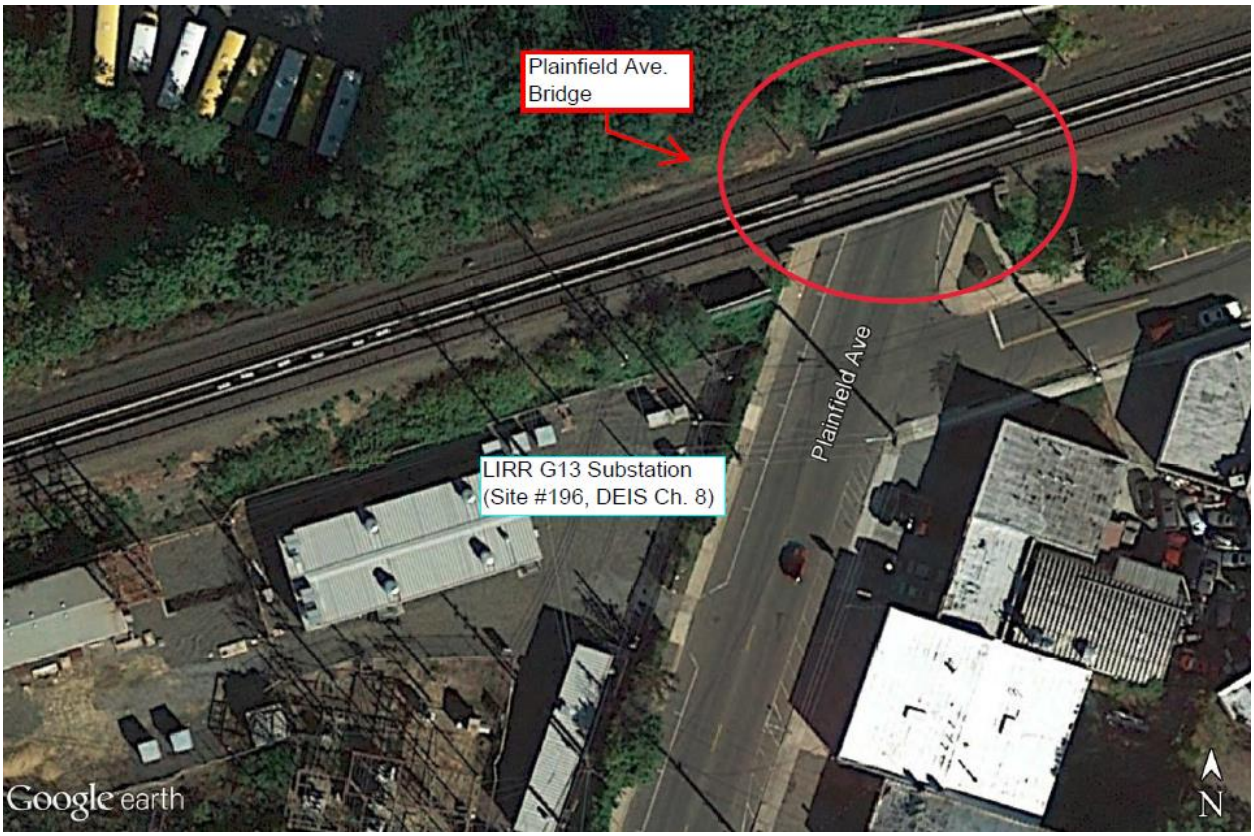
Conservative Gas Corporation facility from the 1950s through the 1980s that was listed on the NY Spills database due to reported asbestos and drums on the property. The locations of the identified sites in relation to the Denton Avenue/Tanners Pond Road bridge are shown on Figure 3.2.

Figure 3.2 – Denton Avenue/Tanners Pond Road Bridge

Petroleum, volatile organic chemicals, and/or heavy metal contamination in soil and groundwater, which is common for these types of facilities, could be encountered during the bridge foundation work in this location. Without subsurface investigation data from the proposed excavation areas, it is not possible to know what the potential impacts of these adjacent sites would be to the surrounding community and the schedule for the Proposed Project.

- **Plainfield Avenue Bridge (Floral Park) –** According to Appendix 1-A of the DEIS, an additional bridge over Plainfield Avenue will be retrofitted to accommodate the planned third track. As shown in the Appendix for Chapter 8 of the DEIS, this bridge is located immediately adjacent to site #196, which is the existing Floral Park LIRR G13 substation that is not to be altered during the construction of the Proposed Project. According to the DEIS, site #196 is the subject of subsurface releases being actively addressed by LIRR as part of the Voluntary Cleanup Program. In this case, it is likely that subsurface investigation data in the vicinity of this location associated with the Proposed Project is available for review, and the specific risks to the Village can be determined and mitigated in some manner; however, the DEIS does not include any of this data and this evaluation is therefore not provided in the DEIS. The location of the substation site in relation to the Plainfield Avenue bridge is shown on Figure 3.3.

Figure 3.3 – Plainfield Avenue Bridge



3.4 Additional Documentation Needed

The DEIS is deficient because it does not provide the following information that is needed to understand the risks of hazardous and contaminated materials and evaluate whether the proposed mitigation measures and schedule are appropriate:

- Subsurface investigation data for acquisition properties, areas of proposed excavation, and locations of proposed stormwater infiltration basins;
- RAPs and CHASPs for areas of concern requiring mitigation measures; and,
- Detailed schedule information indicating the timing and duration of the actions related to assessing and managing hazardous and contaminated materials and describing any contingency plans.

3.5 Conclusions

The DEIS does not provide sufficient information to allow the Villages to understand the potential adverse impacts and evaluate the resulting mitigation measures. VERTEX concludes that subsurface investigation data should have been collected for each of the proposed areas of significant disturbance and included in the DEIS so that specific mitigation measures could be designed and presented in the DEIS, thereby allowing impacted communities the opportunity to review and comment as part of the environmental review of the Proposed Project.

4.0 Civil/Rail Design

4.1 Documents Reviewed

The following documents were reviewed to assess technical aspects of civil/rail design:

- DEIS Chapters:
  - Chapter 1 – Project Description
  - Chapter 9 – Utilities and Infrastructure
  - Chapter 12 – Noise
  - Chapter 13 – Construction
  - Appendix 1-A – Technical Memorandum
- Long Island Rail Road Expansion Project Floral Park to Hicksville Final SEQRA Scoping Document, Long Island Rail Road, August 26, 2016.

4.2 Reviews Conducted/Evaluations Performed

VERTEX conducted reviews in several areas with respect to impacts within the Villages of Floral Park, New Hyde Park, and Garden City:

- Construction Constraints – review of the preliminary design plans included in the Appendix 1-A Technical Memorandum to assess the feasibility of constructing the proposed infrastructure and the associated constraints.
- Utility Relocation – review of the Utility Relocation tables in the Appendix 1-A Technical Memorandum to evaluate the amount of utility work expected at various locations and the feasibility of relocating these utilities within the limits and constraints of the project.
- Construction Staging – review of the proposed project staging areas listed in the DEIS to assess which areas, if any, would result in impacts to the Villages of Floral Park, New Hyde Park, and Garden City.
- Noise and Vibration – review of the Noise Analysis presented in the DEIS and comparison of the expected maximum noise and vibration levels to the applicable restrictions enforced by the Federal Transit Administration (FTA) and the Villages of Floral Park, New Hyde Park, and Garden City to identify the number of properties that will potentially be adversely impacted by noise during the construction phase of the Proposed Project. Attachment B provides a graphical depiction of properties impacted by greater than allowable construction noise.

4.3 Discussion of Findings

DEIS Chapter 13 – Construction identifies a number of temporary quality of life impacts during construction in the area surrounding the tracks including the following:

- Change of land use in areas used for staging;
- Possible diversion of pedestrian access across the tracks to nearby crossings;

- Suspension of rail service on weekends;
- Additional construction worker and truck traffic;
- Roadway restrictions and closures including prevention of access across tracks in some locations;
- Nuisance noise and vibration levels at residences and other sensitive receptors; and
- Night work with associated noise, vibrations, and lighting impacts in areas where bridge replacement is required.

4.3.1 Construction Constraints/Utility Relocation

Construction constraints and utility relocation are discussed below by geographic location. These geographical locations are shown in Attachment C and the renderings are provided in Attachment D.

New Bridge at Tyson Avenue

The Proposed Project will add a single track bridge to the south of the existing bridge over Tyson Avenue. The abutments on either side of Tyson Avenue will be extended to support the bridge. The new bridge will be a prefabricated steel span that will be hoisted onto the abutments. Concrete pilings are also indicated in cross-section but are not indicated in the plan view.

New Bridge at Plainfield Avenue

The Proposed Project will demolish the existing bridge over Plainfield Avenue and replace it with a new bridge that will accommodate the three-track layout. The abutments on either side of Plainfield Avenue will be extended to support the new bridge. The new bridge will be a prefabricated steel span that will be hoisted onto the abutments.

Covert Avenue Grade Separation

The Proposed Project includes a grade separation between the LIRR tracks and Covert Avenue. The proposed configuration is for Covert Avenue to pass under the LIRR tracks, 2nd Avenue and 3rd Avenue. A ramp will connect northbound Covert Avenue to 3rd Avenue, and another ramp will connect southbound Covert Avenue to 2nd Avenue. Chapter 13 of the DEIS indicates that closure of the crossing for southbound traffic will be required for nine months. VERTEX's review of Chapter 13 of the DEIS finds that the estimated schedule may not be adequately conservative as further discussed in Section 5 of this report.

The preliminary design plans included in the Appendix 1-A Technical Memorandum show a conceptual layout of the structures that will be required to complete the grade separation at Covert Avenue. Figures 1-20 and 1-21 from the DEIS, which are included in Attachment D of this report, show renderings of the proposed configuration. Sheet DWG GCC01 of the Appendix 1-A Technical Memorandum indicates that the space in which these structures are to be installed is very compact. The travel lanes through the under pass appear to be 11 feet, the narrowest allowed by NYDOT for Collectors with high truck traffic (narrower than the 12-foot "desirable" traffic lanes as identified by NYSDOT). In areas where there is a high frequency of truck traffic, the AASHTO Policy on Geometric Design of Highways and Streets (2011) recommends either a 12-foot travel lane or that travel lanes less than 12 feet have a shoulder adjacent to the travel lane, the design for this grade separation provides neither a shoulder nor an 11-foot travel lane. The width of the retaining walls is shown to be 1 foot from the face of the toe of wall to the back of the top of wall. While technically feasible in some cases, this is an ambitiously narrow footprint for a retaining wall design. The sidewalk under the LIRR track is 8 feet wide, but in all other areas sidewalks are 5 feet wide.

If an 8-foot wide sidewalk is required under the track crossing, providing only 5-foot wide sidewalks to the approaches to the crossing would be inadequate in this context. The Federal Highway Administration (FHWA) recommends that at least a five-foot width should be maintained as a "bare minimum" to allow two people to walk together. FHWA also indicates that near schools, shopping districts, and other heavily travelled areas, a minimum width of eight feet may be more appropriate. There are neither guardrails nor handrails indicated where retaining walls are adjacent to roadways and sidewalks, and there is no space provided on Sheet DWG GCCO1 in the Technical Memorandum for these features to be added in future more detailed designs. This drawing did not show an overall scale nor did it show specific dimensions for most of the structure which made evaluation of the overall project footprint nearly impossible.

There are no underground utilities shown on the grade separation plans, but anticipated utility relocations are listed in tabular form in the Appendix 1-A Technical Memorandum. The tables indicate that four, 8-inch sanitary sewer mains and four, 8-inch water mains will be affected by the proposed work and will require relocation. Descriptions of the relocations are provided in the text of Chapter 9 of the DEIS, but no layouts have been provided, making it difficult to verify if proper clearances for these utilities can be maintained through the proposed improvements.

A new storm drainage system is proposed to serve Covert Avenue in the proposed configuration. This storm drainage system will consist of inlets attached to a 42-inch storm sewer which will discharge into a groundwater recharge chamber. The recharge chamber is anticipated to be 330-feet long by 20-feet wide constructed using three rows of 72-inch corrugated metal pipe (CMP). As proposed, the recharge chamber will be installed under 3rd Avenue at a depth of 22-feet below street level. The Appendix 1-A Technical Memorandum also provides an alternative option for the recharge chamber.

The alternative configuration is an 86-foot by 140-foot chamber built from 17-feet high precast arches to be installed at the northeast corner of Covert Avenue and 2nd Avenue. This alternative would require taking the property at that location. The Appendix 1-A Technical Memorandum states that this design is based on preliminary borings at the site, but no results or boring logs are included in the DEIS.

South 12th Street Grade Separation

The Proposed Project proposes to close the South 12th Street crossing as a first alternative. Figure 1-25 in the DEIS, which is included in Attachment D of this review, shows a rendering of the proposed configuration, which is designated "Option 1." This alternative would expand the New Hyde Park Station across South 12th Street, closing the road to traffic crossing the LIRR right-of-way (ROW) and cutting off direct access from South 12th Street to 2nd Avenue from the south and 3rd Avenue from the north. Additional parking would be installed along 2nd Avenue where the former South 12th Street ROW crossed the LIRR tracks. Chapter 13 of the DEIS indicates that full or partial street closure will be required for six months. The review of Chapter 13 of the DEIS indicates that the estimated schedule may not be adequately conservative. It is also not indicated what selection of an alternative option will have on schedule. The schedule also does not show when the pedestrian bridge, which is part of both options for this location, will be constructed in relation to street closure.

The Proposed Project proposes an alternative consisting of grade separation between the LIRR tracks and South 12th Street (i.e., does not include closure of South 12th Street). Figure 1-26 in the DEIS shows a rendering of the proposed configuration which is designated "Option 2." The proposed configuration is for a single lane of southbound traffic on South 12th Street to pass under the LIRR tracks, 2nd Avenue and 3rd Avenue. Northbound traffic on 12th Street will still be diverted. A ramp will connect northbound South 12th

Street to 3rd Avenue, and another ramp will connect southbound South 12th Street to 2nd Avenue. Direct access from South 12th Street to 2nd Avenue from the south and 3rd Avenue from the north will still be blocked in Option 2.

The plans included in the Appendix 1-A Technical Memorandum show a conceptual layout for the structures that will be required to complete the grade separation at South 12th Street. The space indicated on Sheets DWG GCC02 and DWG GCC03 of the Technical Memorandum for these structures to be installed is very compact. The travel lanes through the under pass appear to be 11 feet, the narrowest allowed by NYDOT for Collectors with high truck traffic (narrower than the 12-foot "desirable" traffic lanes as identified by NYSDOT. In areas where there is a high frequency of truck traffic, the AASHTO Policy on Geometric Design of Highways and Streets (2011) recommends either a 12-foot travel lane or that travel lanes less than 12 feet have a shoulder adjacent to the travel lane. The design for this grade separation provides no shoulder and an 11-foot travel lane. The width of the retaining walls is shown to be one foot from the face of the toe of wall to the back of the top of wall. While technically feasible in some cases, this is an ambitiously narrow footprint for a retaining wall design. The sidewalk under the LIRR track is 8 feet wide, but in all other areas sidewalks are 5 feet wide. If an 8-foot wide sidewalk is required under the track crossing at this location, providing only 5-foot wide sidewalks to the approaches to the crossing would be inadequate in this context. As indicated previously, the FHWA considers this a bare minimum. There are no guardrails nor handrails indicated where retaining walls are adjacent to roadways and sidewalks, and there is no space provided on the plans for these features to be added in future more detailed designs in the detailed layout for this grade separation as depicted in the Technical Memorandum, Sheets DWG GCC02 and DWG GCC03. This drawing did not show an overall scale nor did it show specific dimensions for most of the structure which made evaluation of the overall project footprint nearly impossible.

There are no underground utilities shown on the grade separation plans, but anticipated utility relocations are listed in tabular form in the Appendix 1-A Technical Memorandum. The tables indicate that an 8-inch sanitary sewer main and a 24-inch sanitary sewer main will need to be relocated. In addition, three, 8-inch water mains and a 6-inch water main will be affected by the proposed work and will require relocation. The Appendix 1-A Technical Memorandum also identifies a 36-inch sanitary sewer main running through the proposed improvements but states that this main will not be affected by construction. Descriptions of the relocations are provided in the text of Chapter 9 of the DEIS, but no layouts have been provided making it difficult to verify if proper clearances for these utilities can be maintained through the proposed improvements. The 24-inch sanitary sewer main is of particular concern since it serves a large number of households, and rerouting a gravity system of this size is typically expensive and may have considerable schedule impacts, which may render a grade separation infeasible at this location.

A new storm drainage system is proposed to serve South 12th Street in the proposed configuration. This storm drainage system will consist of inlets attached to a 42-inch storm sewer, which will discharge into a groundwater recharge chamber. The recharge chamber is anticipated to be 540-feet long by 30-feet wide and will be constructed using two rows of 144-inch CMP. As proposed, the recharge chamber will be installed under 3rd Avenue at a depth of 28 feet below street level. The Appendix 1-A Technical Memorandum states that this design is based on preliminary borings at the site, but no results or boring logs are included in the DEIS. Neither the location nor the layout of these facilities are indicated in the plans included in the Appendix 1-A Technical Memorandum.

New Hyde Park Road Grade Separation

The Proposed Project proposes two alternative configurations, designated Options 1 and 2, to create a grade separation between the LIRR tracks and New Hyde Park Road at the New Hyde Park Road crossing. Figures 1-30 and 1-31 in the DEIS, which are included in Attachment D of this review, show renderings of the two options. The proposed configurations are for New Hyde Park Road to pass under the LIRR tracks, 2nd Avenue and 3rd Avenue. A ramp will connect northbound New Hyde Park Road to 3rd Avenue, and another ramp will connect southbound New Hyde Park Road to 2nd Avenue. The primary difference between the options is that Option 1 calls for complete demolition of the building located at 115 New Hyde Park Road to allow construction of a parking lot and Kiss and Ride for the New Hyde Park Station. Option 2 does call for demolition of a small part of the building along New Hyde Park Road and provides a new Kiss and Ride on the south side of the tracks. Chapter 13 of the DEIS indicates that full closure of the crossing will be required for six months. The review of that chapter indicates that the estimated schedule may not be adequately conservative. It is also not indicated what selection of the alternative option will have on schedule.

Both options will permanently cut off direct access from 2nd Avenue to New Hyde Park Road. During construction, alternative rail crossings will be required from residential areas on both sides of the tracks. The closest crossing is about ¼ mile away. As indicated in the review of Chapter 10 – Transportation, analysis of traffic during construction in the DEIS is not adequate to determine traffic impacts to local residential areas.

The preliminary design plans provided in the Appendix 1-A Technical Memorandum show a conceptual layout for the structures that will be required to complete the grade separation at New Hyde Park Road The space indicated on Sheets DWG GCC04 and DWG GCC05 of the Technical Memorandum for these structures to be installed is very compact. The travel lanes through the under pass appear to be 11 feet, the narrowest allowed by NYDOT for Collectors with high truck traffic (narrower than the 12-foot "desirable" traffic lanes as identified by NYSDOT. In areas where there is a high frequency of truck traffic, the AASHTO Policy on Geometric Design of Highways and Streets (2011) recommends either a 12-foot travel lane or that travel lanes less than 12 feet have a shoulder adjacent to the travel lane, the design for this grade separation provides no shoulder and an 11-foot travel lane. The width of the retaining walls is shown to be 1 foot from the face of the toe of wall to the back of the top of wall. While technically feasible in some cases, this is an ambitiously narrow footprint for a typical retaining wall design. The sidewalk under the LIRR track is 8-feet wide, but in all other areas sidewalks are 5-feet wide. If an 8-foot wide sidewalk is required under the track crossing at this location, providing only 5-foot wide sidewalks to the approaches to the crossing would be inadequate. There are no guardrails nor handrails indicated where retaining walls are adjacent to roadways and sidewalks, and there is no space provided on the plans for these features to be added in future more detailed designs in the detailed layout for this grade separation as depicted in the Appendix 1-A Technical Memorandum, Sheets DWG GCC02 and DWG GCC03. This drawing did not show an overall scale nor did it show specific dimensions for most of the structure which made evaluation of the overall project footprint nearly impossible.

There are no underground utilities shown on the grade separation plans, but anticipated utility relocations are listed in tabular form in the Appendix 1-A Technical Memorandum. The tables in Appendix 1-A indicate that two 8-inch sanitary sewer mains, a 12-inch water main, and three 6-inch water mains will be affected by the proposed work and will require relocation. Descriptions of the relocations are provided in Chapter 9 of the DEIS, but no layouts are provided, making it difficult to verify if proper clearances for these utilities can be maintained through the proposed improvements.

A new storm drainage system is proposed to serve New Hyde Park Road in the proposed configuration. This storm drainage system will consist of inlets attached to a 42-inch storm sewer, which will discharge into a groundwater recharge chamber. The recharge chamber is anticipated to be constructed using nine rows of 144-inch CMP. As proposed, the recharge chamber will be installed under the Kiss and Ride Lot proposed on the east side of New Hyde Park Road at a depth of 31 feet below street level. The Appendix 1-A Technical Memorandum also provides an alternative option for the recharge chamber. The alternative configuration is a 140-foot by 210-foot chamber built from 17-feet high precast arches to be installed at the same location as above. The Appendix 1-A Technical Memorandum states that this design is based on preliminary borings at the site, but no results or boring logs are included in the DEIS. Neither the location nor the layouts of these facilities are indicated in the plans included in the Appendix 1-A Technical Memorandum.

New Bridge at Denton Avenue

The Proposed Project will demolish the existing bridge over Denton Avenue and replace it with a new bridge that will accommodate the three-track layout. The abutments on either side of Denton Avenue will be extended to support the new bridge. The new bridge will be a prefabricated steel span that will be hoisted onto the abutments.

New Bridge over Nassau Boulevard

The Proposed Project will demolish the existing bridge over Nassau Boulevard and replace it with a new bridge that will accommodate the three-track layout. The abutments on either side of Nassau Boulevard will be extended to support the new bridge. The new bridge will be a prefabricated steel span that will be hoisted onto the abutments.

Retaining Walls and Sound Attenuation Walls

According to the Appendix 1-A Technical Memorandum, approximately 8,050 linear feet of retaining walls and 8,550 linear feet of sound attenuation wall will be installed along the LIRR ROW within the Villages of Floral Park, New Hyde Park, and Garden City. The plans provided indicate that both sound attenuation walls and retaining walls are to be placed at, or very close to, the edge of LIRR ROW, which may prove problematic since, in some cases, the retaining walls will need to occupy more than the 1-foot width shown on the plans and the foundations for these walls are typically wider than the widths of the walls.

Regarding drainage and ponding that will potentially impact adjacent properties as a result of the installation of retaining walls and sound attenuation walls, Chapter 9 in the DEIS (Pages 9-11) states that in areas where the track improvements would cause additional runoff to flow onto adjacent properties they would construct a system of drainage ditches and underdrains to capture these flows before they leave the LIRR ROW. As with all the other underground utilities, there is no actual layout for these improvements in the plan set. However, in the cases where sound walls might block drainage from entering the ROW from adjacent properties, the DEIS does not explore this possibility and so no impact mitigation is described in the DEIS, nor are they indicated on the plans provided in the Preliminary Engineering Technical Memorandum. LIRR should not block historic drainage patterns, if the ROW is currently accepting flows from adjacent properties; they must accept them in the proposed condition. The DEIS should at least acknowledge that the proposed sound attenuation walls will likely cause ponding or alter drainage patterns on adjacent properties and contain descriptions of appropriate mitigation strategies.

4.3.2 Construction Staging

According to the DEIS, much of the material and equipment staging for the project will be accomplished within the LIRR ROW; however, there are additional staging areas indicated outside the LIRR ROW within the Villages. The following sites appear to impact the Villages:

- Western End of 3rd Avenue between Covert Avenue and Wayne Avenue – staging in this area will require this portion of the 3rd Avenue right-of-way to be closed to traffic during the time that materials and equipment are stored at this location.
- Portions of the station parking on 3rd Avenue east of Baer Place – staging in this area will reduce the parking available to New Hyde Park Station while material and equipment is stored in this area
- Commercial property at 115 New Hyde Park Road which would require acquisition – this property is shown to be the location of a proposed parking area in the plans provided.

4.3.3 Noise and Vibration

The DEIS lists the FTA regulations regarding decibel levels near residential and commercial properties and further states that these regulations will be adhered to wherever possible. However, several items on the list of typical equipment to be used will cause greater than allowable decibel levels at several of the surrounding properties. In the absence of site-specific noise analysis in the DEIS, VERTEX performed a rudimentary evaluation of the sound impacts during construction which identified the following probable exceedances:

- Floral Park – 57 properties will potentially experience greater than acceptable decibel levels during daytime work and 172 properties will potentially experience greater than acceptable decibel levels during nighttime work;
- New Hyde Park – 82 properties will potentially experience greater than acceptable decibel levels during daytime work and 228 properties will potentially experience greater than acceptable decibel levels during nighttime work; and
- Garden City – 63 properties will potentially experience greater than acceptable decibel levels during daytime work and 178 properties will potentially experience greater than acceptable decibel levels during nighttime work.

A graphical representation of VERTEX's evaluation of the construction noise impact zone is provided in Attachment B.

Chapter 13 of the DEIS indicates that night work will be avoided "when practical and feasible," but does not provide specific indications of locations or conditions where night work may be necessary or an estimated schedule of when it may be needed.

Chapter 13 of the DEIS proposes a general list of measures to mitigate noise and vibration impacts to surrounding properties which are typical of this type of construction, but does not indicate specific locations where they should be used. Moreover, it does not identify specific site conditions or constraints along the project which would make certain mitigation strategies difficult or impossible to implement. A prime example of this would be the use of temporary sound attenuation walls during the construction phase where the permanent sound attenuation walls are installed, since the location of temporary walls could not be placed within the project limits.

The Floral Park Recreational Center Pool Complex is of particular concern for both noise and vibrational impacts as portions of the pool are within the noise impact zones discussed above as well as the 100-foot zone anticipated in the DEIS where some of the construction equipment will exceed the 72VdB vibration ceiling for institutional properties. Users of the pool will be impacted by construction vibration, thus specific mitigation for construction vibration should be discussed in the DEIS for vibration mitigation during the operating hours of the pool.

The DEIS did not include drafts of the noise control plan or the vibration control plan. Also, no list of potentially sensitive sites, such as adjacent parks or institutions, was included in the DEIS. Finally, no analysis of potentially affected properties was given in the DEIS.

4.3.4 General Plan Errors

In addition to the specific design deficiencies discussed in this Section, there are fundamental errors and discrepancies throughout the DEIS that suggest that the overall design is not in a complete enough state to be properly evaluated. The following is a list of examples where the DEIS document has internal conflicts about the scope of the Proposed Project:

- A passage in Chapter 13 of the DEIS describes a proposed parking garage at the South 12th Street Crossing, but this parking garage is not indicated on the plans provided in the Technical Memorandum.
- Stationing for Sound Attenuation Walls shown in Chapter 13 does not match the stationing given in the Plans in the Technical Memorandum.
- Handrails and guardrails shown in the renderings of the grade separations given in Figures 1-20, 1-21, 1-25, 1-26, 1-30, and 1-31 of the DEIS do not show up in the Plan Sheets (DWG GCC01-05) detailing the same grade separations in the Technical Memorandum. Furthermore, no space is reserved in the layouts in the Technical Memorandum to add these features at a later time.
- The Details for the grade separations shown in the Technical Memorandum do not have drawing scales, and many of the structures are not dimensioned (e.g., lanes, sidewalks, and retaining walls), thus an evaluation of the physical footprint of these features is not possible.

Although this list is not comprehensive, it shows large inconsistencies that make evaluation of impacts from the Proposed Project nearly impossible for trained professionals, let alone the general public. As such, the presence of these errors in the DEIS do not meet the objectives of the SEQR which states that plans "should contain enough detail on size, location and elements of the proposal to allow a reader to understand the proposed action, the associated impacts, and to determine the effectiveness of any proposed alternatives or mitigation."

4.4 Additional Documentation Needed

The following information is needed to more accurately assess the feasibility of the plans presented in the DEIS:

- An addition to the schedule that shows when streets and grade crossings will be closed to pedestrian and vehicle traffic, the pedestrian bridge at South 12th Street will be constructed, and night work may be required.

- Conceptual Plans that include the proposed layout of relocated underground utilities.
- Conceptual plans that show the location and extent of proposed drainage facilities in relation to proposed surface improvements and existing underground utilities.
- Conceptual Noise and Vibration Control Plans that specifically analyze noise impact to the properties surrounding the project site and propose solutions specific to the conditions that exist in the impact area.
- Soils reports that evaluate subsurface soil properties, particularly soil percolation rates in the soils that will receive stormwater from the proposed recharge chamber.
- Reports or as-built plans that show the location and depth of existing sanitary and storm sewer that are affected by the proposed infrastructure so that the impacts and solutions presented in the DEIS can properly be evaluated.

4.5 Conclusions

The following summarizes the deficiencies identified Civil/Rail design aspects of the Proposed Project:

- Grade Separations – The proposed improvements associated with the grade separations will likely require more space than is indicated on the plans provided in the Appendix 1-A Technical Memorandum. This is evidenced by the smaller than standard space allotted to traffic lanes and the structural elements in the layout for all three proposed grade separations. Furthermore, certain design elements such as handrails and guardrails are not indicated, and, more importantly, no space is reserved in the conceptual layouts provided in the DEIS for these design elements to be included in the future refinements of the plans. In addition, the plans, as presented, do not appear to account for the traffic and engineering standards, such as NYDOT standards for curb and gutter, curb return radii, guardrail placement, etc., which will apply to the proposed roadway improvements. Due to these factors, more land will need to be acquired and/or included in the design to accommodate the proposed improvements or a redesign will need to be performed to find a solution that is effective and meets at least minimum standards

- Utility Relocation – There is a high probability that utility relocation will require more space than provided in the project limits and that the time and expense required to reroute some of the utilities may significantly add to the physical and budgetary footprint of the project as presented in the DEIS. An example of this is the proposal at the 12th Avenue Crossing to reconfigure the 24-inch sewer main so that it does not cross the LIRR ROW. To accomplish this change while conveying flows to their proper outfall, the project may need to incorporate a lift station, a significant rerouting of this large sewer line, or both. Neither of these alternatives is contemplated in the DEIS. A significant number of utilities will be affected by the proposed grade separations. Water lines and sewer lines require 10 feet of separation per New York Department of Health and the New York Department of Transportation. In addition to the horizontal constraints, gravity-flow sanitary sewers must maintain proper slopes to function properly. Given the large number of water and sanitary sewer mains affected and the limited space provided in the areas of the grade separations, routing these utilities will need further evaluation and may be extremely difficult, especially given the addition of obstructions, such as retaining walls and bridge abutments. Similarly, there is no

mention of how these relocations will be performed to avoid the 42-inch storm sewer required at each crossing, nor is there any assessment of the impact on existing utility systems of installing deep, large recharge chambers that are proposed to be constructed in public ROW near the crossing at Covert Avenue and the crossing at South 12th Street.

The DEIS provided no layouts for the proposed utility relocations, and therefore, it is not possible to determine whether the proposed utility relocations are feasible. An example of this is the 24-inch sewer main at the South 12th Street crossing. For the grade separation alternative, the DEIS proposes splitting the flow in this pipe so that it no longer crosses the LIRR ROW; however, because no information is given about the depth, slope, flow, or alignment of the 24-inch sanitary sewer main, it is not feasible to determine how much effort or funding would be needed to accomplish this sewer system redesign.

- Bridge Conclusions – In reference to the construction of rail road bridges along the project corridor, the DEIS discusses some of the traffic impacts during construction, such as full road closures during the placement of the steel span but the partial road closures required to complete improvements to the bridge abutments are not contemplated in the DEIS. Partial lane closures should be included in the impact assessment, as they will significantly impact traffic patterns during construction.

- Retaining and Sound Attenuation Wall Conclusions – Throughout the project, retaining walls and sound attenuation walls are placed at the LIRR ROW boundary. This design for the walls does not acknowledge potential impacts to neighboring properties. A particular design deficiency is that the foundations for the walls may not be wholly contained on LIRR ROW and that construction equipment may require temporary access to neighboring properties to complete the construction of the walls, if they are placed at the locations depicted in the plans.

- Staging Area Conclusions – The DEIS does not adequately explore the impacts of using proposed sites for staging, particularly the closing of public parking spaces and streets within the Villages. For the most part, the proposed staging areas for this project will be on LIRR ROW and ancillary properties. However, the staging areas at 3rd Avenue between Covert Avenue and Wayne Avenue and portions of the parking area for Garden City Station on 3rd Avenue east of Baer Place requires that LIRR utilize property and ROW outside its control. These areas are listed in the DEIS but no mention is given to the negative impacts that will result in their use, and no solutions are presented to mitigate potential impacts. The DEIS specifically mentions closing 3rd Avenue between Covert Avenue and Wayne Avenue to use it as a staging area, but does not mention the potential impacts to traffic in the area or the impacts to homeowners on bordering the staging area. The DEIS also mentions using portions of the station parking at the Garden City Station but does not offer any means to alleviate the impact to potential riders using the station.

- Noise Conclusions – The DEIS does not present any site-specific analysis nor does it offer any site specific solutions to the noise impacts that will occur during the construction of this project. There is no analysis presented in the DEIS which explores potential impacts relating to this particular project. The DEIS only presents applicable noise limits and discusses the general noise potential from the anticipated equipment to be used during the construction of the Proposed Project.

Furthermore, the DEIS does not identify any key areas where noise impacts would be a major concern, such as neighboring educational, institution, and recreation properties. Neither does the DEIS specifically state that there are no key areas of concern regarding noise impacts, and, therefore it seems that an audit for noise sensitive sites for this project has not been performed. The DEIS lists many noise mitigation techniques but does not assess how the techniques may be applied or which mitigation practices would be suitable for the specific conditions of the Proposed Project. Because the DEIS does not present site-specific analysis of noise impacts and does not include a noise mitigation plan, the impacts associated with noise on the Villages of Floral Park, New Hyde Park, and Garden City have not been determined and appropriate mitigation measures have not been identified.

5.0 Construction Schedule

5.1 Documents Reviewed

The following documents were reviewed to evaluate the construction schedule:

- DEIS Chapters
  - Executive Summary
  - Chapter 1 – Project Description
  - Appendix 1-A: Draft Preliminary Engineering Technical Memorandum
  - Chapter 9 – Infrastructure
  - Chapter 13 – Construction
  - Chapter 18 – Alternatives

5.2 Reviews Conducted/Evaluations Performed

VERTEX evaluated the reasonableness of the proposed construction schedule and overall estimated project duration based on the information provided in the DEIS. To do this, VERTEX conducted a preliminary schedule constructability analysis of the Proposed Project to evaluate the reasonableness of the project plan from a construction management perspective. VERTEX performed this analysis based on the information available and based on a review of reasonably comparable benchmark projects. This review involved an assessment of the proposed construction schedule and overall estimated project duration, and an evaluation of the duration estimates for different stages of work. VERTEX then identified the areas of concern and shortcomings of the proposed construction schedule from a planning and scheduling perspective.

5.3 Discussion of Findings

VERTEX's assessment of the DEIS document from a planning and scheduling perspective identified several shortcomings in the recommended construction schedule. It also identified that the proposed construction schedule has not been developed using standard scheduling techniques and recommend practices appropriate for a project that is at the preliminary design stage. Project management standards provide a shared knowledge base from which maturity of project management practices can be established "to ensure that materials, products, processes and services are fit for their purpose" (ISO, 2017). As such, VERTEX evaluated the proposed construction schedule based on the requirements of the schedule development standards defined by the Project Management Institute (PMI) and the Association for the Advancement of Cost Engineering (AACEi), as two of the recognized project management bodies.

The main shortcomings of the proposed construction schedule are as follows:

- A schedule basis memorandum is not provided.
- The DEIS does not provide a complete listing of the estimated physical work quantities (i.e., preliminary quantity takeoff) and a preliminary project cost estimate.
- Estimated durations of some project activities are unknown.
- Adequate contingency reserves are not built into the proposed construction schedule; and the DEIS does not demonstrate that the proposed construction schedule is prepared using a conservative approach.

- The schedule does not identify the time impact of pursuing alternative options that are being considered for grade crossing elimination.

The reasonableness of the proposed construction schedule and overall estimated project duration cannot properly be evaluated until these shortcomings are remedied. Below, each of the above-listed shortcomings are discussed in more depth:

- **Schedule Basis Memorandum** – A schedule basis memorandum is not provided in the DEIS. A schedule basis memorandum should be prepared in parallel with developing a project schedule to thoroughly document the basis of the planned schedule in a narrative format. At a minimum, a schedule basis memorandum documents the assumptions made, inclusions and exclusions, key milestone dates, and key schedule and resource constraints considered and included in developing the schedule. The schedule basis memorandum provides crucial information to project stakeholders and effectively communicate the assumptions and rationale utilized to develop the project schedule. It also provides indications of activity risk allowances and the level of risks and uncertainty used to establish schedule contingency. [2]

  The DEIS; however, does not provide a schedule basis memorandum to identify, among other things, the underlying assumptions used to develop the Proposed Project schedule and to provide information about project key constraints considered in developing the schedule or contingencies built into the schedule. For instance, the following items are unclear: (i) when design and engineering of each work package is supposed to be complete, (ii) key milestone dates related to the long-lead items, (iii) intended project resource requirements or constraints, and (v) if the project schedule takes any schedule constraints into account (e.g., the constraints related to the permitting process or availability of special services). Absent a schedule basis memorandum, the accuracy of the Proposed Project schedule cannot be determined/verified.

- **Estimated Physical Work Quantities and Preliminary Project Cost Estimate** – The DEIS does not provide a complete listing of the estimated physical work quantities (i.e., preliminary quantity takeoff) and a preliminary project cost estimate. Activity durations are typically estimated by dividing total quantities of work by average production rates for executing each type of work. However, the DEIS provides neither a complete listing of the estimated physical work quantities

[2] The PMBOK Guide® (PMI, 2013) defines basis of estimates as follows: *Supporting documentation outlining the details used in establishing project estimates such as assumptions, constraints, level of detail, ranges, and confidence levels.* The PMBOK Guide lists the schedule basis memorandum among the outputs of the Estimate Activity Durations process and identifies "{assumptions made in developing the activity duration estimate, such as skill levels and availability, as well as a basis of estimates for durations" as part of project documents updates (p. 171). Similarly, AACE (2009) states: *The requirement to document the basis of the schedule has been an established procedure for several years with many large corporations, and some federal agencies… By documenting the schedule basis, the project team captures the coordinated project schedule development process, which is by nature unique for most construction projects. This improves the final quality and adds value to the project baseline schedule, which serves as the time management navigation tool to guide the project team toward successful project completion.* Among other benefits, Stephenson (2007) identified improved pre-planning efforts, improved understanding of project scope, deliverables and responsibilities, increased confidence in project execution, maximized quality and minimized rework, effective historical reviews, and efficient validation process as some of the benefits that are realized by using a schedule basis memorandum.

nor the expected average production rates. Therefore, the DEIS does not provide adequate information about work quantities and expected production rates to demonstrate that the estimated activity durations are properly determined. Absent this information, activity durations cannot be validated with sufficient accuracy.

The reasonableness and adequacy of the estimated activity durations cannot properly be verified without a preliminary project cost estimate. The DEIS does not provide a preliminary project cost estimate to provide estimated work quantities and identify estimated quantity of resources required to complete the project. This information assists in identifying the levels of effort required to complete each section of the project.

- **Estimated Duration of Project Activities** – The estimated durations of some project activities are not provided in the DEIS. The proposed construction schedule provided in Chapter 13 of the DEIS does not include some of the project activities identified as part of the scope of the Proposed Project. For instance, the proposed schedule neither includes engineering and procurement activities nor provides milestones to identify the expected start or completion date of key stages of work such as stages of design development, detailed design, and long-lead items. As such, the estimated duration of these activities or planned dates of milestones are unknown.

  As another example, the proposed construction schedule does not specify the proposed timeline for enhancing the traction power substations[3]. It appears that the track work (e.g., Activities No. 8, 16, 25, 36, and 41) includes the work needed to enhance traction power substations; however, this supposition is yet to be verified. Other examples of activities and milestones that could be added to the project schedule include land acquisitions and procurement of long-lead items.

- **Contingency** – Adequate contingency is not built into the proposed construction schedule. Some of the challenges of the Proposed Project include complications due to relocation of utilities, setting-up maintenance and protection of traffic, road closures, and the need for special services to minimize track outages for properly performing activities that affect rail operations. Due to these complexities, it is reasonable to expect that adequate contingency be built into the schedule. However, it is unclear why the proposed schedule chooses optimistic durations for some activities even in cases where the DEIS documents provide a range of most-likely durations. For instance, Section D in Chapter 13 of the DEIS states:

  > *"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."*

  Nevertheless, the estimated duration for executing the Covert Avenue underpass in the proposed construction schedule is chosen optimistically, and the shorter and approximate duration of 9 months is chosen for this activity as opposed to the longer or most-likely durations. Although the DEIS provides such assessments to identify a range of most-likely durations, it is unclear why the DEIS optimistically assigns the shorter activity duration (i.e., optimistic duration) to the activity in reference. As another example, Section D in Chapter 13 of the DEIS states:

[3] The Executive Summary of the DEIS indicates that, with the exception of the Floral Park Substation, the LIRR traction power substations within the project limits need to be enhanced to accommodate the new third track (p. S-10).

> *"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."*

Nonetheless, the estimated duration for executing the Denton Avenue Bridge (Activity 33) in the proposed construction schedule is optimistically chosen and the shorter and approximate duration of 4 months is assigned to this activity as opposed to most-likely or conservative durations that could be used.

Section D in Chapter 13 of the DEIS states that "it is conservatively assumed that construction of the Proposed Project would take approximately four years"; nonetheless, the DEIS does not demonstrate that the proposed construction schedule is prepared using a conservative approach. The estimated activity durations could be determined based on a time-cost trade-off analysis to demonstrate reasonableness of activity durations given the estimated total cost of the project.

In addition, a schedule risk analysis is not provided along with the proposed construction schedule and as such, it is unclear if the estimated activity durations are risk-adjusted to ensure adequate durations are assigned to each project activity in light of the risks that may adversely influence the project schedule over the course of the project.[4] In addition to contingency reserves, management reserves[5] may also be used to address unidentified risks.

As with all major site work projects, the potential for differing site conditions exist. The DEIS acknowledges this risk on Page 13-3:

> *"Given the past land use history of this area, contaminated soil and/or groundwater may be encountered."*

[4] Attara (2015) found that correlation exists between the cost overrun of railroad bridge construction projects and certain key factors. Examples include track outage constraints restricting work schedule, delay in obtaining necessary approvals, right-of-way permits and site access approval, restricted working schedules, unforeseen field conditions, design changes, and delay of long lead fabrication and delivery times. Since these issues are expected to adversely affect the Project, it is reasonable to build more contingency reserves into the schedule to ensure adequate time is allowed in the schedule to respond to potential risk factors. A contingency reserve is typically applied to duration estimates to protect the schedule against identified risks, likely changes in scope or changed conditions. Collins and Rowe (2005) identified utility relocation, unforeseen site conditions, unfavorable regulatory decisions, design and management services, and real estate acquisition among the key risk factors, in order of cost impact, that adversely affect transit projects; and stated the following: *besides the typical risks present in capital improvement projects, transit projects present a unique combination of challenges arising from their large size, extensive utility relocation effort, massive right-of-way acquisition phase, and considerable scrutiny by agencies, municipalities, and the public. (p. PM.15.6).* Collins and Rowe (2005) added: *With an understanding of the unique aspects of transit projects, project managers can seek to mitigate risks where possible, and to build sufficient contingency into baseline budgets to offset those that remain. By addressing the risks, transit project managers can reap the rewards of successful on time and on budget project delivery. (p. PM.15.6).*

[5] The PMBOK Guide (PMI, 2013) defines management reserve as follows: *Management reserves are a specified amount of the project duration withheld for management control purposes and are reserved for unforeseen work that is within scope of the project. Management reserves are intended to address the "unknown-unknowns" {unidentified risks} that can affect a project. Management reserve is not included in the schedule baseline, but it is part of the overall project duration requirements. Depending on contract terms, use of management reserves may require a change to the schedule baseline.*

Soil conditions are critical to the schedule for a project such as the Proposed Project. Soil excavation rates can vary considerably based on subsurface conditions. The DEIS acknowledges the subsurface investigation have not been performed in any of the Proposed Project areas. The final design, and thus the construction requirements, for the Proposed Project will heavily depend on the results of the subsurface investigations. As such, it is unclear how the DEIS determined the construction durations for this work. Not knowing the existing conditions at each of the proposed sites presents a significant schedule risk.

Similarly, the presence of unknown existing utilities is highly probable given the project area. It is extremely likely that the design-build contractor will encounter previously unidentified utilities during the course of the construction. When this occurs, work in the particular area must stop until an action plan is developed and can be implemented. It is very common for existing utility surveys to omit certain work that exists in the area. These occurrences can significantly impact the project schedule in multiple ways.

The DEIS also notes that a survey for Asbestos Containing Materials (ACM) has not yet been conducted. Depending on the results of such a survey, significant abatement work may or may not be required. These unknown conditions pose significant schedule risk that is not acknowledged in the DEIS.

- **Grade Crossing Elimination Options** – The schedule does not identify the time impact of pursuing alternative options that are being considered for grade crossing eliminations. The DEIS indicates that alternative plans are being considered at the grade crossings. For instance, the DEIS provides two alternative plans to execute the South 12th Street Crossing (Option 1 is permanent crossing closure with pedestrian bridge, and Option 2 is a one-way underpass with sidewalk and pedestrian bridge). However, the DEIS document does not identify the time impact of these alternative plans being considered. Since work quantities vary depending on the alternative plan that will be chosen in each location, it is important to identify the time impact of pursuing each option.

5.4 Additional Documentation Needed

Based on the foregoing, the following additional documents are needed to support the details provided in the proposed construction schedule:

- The schedule basis memorandum
- A complete listing of the estimated physical work quantities (i.e., preliminary quantity takeoff)
- A preliminary project cost estimate prepared based on a work breakdown structure (WBS)
- Schedule risk assessment report

5.5 Conclusions

The recognition of unique aspects of transit projects, such as challenges with constructing the civil and systems infrastructure, acquiring right-of-way, and relocating utilities, as well as associated schedule and cost risks, early in project development, is crucial to successful project delivery. The review of the DEIS and the proposed construction schedule contained in Chapter 13 of the DEIS finds that the basis of the proposed construction schedule is not properly supported or documented, and the DEIS provides neither a complete listing of the estimated physical work quantities (i.e., preliminary quantity takeoff) nor a

preliminary project cost estimate to identify the levels of effort required to complete each section of the project. This review further finds that the claimed conservativeness of the proposed schedule is not established and that more contingency reserves should be built into the proposed construction schedule. The reasonableness of the proposed construction schedule and overall estimated project duration cannot properly be assessed until the shortcomings outlined in the DEIS are remedied.

Because the Villages will experience a wide array of impacts such as noise and traffic impacts during the construction of the Proposed Project, understanding the duration of these impacts is critical to determining incremental impacts on the affected communities. Because the DEIS does not demonstrate that the schedule was developed using standard scheduling techniques and practices appropriate for a project that is at the preliminary design stage, the schedule presented in the DEIS cannot be viewed as reliable. For this reason, the DEIS does not adequately identify the duration of the construction impacts to be experienced by the Villages.

6.0 Traffic

This section of the DEIS review was prepared by NV5 under subcontract to VERTEX.

6.1 Documents Reviewed

- The following documents were reviewed to assess the adequacy of the traffic analysis provided in the DEIS:
    - DEIS Chapters:
        - Executive Summary
        - Chapter 10 – Transportation
        - Chapter 13 – Construction
        - Appendix 1-A - Preliminary Engineering Technical Memo (Pages 166-170)
        - Appendix 10 – Transportation
        - Appendix 13 – Construction
    - LIRR Expansion Project – Ridership Forecast Methodology & Analysis (undated)

6.2 Reviews Conducted/Evaluations Performed

- Overall Traffic Analysis
- Anticipated Growth in Peak Hour Ridership
- Bus Operations
- Vehicle Crash Frequency
- Overall Parking Analysis
- At Grade Crossing Elimination Review
    - Existing Traffic Counts
    - Study Area
    - Volume Comparisons
    - Level of Service Analysis
    - Proposed Mitigation Measures
        - Covert Avenue & Jericho Turnpike
        - New Hyde Park & Jericho Turnpike
        - New Hyde Park Road & Clinch Avenue
        - New Hyde Park Road & Plaza Avenue
        - Emergency Access at South 12th Street
- Construction Level of Service Analysis
    - New Hyde Park Road Crossing Elimination
    - Covert Avenue Crossing Elimination

6.3 Discussion of Findings

6.3.1 Overall Traffic Analysis

Page 10-35 of the DEIS indicates that significant traffic impacts are defined as increases in vehicular delays in excess of 10 seconds where conditions are at unacceptable Level of Service and that this threshold is consistent with the methodology used in the LIRR's East Side Access Project. While this Level of Service threshold may be appropriate for New York City based traffic analyses, Level of Service criteria consistent with the requirements of Nassau County and their constituent agencies should be utilized to determine mitigation thresholds. *(Note: this may result in more lenient criteria, since NYC is typically known for more stringent impact criteria.)*

The Build Condition traffic methodology states that projections include additional commuter trips by car that park at the station, with a footnote that the study will be updated once parking plan is complete. The changes to findings based on the parking plan cannot be estimated based on the available information.

Caption from DEIS Page 10-35

> [1] The traffic analyses are based on the parking plan detailed in the Final SEQRA Scoping Document. The traffic study will be updated once the final parking plan for the Proposed Project has been established.

Because the parking plan has not been updated, the projections used in the traffic impact analyses are incomplete and do not identify the associated traffic impacts created by the Proposed Project. Since impacts are not adequately identified, then there is no basis to determine whether currently proposed mitigation measures are adequate or if additional mitigation is necessary.

6.3.2 Anticipated Growth in Peak Hour Ridership

Page 10-13 of the DEIS states "With the Proposed Project…peak direction ridership would not increase," and instead assumes that all anticipated ridership growth will occur whether the project is constructed or not. Contrary to this assumption, Page 10-14 of the DEIS states "the Proposed Project improvements are fundamental to sustaining the ridership forecasts." These statements/assumptions are inherently in conflict and indicate that the traffic analysis is flawed. Since the Proposed Project is what is making the anticipated ridership growth possible, including anticipated growth associated with the East Side Access project, at least some portion of the projected ridership growth should be considered as part of the 2020 and 2040 Build Conditions, and mitigated as appropriate. Furthermore, Page 10-14 of the DEIS goes on to state "…there is also further potential for additional ridership growth as a result of improved on-time performance." This additional ridership growth was not considered in the DEIS and mitigation measures associated with any growth in ridership due to increased on-time performance were not considered.

Because the anticipated ridership growth has not been accounted for, the traffic impact analyses is incomplete and does not identify the associated traffic impacts associated with the Proposed Project.

Furthermore, the analysis methodology for the 2020 and 2040 Build Condition, as shown in the first caption below, states that there will be additional trips with the project. Also, as shown in the second caption below, the volumes estimated are unrealistically low to support a credible traffic impact analysis. For example, the analysis assumes zero additional taxi trips.

There is no discussion of Floral Park in any of the traffic analysis.

Caption from DEIS Page 10-52

FUTURE CONDITIONS WITH THE PROPOSED PROJECT (YEAR 2040)

METHODOLOGY

The evaluation of future conditions with the Proposed Project in year 2040 includes additional vehicular traffic that would be generated by additional trains operated with the Proposed Project. This includes commuter trips by car who park at the station[1], auto drop-offs or pick-ups, and taxi trips serving new commuters either in the peak or reverse-commute peak direction. It also

Caption from DEIS Page 10-53

NEW HYDE PARK STATION AREA

In addition to traffic diversions that would result from the grade crossing configurations in 2040, station ridership projections for the 2040 condition with the Proposed Project are as follows:

- Additional vehicle trips by new LIRR riders who would drive and park at the station—1 vehicle leaving the station in the AM peak hour and 3 in the PM peak hour (2 vehicles to the station and 1 from the station).
- Additional auto pick-up or drop-off trips serving new riders—6 in the AM peak hour (3 vehicles to and from the station) and 10 in the PM peak hour (5 vehicles to and from the station).
- There would not be any additional projected taxi trips serving new riders.

Caption from DEIS Page 10-14

Table 10-7
Overall Ridership in the Study Area

Time Period	2015 Existing Conditions		2020 No-Build (w/o ESA)		2020 Build (w/o ESA)		2040 No-Build (w/ ESA)		2040 Build (w/ ESA)	
	West-bound	East-bound	West-bound	East-bound	West-bound	East-bound	West-bound	East-bound	West-bound	East-bound
AM Peak Period	45,600	5,060	48,650	5,400	48,650	6,315	76,240	6,990	76,240	8,235
PM Peak Period	5,600	37,190	6,085	40,395	7,115	40,395	8,465	67,470	9,905	67,470

Source: LIRR 2015.

6.3.3 Bus Operations

Page 10-2 of the DEIS acknowledges that changes to the Nassau Inter-County Express (NICE) bus service could be required due to the increased ridership associated with the Proposed Project, but no formal analysis of these impacts was conducted in the traffic analysis. Increased bus operations, with stop and start service in congested areas, such as Floral Park, New Hyde Park and Garden City, can have a significant adverse impact on traffic flow, particularly during peak hours. Yet, despite the DEIS's acknowledgment that bus

operations would increase, the issue is not even addressed, let alone studied. The LIRR and their design team should have, at a minimum, explored with NICE staff that there are no impediments to increasing bus service should the Proposed Project move forward, and addressed any adverse impacts to the transportation system as a result of additional buses.

Because discussions with NICE are not presented in the DEIS, the traffic impact analysis is incomplete since it does not identify the impacts caused by increased bus traffic associated with the Proposed Project, nor identify mitigation measures that should be implemented to address those as yet unidentified impacts.

6.3.4 Vehicle Crash Frequency

Table 10-41 on Page 10-77 of the DEIS enumerates the number of crashes at a number of locations along the rail corridor, but only discusses a reduction in train related crashes anticipated by the closure of the at-grade rail crossings. The DEIS does not discuss the impact of the project on any other crash types within the Study Area such as potential increases in vehicular crash rates due to the changes in traffic patterns associated with the Proposed Project, such as the rerouting of traffic from South 12th Street to Covert Avenue and New Hyde Park Road with the closure of the South 12th Street at grade rail crossing. This includes both temporary crash impacts during construction and permanent impacts associated with the Proposed Project.

Because an analysis of the changes in crash patterns are not presented in the DEIS, the traffic impact analysis is incomplete since it does not identify the crash rate impacts associated with the Proposed Project, nor identify mitigation measures that should be implemented to address those as yet undetermined crash rate impacts.

6.3.5 Overall Parking Analysis

Comparing the text on Page 10-67 and Table 10-37 of the DEIS, there are discrepancies in Table 10-37. There are a total of 637 spaces available for commuters, including on-street and off-street spaces. Table 10-37 of the DEIS shows all spaces as Off-Street Spaces, while some of these are actually on-street spaces, and spaces beneath the station. These discrepancies should be addressed and the corrected information provided for further review to determine if adequate on street parking is available at the Floral Park Station.

Page 10-70 of the DEIS states that the project is not anticipated to increase the need for parking, even though additional trains and additional ridership are anticipated, since the additional eastbound trains would reduce the overall parking need. This is counterintuitive. A parking analysis was not provided to justify this statement, and should be provided to explain how adding trains and patrons can result in decreased parking demand. In addition, Tables 10-38 and 10-39 both show projected additional demands, as shown in DEIS Tables 10-38 and 10-39 provided below, further undermining the claimed assumptions regarding parking needs. Furthermore, the design for the Proposed Project includes new parking facilities at various stations (i.e., New Hyde Park, Mineola, Westbury, and Hicksville) indicating that demand for parking is increasing.

Finally, the East Side Access comes on line in 2022/2023 and the increment due to that improvement is not reflected in 2020 projections.

Note: An EIS evaluates impacts between a "No-Build" and "Build", so it could be argued that the Proposed Project is not the cause of these increased demands, therefore the projected shortfalls will exist with, or without the Proposed Project. However, as discussed above, DEIS itself acknowledges that the Proposed Project is fundamental to sustained ridership growth. Therefore, additional parking demand should be considered "an impact" associated with the Proposed Project.

DEIS Tables 10-38 and 10-39: 2020 and 2040 Parking Demand without Proposed Project

Table 10-38
Projected Year 2020 Parking Demand without the Proposed Project

Station	Year 2020 Off-Street Capacity	Existing Off-Street Usage	Projected Additional Demand	Projected Total Demand	Projected Parking Space Shortfall
Floral Park	637	529	32	561	0
New Hyde Park	488	471	34	505	17
Merillon Avenue	121	121	14	135	14
Mineola	1,526	1,419	97	1,516	0
Carle Place	13	13	7	20	7
Westbury	577	571	49	620	43
Hicksville	3,634	3,567	279	3,846	212

Table 10-39
Projected Year 2040 Parking Demand without the Proposed Project

Station	Year 2040 Off-Street Capacity	Year 2020 Off-Street Usage	Projected Additional Demand	Projected Total Demand	Projected Parking Space Shortfall
Floral Park	637	561	314	875	238
New Hyde Park	488	505	345	850	362
Merillon Avenue	121	135	138	273	152
Mineola	1,526	1,516	986	2,502	976
Carle Place	13	20	76	96	83
Westbury	577	620	499	1,119	542
Hicksville	3,634	3,846	2,831	6,677	3,043

Table 10-38 on Page 10-70 of the DEIS, provided above, identifies projected parking shortfalls at New Hyde Park and Merillon Avenue, as well as other stations along the corridor in 2020 which are not ameliorated by the Proposed Project. Page 10-73 of the DEIS identified a number of potential measures to increase parking, such as "restriping of existing surface parking lots" or "construction of parking garages atop existing surface lots" to address the projected parking shortfall, but fails to include these measures in the Proposed Project. If the identified measures to increase parking are necessary to address the parking shortfall, they should be included in the Proposed Project.

Table 10-39 on Page 10-72 of the DEIS identifies substantial parking shortfalls at each of the stations reviewed, regardless of the construction of the Proposed Project. Only some of these shortfalls are mitigated by the Proposed Project. The traffic analysis does not indicate if this parking shortfall was accounted for in the trip assignment process. If trips associated with future growth cannot utilize the existing/proposed parking facilities, they will need to seek parking elsewhere. The traffic impacts associated with those vehicles traveling to and from alternative parking spaces in areas where parking is over capacity was not addressed by the DEIS.

The proposed design appears to potentially impact several parking spaces at the east of the Floral Park Station beneath the elevated tracks. Approximately 16 spaces may be impacted as shown in the Figure 6.1. Figure 6.1 identifies a highlighted the area, and a corresponding photograph taken by NV5 during a field visit to the Floral Park Station. The source file showing the track work is from the Conceptual

Design Plans in the DEIS (Drawing Nos. T-PP-001 to T-PP-002). The loss of these parking spaces is not addressed in the DEIS, nor is any mitigation proposed to replace the parking spaces that will be lost.

Figure 6.1 – Floral Park Station Parking

6.3.6 At Grade Crossing Elimination Review

6.3.6.1 Existing Traffic Counts

Page 10-19 of the DEIS states that counts were conducted in May 2016 but the DEIS does not provide any details on the dates and times traffic counts were performed. Also, there is no information on rail conditions during the counts, i.e., service disruptions that could have affected traffic conditions in the vicinity of the rail station.

6.3.6.2 Study Area

The DEIS did not select any intersections on 6th Avenue between Covert Avenue and New Hyde Park Road in New Hyde Park as part of the Study Area; however, based on a comparison of the No-Build Condition to Build Condition traffic volumes, significant site-related traffic is directed to these segments of 6th Avenue as part of the Proposed Project.

Because 6th Avenue is not studied, the traffic impact analyses are incomplete and do not identify the associated traffic impacts created by the Proposed Project on 6th Avenue.

6.3.6.3 Volume Comparisons

There appears to be major discrepancies in the routing of vehicles when comparing the No-Build Condition to Build Condition peak-hour volumes for the New Hyde Park volume figures (i.e., Pages 12 vs. 19 and 13 vs. 20 of Appendix 10 of the DEIS). Volumes frequently do not track between intersections with vehicles getting 'lost' between study locations. For instance, as indicated in Figure 6.2 and Figure

6.3 the 2040 No Build PM Peak Hour Condition volume figure indicates that 1,331 vehicles leave the intersection of Jericho Turnpike and Covert Ave traveling eastbound (7+1138+186) and 1,467 vehicles (1382+85) arrive at Jericho Turnpike and South 12th Street eastbound for a net difference of 136 vehicles. In the 2040 PM Option 1 Build Condition, volume figure, the net difference between intersections decreases to 58. (1117+233+7-1409-6=58). Either there are numerical errors in the calculations which must be rectified to ensure the conclusions made are valid or traffic is projected to utilize the side streets between Covert Ave and South 12th Street, necessitating the need for additional study locations.

A second example of this discrepancy occurs on Covert Avenue southbound between Jericho Turnpike and 2nd Avenue in the 2020 AM scenarios. In the No-Build Condition, there is a 5-vehicle difference between the two intersections (184+17+173-7-368-4=-5), whereas in the Build Condition there is a 79-vehicle discrepancy (188+17+195-468-11=-79). Overall, it appears substantial amounts of traffic associated with the Proposed Project were routed to streets and intersections not studied in the DEIS. Additional study locations and analysis are required to determine if the traffic routed through these locations will have an adverse effect on traffic conditions with the Proposed Project.

Because of these discrepancies, the traffic impact analyses are incomplete. As a result, it is not possible to confirm if the DEIS has identified all traffic impacts created by the Proposed Projector the appropriate mitigation measures.

6.3.6.4 Level of Service Analysis

Raw traffic count data and Synchro reports were not provided with the DEIS. Since this information was not provided, it is not possible to ascertain how, or even if, pedestrian movements were accounted for in the analysis. Not only should existing pedestrian movements be considered, but pedestrian volumes should also be increased comparable to the projected ridership increases for non-motorized modes of transportation approaching the station. This information should have been disclosed in the DEIS.

Because the information was not provided, the validity of the traffic impact analyses for the Proposed Project could not be confirmed.

6.3.6.5 Proposed Mitigation Measures

In addition to the review of the traffic volumes, NV5 also reviewed the proposed mitigation measures. The mitigation measures identified may not be appropriate or adequate once revisions to the traffic volumes are completed and the analysis revised accordingly.

6.3.6.5.1 Covert Avenue and Jericho Turnpike (New Hyde Park)

The DEIS recommends modifying the southbound approach (the Dunkin Donuts Driveway) at Covert Avenue and Jericho Turnpike ingress only and forcing all exiting traffic to use North Sixth Street, which permits right turns only onto Jericho Turnpike. Vehicles exiting the Dunkin Donuts wishing to turn left or go straight would need to use Brooklyn Avenue to Lakeville Road. Chapter 10 of the DEIS does not provide any analysis of the effects this rerouting of traffic will have on the adjacent street network.

6.3.6.5.2 New Hyde Park Road and Jericho Turnpike (New Hyde Park, and proximate to Garden City)

The DEIS recommends signal timing adjustments at New Hyde Park and Jericho Turnpike in conjunction with the prohibition of parking immediately adjacent to the Jericho Turnpike approaches to the intersection. While the details of the Level of Service analysis could not be reviewed since only Level of Service summary tables were provided in the DEIS, it is unlikely that elimination of parking in close proximity to the signal will provide a measurable improvement in traffic operations. A study of the number of parking maneuvers in the areas in question should be conducted to determine the extent vehicles pulling into and out of parking spaces effects traffic flow in these areas during peak hours.

6.3.6.5.3 New Hyde Park Road and Clinch Avenue (Garden City, and proximate to New Hyde Park)

Drawing DWG GCC05 provided in Appendix 1-A of the DEIS indicates that the intersection of New Hyde Park Road and Clinch Avenue would be signalized as part of Alternative 2. (Referred to as Build Option 1 in Chapter 10 of the DEIS) but the intersection is not proposed for signalization as part of Alternative 1, Drawing DWG GCC04 in Appendix 1-A of the DEIS (Referred to as Build Option 2 in Chapter 10 of the DEIS). Given that the primary difference in road geometry between Build Options 1 and 2 is only the addition of a second southbound through lane, it is unclear why a signal would be warranted with one southbound through lane but not with two lanes. A traffic signal should be considered at this location for either Build Option.

6.3.6.5.4 New Hyde Park Road and Plaza Avenue (New Hyde Park, and proximate to Garden City)

Drawing DWG GCC04 provided in Appendix 1-A of the DEIS indicates a traffic signal to be constructed at New Hyde Park Road and Plaza Avenue as part of Alternatives 1 and 2. Despite major work planned for this area as part of the Proposed Project, no information or traffic analysis of this intersection is provided in Chapter 10 of the DEIS, and it is unclear if this intersection will operate at an acceptable Level of Service as a signalized intersection.

6.3.6.5.5 Emergency Access at South 12th Street (New Hyde Park)

The South 12th Street at grade crossing is the only crossing within the Proposed Project that is proposed to be closed, either partially or completely as part of the Proposed Project. Page 10-64 of the DEIS states that "emergency vehicle response times will "remain comparable …or improve with mitigation measures as proposed above implemented." The analysis presented supporting this conclusion is for the morning and evening peak hours, when rail traffic can reduce the ability of emergency vehicles to cross the tracks. The additional travel time to utilize Covert Avenue or New Hyde Park Road in lieu of South 12th Street is offset during peak hours by the benefit of having grade-separated rail crossings at these locations. An analysis of off peak travel times (when trains do not block the crossings) should be performed to ensure that the additional distance required to divert from South 12th Street to either Covert Avenue or New Hyde Park Road does not adversely affect emergency response times outside peak hours.

6.3.7 Construction Level of Service Analysis

Appendix 13 provides only Level of Service summary tables for the traffic analysis associated with the construction impacts associated with the elimination of the seven at grade rail crossings. The construction impacts associated with the addition of the third track, including the modifications to the

existing bridges as part of the third track addition were not studied. Lane closures, detours, and other traffic control measures will need to be implemented to construct the widening of these structures, impacting traffic patterns on the adjacent communities. The DEIS is deficient as no analysis of these impacts is provided.

With regard to the construction analysis that was provided, a thorough review of the traffic analysis cannot be made without the appropriate technical backup, which is not provided with the DEIS. Many of the technical concerns identified previously in this section with regard to the Chapter 10 traffic analysis directly apply to the construction impact analysis. Of primary concern is that traffic associated with the necessary detours during construction was routed to intersections not studied, understating the impact of the construction to the local street network[6].

6.3.7.1 New Hyde Park Road Crossing Elimination

Page 13-34 of the DEIS states that traffic diverted from Clinch Avenue to New Hyde Park Road during the New Hyde Park Road crossing elimination would do so via both Stewart Avenue and Stratford Avenue; however, only impacts associated with Stewart Avenue were analyzed. Impacts associated with Stratford Avenue are unknown and could result in the need for additional intersection improvements such as widening or signalization.

Page 13-35 of the DEIS indicates that conditions at the New Hyde Park Road during construction of the grade separation would degrade to Level of Service F and does not propose any mitigation for this degradation. The impacts of operating at a Level of Service F, such as extensive queuing and its related safety impacts should be addressed. Additional mitigation measures, such as additional widening should be identified to mitigate the proposed impacts.

6.3.7.2 Covert Avenue Crossing Elimination

Page 13-35 of the DEIS states that traffic diverted from Covert Avenue during the Covert Avenue crossing elimination would do so via both Jericho Turnpike and First Avenue; however, only impacts associated with Jericho Turnpike were considered. Impacts associated with First Avenue are unknown and could result in the need for additional intersection improvements such as widening or signalization.

Page 13-36 of the DEIS identified improvements at Jericho Turnpike and South 12th Street in an effort to mitigate adverse impacts associated with the Covert Avenue crossing elimination; however, these mitigation measures appear to be impractical or counterproductive. The proposed mitigation includes restriping of the westbound approach to reduce the through lanes from 11 feet to 10 feet in an effort to

[6] Floral Park had requested that the following intersections be studied in its comments to the scoping document:

- Tulip Ave. & Plainfield Ave.
- Magnolia Ave. & Plainfield Ave.
- Charles St. & Plainfield Ave
- Tulip Ave & Jericho Turnpike
- Covert Ave. & Tulip Ave.
- Carnation Ave. & Plainfield Ave.
- Stewart St. & Plainfield Ave.
- Terrace Ave. & Plainfield Ave.
- South Tyson Ave. & Atlantic Ave./Woodbine Court

provide an additional 2 feet of width for the left turn lane. While in theory, this may increase the capacity of the left turn lane slightly, this change will result in a misalignment of the Jericho Turnpike through lanes and could produce a geometric deficiency, resulting in impacts that would more than offset any perceived benefit to the left turn movement, potentially worsening the operation of the intersection instead of improving it. Varying widths of travel lanes between intersections in an attempt to achieve minor adjustments in capacity is inconsistent AASHTO design recommendations. Additional mitigation measures recommended include modifying lane widths on the eastbound approach to allow the addition of an eastbound right turn lane. However, this mitigation measure will adversely impact the access to the local businesses and eliminate parking.

Page 13-36 of the DEIS identified improvements at Jericho Turnpike and New Hyde Park Road to mitigate adverse impacts associated with the Covert Avenue crossing elimination; specifically, to restripe the roadway to provide narrower lanes on Jericho Turnpike to provide dedicated right turn lanes. However, this improvement will impact the access to the local businesses and eliminate parking.

Page 13-36 of the DEIS states that as part of the Covert Avenue crossing elimination, at the intersection of New Hyde Park Road and Stewart Avenue, the southbound (New Hyde Park Road) approach would be degraded to a failing Levels of Service without any mitigation recommended. The impacts of operating at a Level of Service F, such as extensive queuing and its related safety impacts should be addressed. Additional mitigation measures, such as additional widening should be identified to mitigate the proposed impacts.

Page 13-36 of the DEIS states that as part of the Covert Avenue crossing elimination, at the intersection of Stewart Avenue and South 12th Street, a temporary traffic signal is proposed to mitigate impacts. Since no Syncho analysis was provided, it cannot be confirmed the effect of an additional signal on Stewart Avenue including any impacts to progression was considered. Also, since no analysis was provided for the other side streets approaching Stewart Avenue, additional mitigation may be required at these locations.

6.4 Additional Documentation Needed

The DEIS is deficient because it fails to include information critical to reviewing the traffic impact analysis, including:

- Technical Backup for Traffic Analysis (Chapters 10 and 13)
- Original traffic count sheets including both vehicular and pedestrian counts
- Field sketches utilized to populate Synchro Model parameters (i.e. lane widths, turn restrictions)
- Synchro reports including model inputs and Level of Service summaries
- Trip Generation and Distribution spreadsheets detailing the routing/rerouting of traffic through the Study Area
- Traffic signal plans and timing directives to compare Synchro inputs
- Future Parking Plan

6.5 Conclusions

The deficiencies identified below question the accuracy and adequacy of the traffic analysis contained in Chapters 10 and 13 of the DEIS for the Proposed Project. The concerns raised herewith center on five

key issues which result in either an understatement or a misrepresentation of impacts associated with the Proposed Project. Specifically:

- Ridership Increases considered as No-Build Condition – The DEIS assumes that increases in peak direction ridership will occur without the Proposed Project, even though it states that the Proposed Project is required to realize these increases. The DEIS understates the impacts of the project by not providing mitigation for impacts based on these ridership increases. In addition, there are conflicting statements throughout the DEIS regarding increases in ridership and associated parking and traffic demands.
- Numerical discrepancies in analysis question applicability of results – The DEIS has a number of technical discrepancies with regard to traffic volumes and trip routing that must be addressed before accurate conclusions can be drawn. Inaccurate traffic volumes can understate existing conditions and understate the required improvements.
- Traffic Study locations do not include all affected intersections – The DEIS routes traffic through intersections that have not been studied, thereby understating or ignoring the impacts of the Proposed Project by failing to address problems caused by the project at these intersections. This comment applies to the Build Condition, as well as Construction condition. In addition, there is no discussion or analysis of the Floral Park and Merillon Avenue Stations.
- Study Periods – 2023 should be added as an analysis year, since that is when increases are expected due to East Side Access.
- Recommended mitigation measures are impractical – At some locations the DEIS recommends minor operational changes to address off site impacts which are inconsistent with current design standards and accepted practices. These mitigation measures will not satisfactorily address the impacts to traffic during construction and during the operational period after the completion of the construction of the Proposed Project.

While there are many issues which affect Floral Park, New Hyde Park, and Garden City specifically, below are key traffic issues in each Village that should be addressed:

- Floral Park – There is an unmitigated loss of 16 station parking spaces as a result of 3rd track construction.
- New Hyde Park – 6th Avenue between Covert and New Hyde Park was not analyzed to identify potential traffic impacts of the Proposed Project.
- Garden City – During the New Hyde Park Road crossing elimination, no measures are proposed to mitigate the construction impacts including failing levels of service on New Hyde Park Road.

Figure 6.2

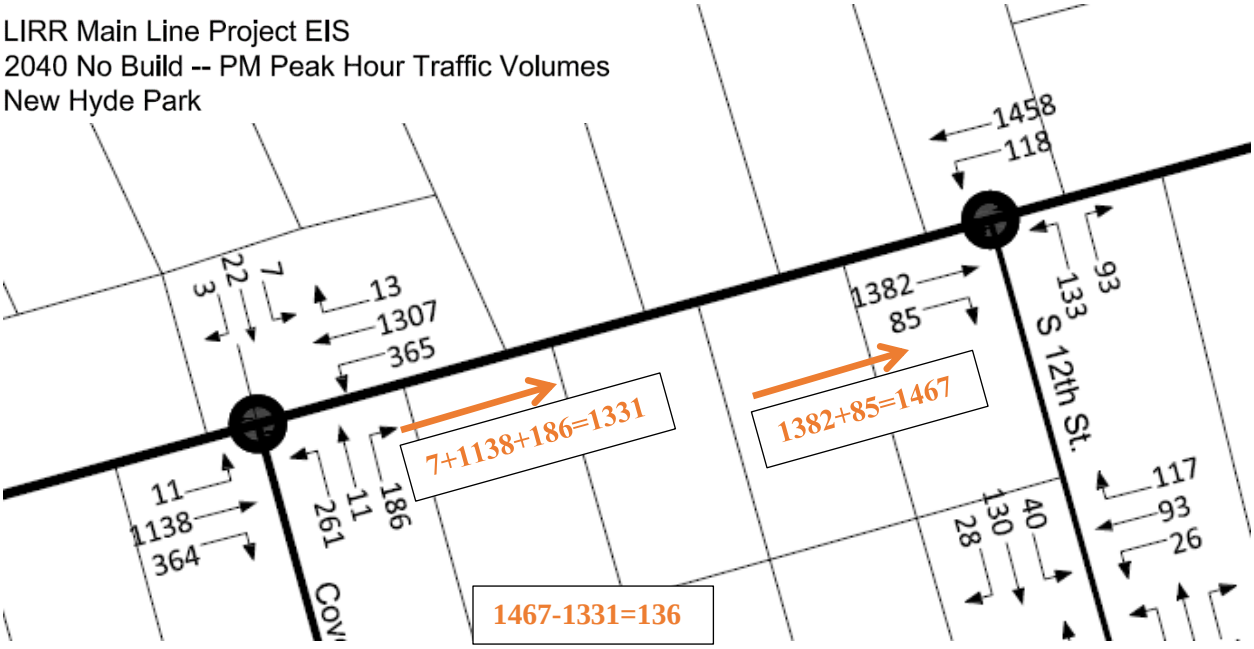
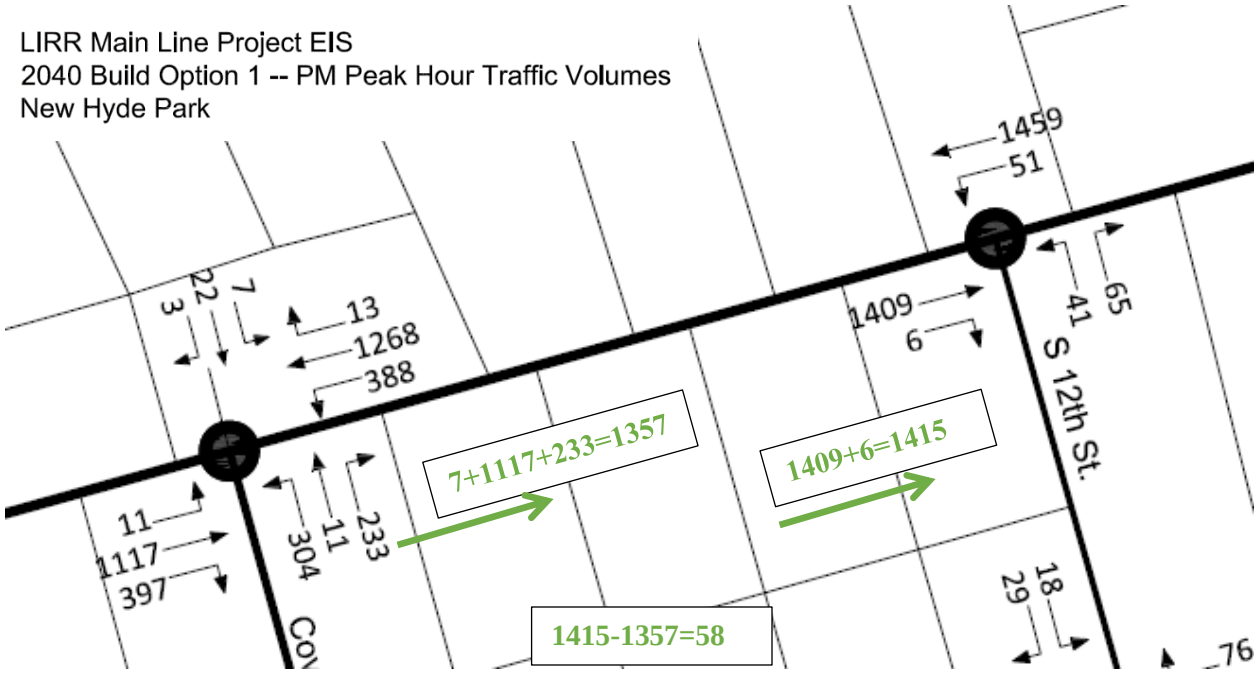


Figure 6.3



7.0 References

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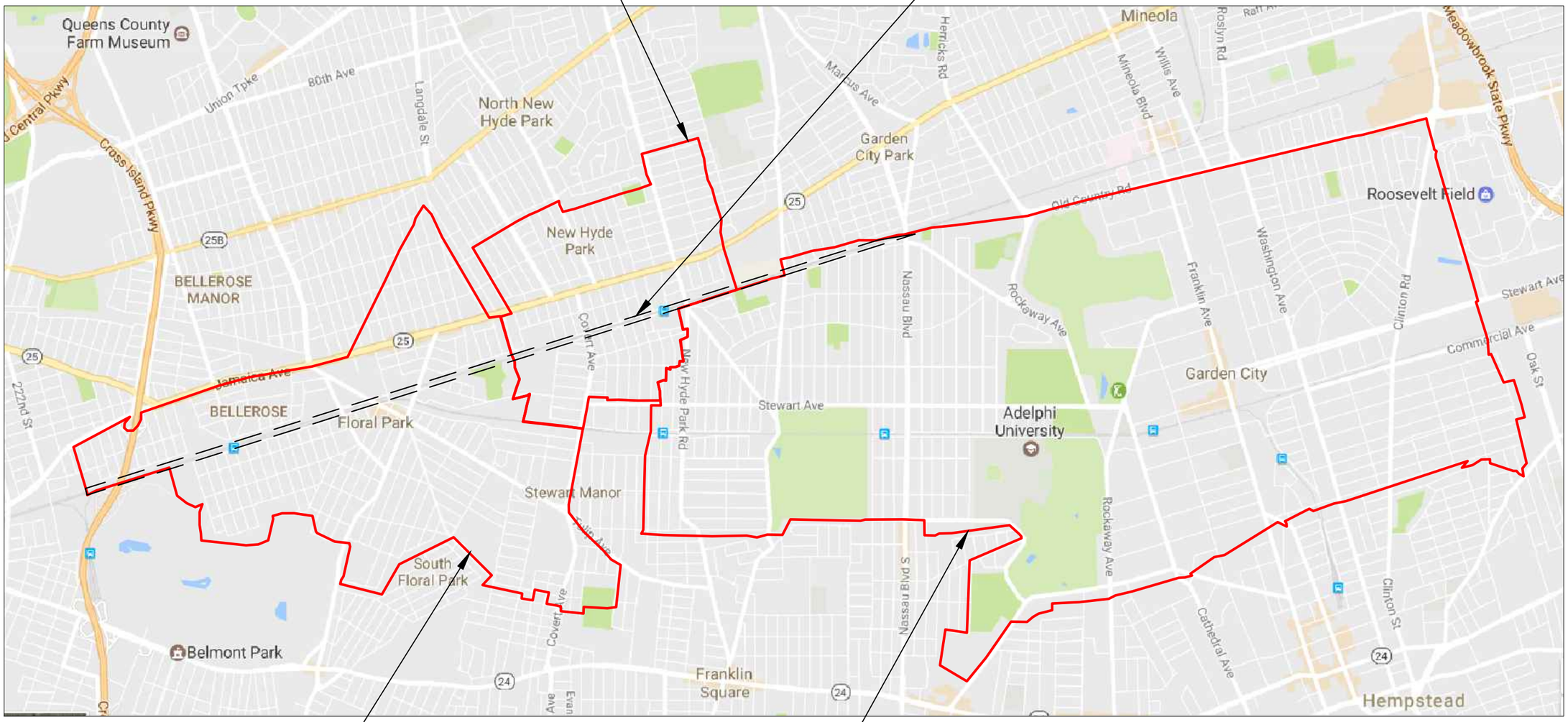
Attachment A: Study Area

New Hyde Park Boundary

Study Area



Floral Park Boundary

Garden City Boundary

0 2500 5000 7500

SCALE: 1" = 2500'-0"
(WHEN PRINTED AT 11x17)

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REVISIONS

FIGURE 1

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Checked: CJC
Job No.: 43124

LIRR Site Layout
Long Island Rail Road
Incorporated Village of Floral Park
Floral Park, New Hyde Park, and Garden City, NY

Attachment B: Noise Impact Depiction

NOISE IMPACT EXHIBIT

LEGEND:

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Night Work

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Day Work

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

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THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-001 TO T-PP-002

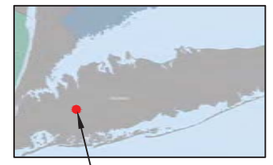
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and Bellerose Village

Sheet 1 of 21

November 21, 2016



ENLARGED AREA

Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

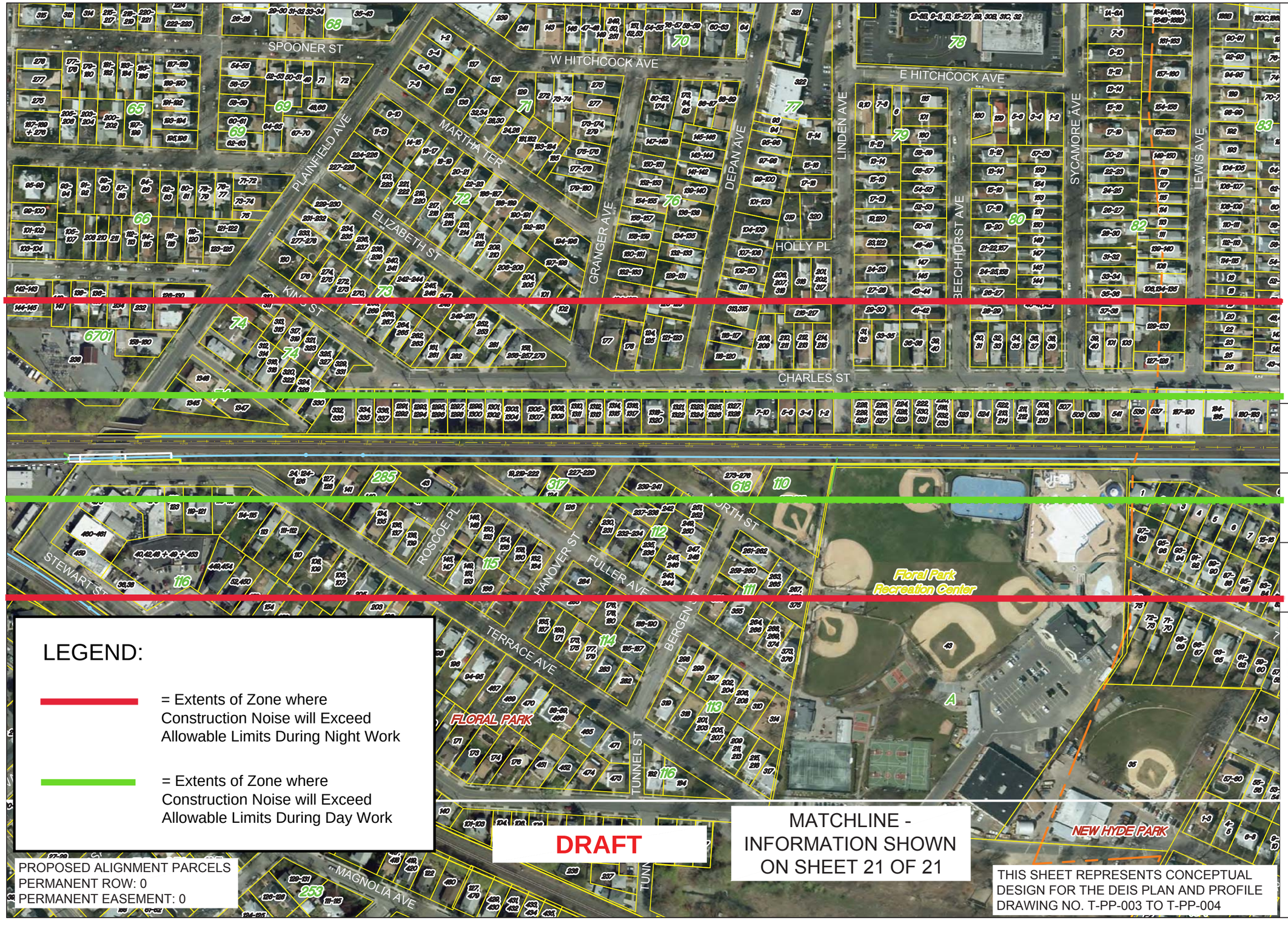
Parcels - Nassau County Department of Assessment and Nassau County GIS

N

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road



LEGEND:

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Night Work

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Day Work

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

DRAFT

MATCHLINE - INFORMATION SHOWN ON SHEET 21 OF 21

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-003 TO T-PP-004

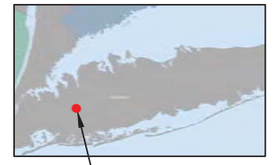
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and New Hyde Park

Sheet 2 of 21

November 21, 2016



Gannett Fleming

AECOM

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KS ENGINEERS, P.C.

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Parcels - Nassau County Department of Assessment and Nassau County GIS

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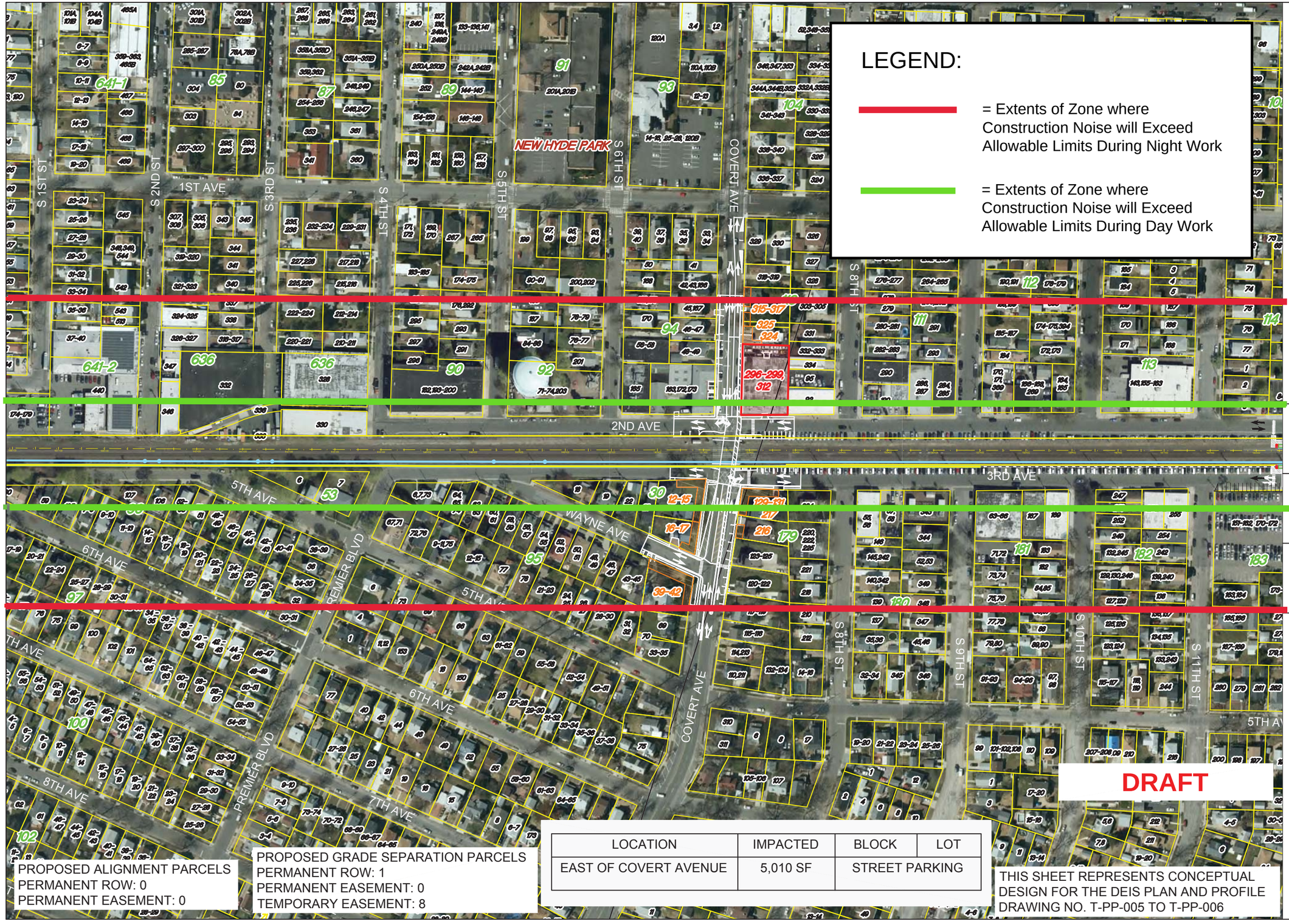
SCALE: 1"=200'

MTA Long Island Rail Road



PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

PROPOSED GRADE SEPARATION PARCELS
PERMANENT ROW: 1
PERMANENT EASEMENT: 0
TEMPORARY EASEMENT: 8

LOCATION	IMPACTED	BLOCK	LOT
EAST OF COVERT AVENUE	5,010 SF	STREET PARKING	

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-005 TO T-PP-006

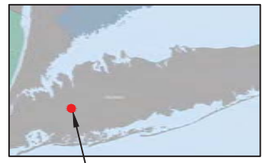
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

New Hyde Park

Sheet 3 of 21

November 21, 2016



ENLARGED AREA

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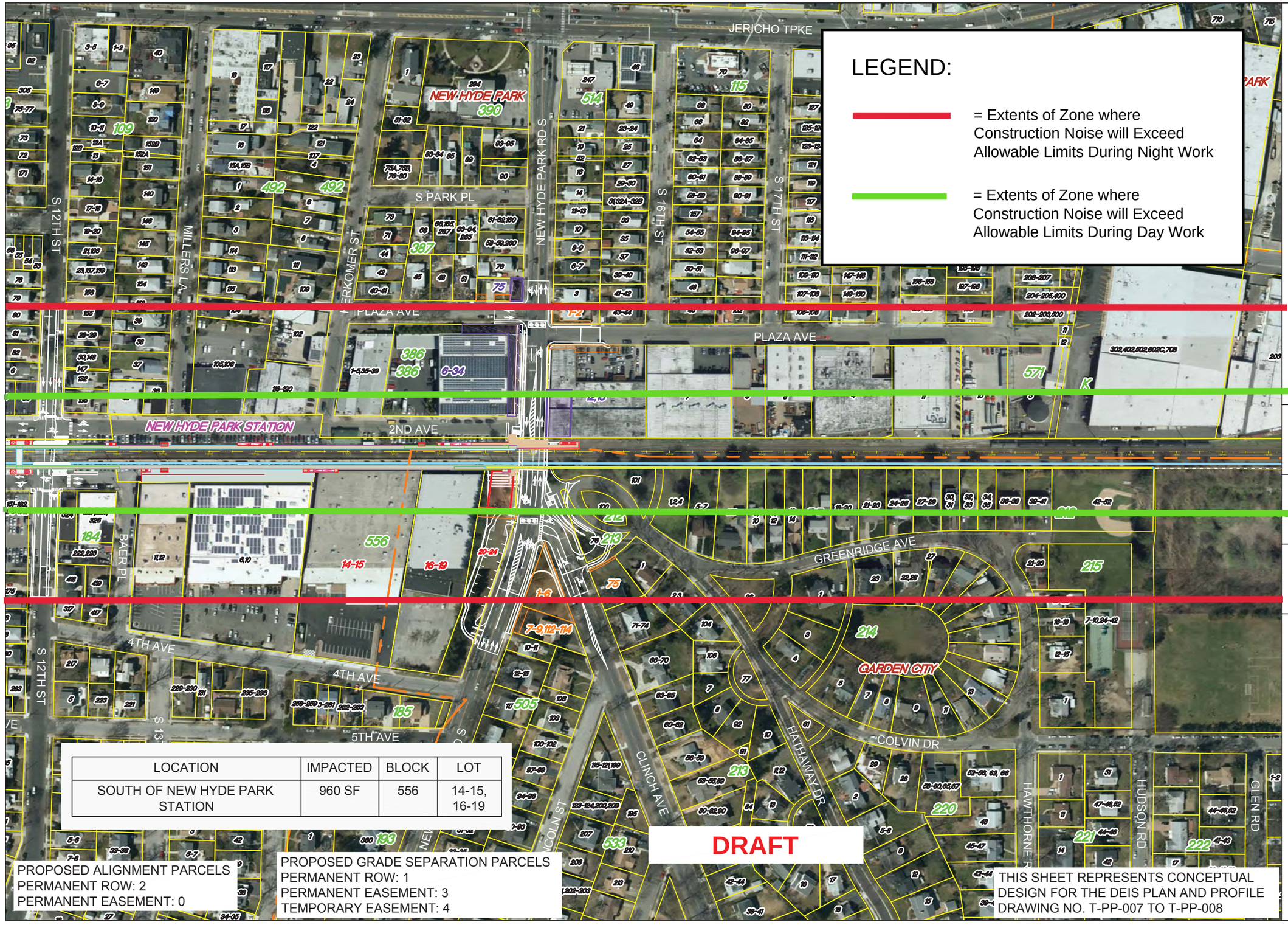
SCALE: 1"=200'

MTA Long Island Rail Road



LOCATION	IMPACTED	BLOCK	LOT
SOUTH OF NEW HYDE PARK STATION	960 SF	556	14-15, 16-19

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 2
PERMANENT EASEMENT: 0

PROPOSED GRADE SEPARATION PARCELS
PERMANENT ROW: 1
PERMANENT EASEMENT: 3
TEMPORARY EASEMENT: 4

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-007 TO T-PP-008

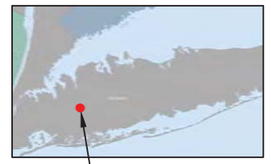
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville
Alternate B

New Hyde Park, North New Hyde Park and Garden City

Sheet 4B of 21

November 21, 2016



ENLARGED AREA

Gannett Fleming

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Parcels - Nassau County Department of Assessment and Nassau County GIS

N

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

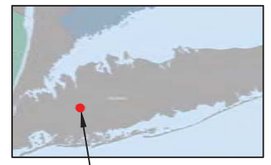
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Garden City, New Hyde Park, North New Hyde Park and Garden City Park

Sheet 5 of 21

November 21, 2016



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Parcels - Nassau County Department of Assessment and Nassau County GIS

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

LEGEND:

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Night Work

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Day Work

DRAFT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-009 TO T-PP-010

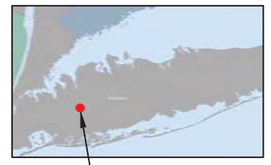
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Garden City and Garden City Park

Sheet 6 of 21

November 21, 2016



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KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

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SCALE: 1"=200'

MTA Long Island Rail Road

LEGEND:

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Night Work

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Day Work

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

DRAFT

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-011 TO T-PP-012

PARK AVE
BROADWAY
FULTON AVE
ATLANTIC AVE
MAIN AVE
DOVER AVE
GARDEN CITY PARK
MERILLON AVENUE STATION
NASSAU BLVD
COUNTY COURTHOUSE RD
HILTON AVE
CORBIN AVE
CORNELIA AVE
THORENS AVE
ARMSTRONG RD
KILBURN RD
BRIXTON RD
KENSINGTON RD
WHITEHALL BLVD
BROMPTON RD
MERILLON AVE

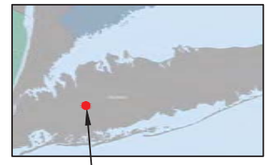
Long Island Rail Road

LIRR Expansion Project From
Floral Park to Hicksville

Garden City, Mineola and
Garden City Park

Sheet 7 of 21

November 21, 2016



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SCALE: 1"=200'

MTA Long Island Rail Road

LEGEND:

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Night Work

= Extents of Zone where Construction Noise will Exceed Allowable Limits During Day Work

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

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THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-013 TO T-PP-014

Attachment C: Major Construction Locations

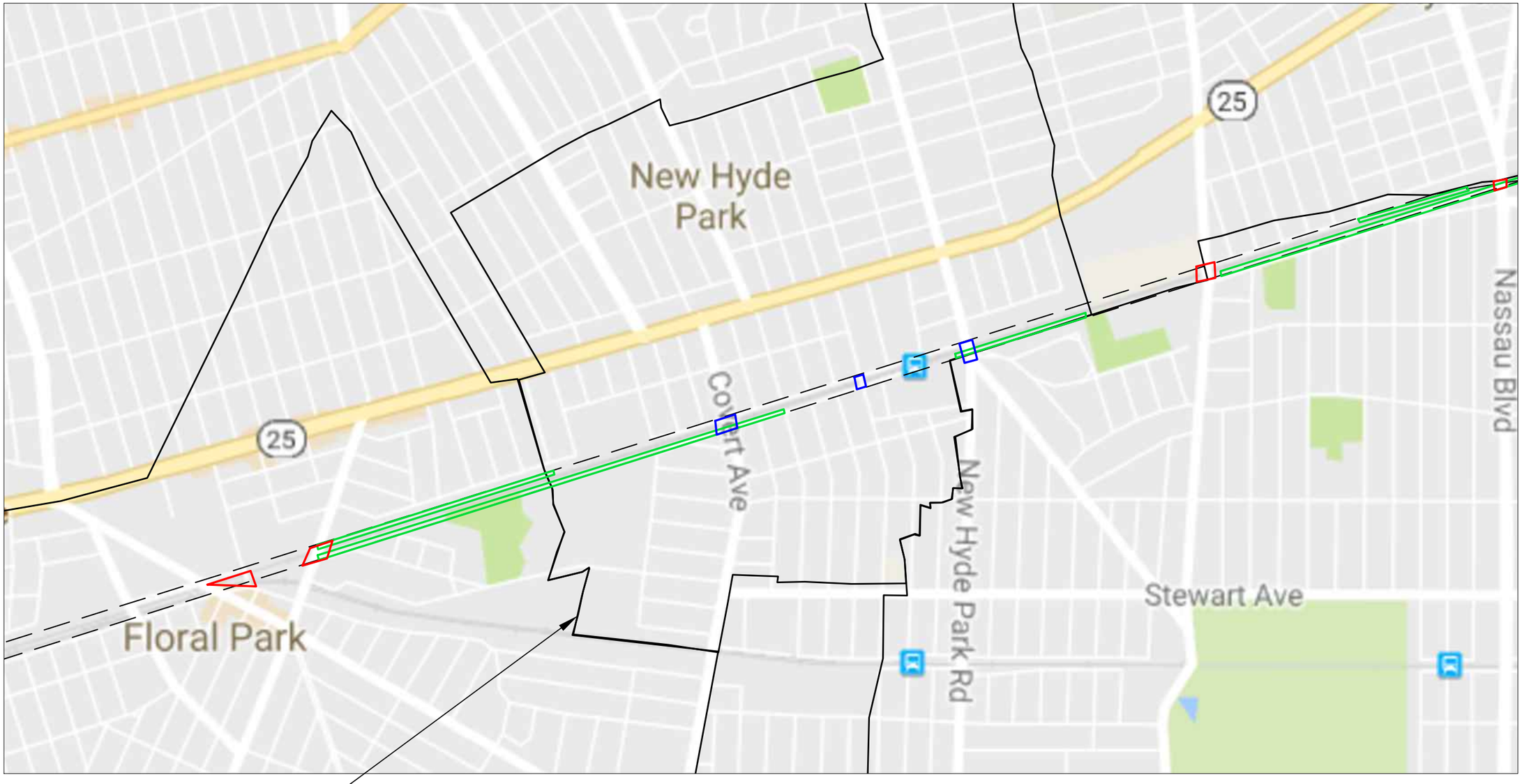
LEGEND:

= Rail Road Outline

= Bridge Work

= Grade Crossing Work

= Sound Attenuation Walls



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SCALE: 1" = 1000'-0"
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File No.:	43124
Date:	JANUARY 2017
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Checked:	
Job No.:	43124

FIGURE 2

LIRR Site Layout

Long Island Rail Road
Incorporated Village of Floral Park
Floral Park, New Hyde Park, and Garden City, NY

Attachment D: Renderings of Grade Crossing Separation Projects

Source: NYSDOT

Rendering: Covert Avenue Grade Crossing
Two-Way Underpass with Sidewalk, LIRR Tracks Raised Several Feet
Figure 1-20

Source: NYSDOT

Rendering: Covert Avenue Grade Crossing
Two-Way Underpass with Sidewalk, LIRR Tracks Raised Several Feet

Figure 1-21

Source: NYSDOT

Rendering: South 12th Street Grade Crossing
Option 1: Permanent Crossing Closure with Pedestrian Bridge

Figure 1-25

Source: NYSDOT

Rendering: South 12th Street Grade Crossing
Option 2: One-Way Underpass with Sidewalk

Figure 1-26

Source: NYSDOT

Rendering: New Hyde Park Road Grade Crossing
Option 1: Five-Lane Underpass with Kiss and Ride Northwest of Tracks

Figure 1-30

Source: NYSDOT

Rendering: New Hyde Park Road Grade Crossing
Option 2: Four-Lane Underpass with Kiss and Ride Southwest of Tracks Substation

Figure 1-31

Attachment E: Supplemental Information Summary

VERTEX was asked by Beveridge & Diamond to research several other aspects of the Proposed Project. The following provides the results of this additional research:

- Freight:
  - VERTEX reviewed the preliminary design for the Proposed Project to evaluate if the design would meet freight standards. Based on VERTEX's review of the design criteria provided in Appendix 1-A of the DEIS:
    - E80 Loading Standard is being used for the design of the rail. This standard will accommodate freight rail and commuter rail.
  - VERTEX also reviewed whether clearance at certain locations along the main line will increase based on the preliminary design. Based on VERTEX's review of the design criteria and design plans provided in Appendix 1-A of the DEIS:
    - 20 feet, 9 inches is the absolute minimum allowed vertical clearances.
    - 22 feet is the stated desirable vertical clearance.
    - 18.5 to 20 feet is the height range for three different configurations of double-stack rail cars specified by CSX Corporation which is one of the freight rail companies serving metro New York City and likely to provide interchange services with the Proposed Project.
    - The current bridge clearance for the LIRR line that is the subject of the Proposed Project presently meets the criteria allowing shipment of double-stack rail cars.
- Visual:
  - VERTEX reviewed where in the Study Area the elevation of the track infrastructure will increase. Based on VERTEX's review of the design plans provided in Appendix 1-A of the DEIS:
    - The proposed track from Tyson Ave to Sycamore Ave will be 2.5 feet above the current track elevation.
    - The proposed track from 4th Street to 10th Street will be 5 feet above the current track elevation. It appears that this elevation increase is part of the grade separation proposed at Covert Avenue.
    - A graphic representation of the raised track segments is provided in the Exhibit A at the end of this section.
  - VERTEX also reviewed where in the Study Area LIRR intends to put in retaining walls, and to the extent possible, whether the retaining wall will go right up to the ROW/property line. Based on VERTEX's review of the design plans provided in Appendix 1-A of the DEIS:
    - There are retaining walls proposed nearly continuously on the southern ROW line from Plainfield Avenue to Denton Avenue.
    - There is conflicting information on whether retaining walls will be placed along the northern ROW line

- A graphic representation of the proposed retaining walls is provided in the Exhibit B at the end of this section.

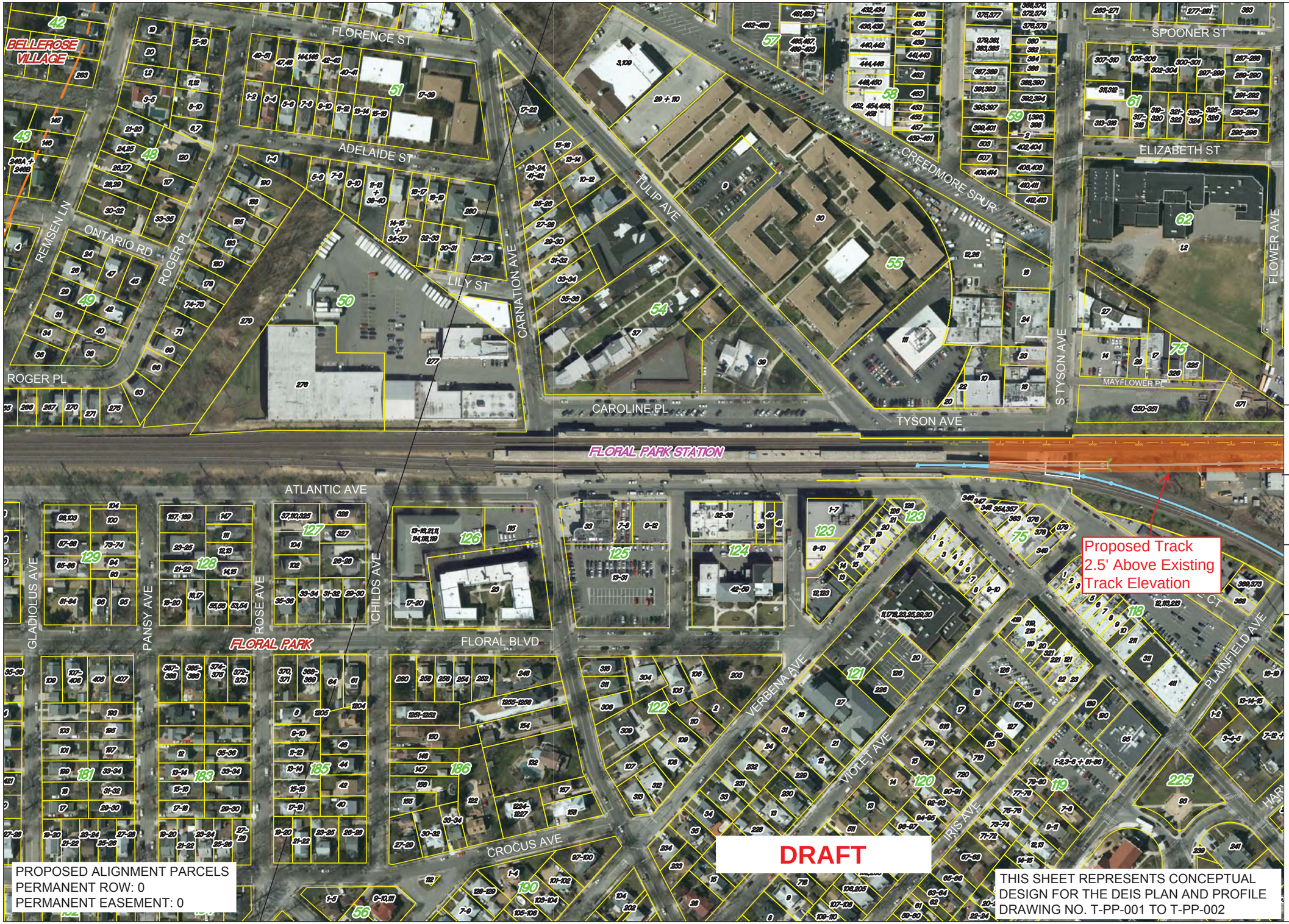
Traffic Restrictions:

- VERTEX reviewed the Proposed Project design as provided in the DEIS to determine if commercial traffic into/out of commercial areas may be restricted. Based on VERTEX's review of the design criteria provided in Appendix 1-A of the DEIS:
  - The specified minimum bridge clearance for vehicular traffic crossings under the Proposed Project is 14 feet, 6 inches. This height stated in the DEIS is to accommodate tractor trailer configurations using 53 foot trailers.
  - Travel lanes specified to be 11 feet in width with an allowance to decrease where needed to 10 width constrains (slows) the movement of tractor trailer configurations, but does not eliminate such traffic from travel through those underpasses.

Supplemental Information Summary
LIRR Expansion Project – DEIS Review
February 14, 2017

Exhibit A: Track Elevation

TRACK ELEVATION EXHIBIT



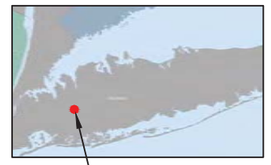
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and Bellerose Village

Sheet 1 of 21

November 21, 2016



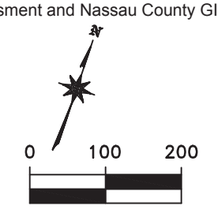
Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS



SCALE: 1"=200'

MTA Long Island Rail Road

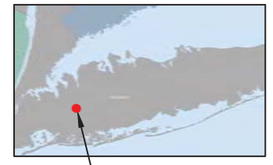
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and New Hyde Park

Sheet 2 of 21

November 21, 2016



Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

SPOONER ST
W HITCHCOCK AVE
E HITCHCOCK AVE
PLAINFIELD AVE
MARTHA TER
ELIZABETH ST
KING ST
GRANGER AVE
DEPAN AVE
LINDEN AVE
HOLLY PL
BEECHHURST AVE
SYCAMORE AVE
LEWIS AVE
CHARLES ST
ROSCOE PL
HANOVER ST
FULLER AVE
NORTH ST
STEWART ST
TERRACE AVE
BERGEN ST
TUNNEL ST
MAGNOLIA AVE
FLORAL PARK
NEW HYDE PARK
Recreation Center
Proposed Track
2.5' Above Existing
Track Elevation

DRAFT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

MATCHLINE - INFORMATION SHOWN ON SHEET 21 OF 21

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-003 TO T-PP-004

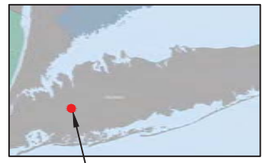
Long Island Rail Road

LIRR Expansion Project From
Floral Park to Hicksville

New Hyde Park

Sheet 3 of 21

November 21, 2016



ENLARGED AREA

Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

NEW HYDE PARK

1ST AVE
2ND AVE
3RD AVE
5TH AVE
6TH AVE
7TH AVE
8TH AVE
WAYNE AVE

S 1ST ST
S 2ND ST
S 3RD ST
S 4TH ST
S 5TH ST
S 6TH ST
COVERT AVE
S 8TH ST
S 9TH ST
S 10TH ST
S 11TH ST
PREMIER BLVD

Proposed Track
5.0' Above Existing
Track Elevation

DRAFT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

PROPOSED GRADE SEPARATION PARCELS
PERMANENT ROW: 1
PERMANENT EASEMENT: 0
TEMPORARY EASEMENT: 8

LOCATION	IMPACTED	BLOCK	LOT
EAST OF COVERT AVENUE	5,010 SF	STREET PARKING	

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-005 TO T-PP-006

Supplemental Information Summary
LIRR Expansion Project – DEIS Review
February 14, 2017

Exhibit B: Retaining Wall Exhibit

RETAINING WALL LOCATION EXHIBIT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

DRAFT

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-001 TO T-PP-002

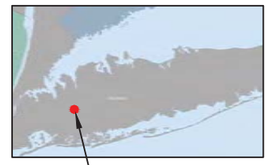
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and Bellerose Village

Sheet 1 of 21

November 21, 2016



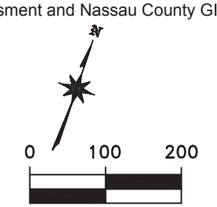
Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS



SCALE: 1"=200'

MTA Long Island Rail Road

Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Floral Park and New Hyde Park

Sheet 2 of 21

November 21, 2016

Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

N

0 100 200

SCALE: 1"=200'

Long Island Rail Road

Retaining Wall not on ROW Boundary

Retaining Wall on ROW Boundary

Floral Park Recreation Center

NEW HYDE PARK

FLORAL PARK

SPOONER ST
W HITCHCOCK AVE
E HITCHCOCK AVE
PLAINFIELD AVE
MARTHA TER
ELIZABETH ST
KING ST
GRANGER AVE
DEPAN AVE
LINDEN AVE
HOLLY PL
BEECHHURST AVE
SYCAMORE AVE
LEWIS AVE
CHARLES ST
STEWART ST
ROSCOE PL
HANOVER ST
FULLER AVE
NORTH ST
TERRACE AVE
BERGEN ST
TUNNEL ST
MAGNOLIA AVE

DRAFT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

MATCHLINE - INFORMATION SHOWN ON SHEET 21 OF 21

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-003 TO T-PP-004

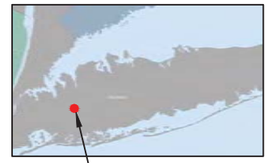
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

New Hyde Park

Sheet 3 of 21

November 21, 2016



ENLARGED AREA

Gannett Fleming

AECOM

KSE

KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

NEW HYDE PARK

1ST AVE

2ND AVE

3RD AVE

5TH AVE

6TH AVE

7TH AVE

8TH AVE

WAYNE AVE

COVERT AVE

PREMIER BLVD

S 1ST ST

S 2ND ST

S 3RD ST

S 4TH ST

S 5TH ST

S 6TH ST

S 8TH ST

S 9TH ST

S 10TH ST

S 11TH ST

Retaining Wall on ROW Boundary

DRAFT

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

PROPOSED GRADE SEPARATION PARCELS
PERMANENT ROW: 1
PERMANENT EASEMENT: 0
TEMPORARY EASEMENT: 8

LOCATION	IMPACTED	BLOCK	LOT
EAST OF COVERT AVENUE	5,010 SF	STREET PARKING	

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-005 TO T-PP-006

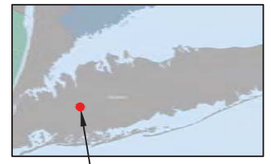
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville
Alternate B

New Hyde Park, North New Hyde Park and Garden City

Sheet 4B of 21

November 21, 2016



Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
Aerial Photography - flown in April 2016 - bandwidth of 500' on either side of the Long Island Rail Road. Merged with New York State Digital Orthoimagery Program flown in 2013

Parcels - Nassau County Department of Assessment and Nassau County GIS

N

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

JERICHO TPKE
S 12TH ST
MILLERS LA
HERKOMER ST
NEW HYDE PARK RD S
S 16TH ST
S 17TH ST
S 18TH ST
HOFFMAN RD
S PARK PL
PLAZA AVE
2ND AVE
NEW HYDE PARK STATION
NEW HYDE PARK
NORTH NEW HYDE PARK
4TH AVE
5TH AVE
GREENRIDGE AVE
GARDEN CITY
COLVIN DR
HATHAWAY DR
CLINCH AVE
LINCOLN ST
HAWTHORNE R
HUDSON RD
GLEN RD

Retaining Wall on ROW Boundary

Retaining Wall on ROW Boundary

LOCATION	IMPACTED	BLOCK	LOT
SOUTH OF NEW HYDE PARK STATION	960 SF	556	14-15, 16-19

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 2
PERMANENT EASEMENT: 0

PROPOSED GRADE SEPARATION PARCELS
PERMANENT ROW: 1
PERMANENT EASEMENT: 3
TEMPORARY EASEMENT: 4

DRAFT

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-007 TO T-PP-008

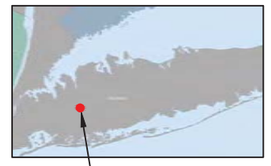
Long Island Rail Road

LIRR Expansion Project From Floral Park to Hicksville

Garden City, New Hyde Park, North New Hyde Park and Garden City Park

Sheet 5 of 21

November 21, 2016



Gannett Fleming

AECOM

KSE
KS ENGINEERS, P.C.

Source:
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Parcels - Nassau County Department of Assessment and Nassau County GIS

0 100 200

SCALE: 1"=200'

MTA Long Island Rail Road

Retaining Wall on ROW Boundary

PROPOSED ALIGNMENT PARCELS
PERMANENT ROW: 0
PERMANENT EASEMENT: 0

DRAFT

THIS SHEET REPRESENTS CONCEPTUAL DESIGN FOR THE DEIS PLAN AND PROFILE DRAWING NO. T-PP-009 TO T-PP-010