APPENDICES

for the

Proposed Redevelopment of the former St. John Villa Campus

57 Cleveland Place

Staten Island, New York

Appendix A:

Cultural Resources

(Letter of Resolution/ SHPO Correspondence)

LETTER OF RESOLUTION
between the
NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY
and the
NEW YORK STATE OFFICE OF PARKS, RECREATION, AND HISTORIC PRESERVATION

Regarding

DEMOLITION OF CERTAIN EXISTING STRUCTURES AT SAINT JOHN VILLA ACADEMY AT 57 CLEVELAND PLACE IN THE COUNTY OF RICHMOND, CITY OF NEW YORK

WHEREAS, pursuant to the New York State Historic Preservation Act of 1980 (NYSHPA), and state laws and regulations, the New York City School Construction Authority (NYCSCA) is responsible for undertaking activities affecting historic properties in a manner that emphasizes preservation, avoidance and/or mitigation of the impact of undertakings that might adversely affect historic resources listed in or eligible for inclusion in the State or National Registers of Historic Places to the fullest extent possible; and

WHEREAS, the NYCSCA acquired the real property known as Saint John Villa Academy (the "Campus" or "Saint John Villa Academy") to redevelop for the City's Department of Education, which redevelopment is expected to consist of up to five new schools and athletic fields; and

WHEREAS, the NYCSCA and the New York State Office of Parks, Recreation, and Historic Preservation ("OPRHP") (collectively, the "Parties") recognize that the Campus is a National Register of Historic Places (NRHP)-eligible resource; and

WHEREAS, in connection with the redevelopment of the Campus, NYCSCA proposes to demolish the existing Villa, Elementary School, High School, Pre-K Center, Annex, and Garage on the Campus, located within the Staten Island neighborhood of Concord, to develop a new replacement facility (the "Project"); and

WHEREAS, the Project is considered an undertaking under the NYSHPA; and

WHEREAS, pursuant to Section 14.09 of the NYSHPA, OPRHP is responsible for determining the effects of undertakings that may potentially impact historic resources located on lands within the State of New York; and

WHEREAS, the NYCSCA and OPRHP have engaged in discussions regarding the Project to assess the impact of this undertaking on historic resources; and

WHEREAS, in or about 2018, the NYCSCA engaged a multi-disciplinary team of architects, structural and system engineers, and landscape architects to develop an existing conditions inventory and assessment of the Campus; and

WHEREAS, the oldest buildings on the Campus, the Villa and Elementary School, have undergone several modifications to their original design affecting their architectural style and significance; and

WHEREAS, the access to and entrances of existing buildings do not meet current standards for accessibility and negatively impact safe access to and circulation around the Campus; and

WHEREAS, the existing buildings do not meet current building and safety codes requirements for egress and accessibility and require significant alterations to provide the required number and width of exits, and required elevators thereby reducing the available area for educational spaces; and

WHEREAS, the existing buildings' structural systems cannot be adapted into contemporary instructional spaces because the existing building widths and column grids cannot accommodate and are not compatible with NYCSCA standards for classrooms; and

WHEREAS, several of the existing buildings exhibit compromised structural systems including cracked exterior façades and foundation walls, and a portion of the Annex's first floor has collapsed and is currently supported by temporary shoring; and

WHEREAS, the existing buildings exhibit water infiltration from cracked and detached face brick façades, deteriorated brick facing, and corroded windows; and

WHEREAS, Staten Island is one of the fastest growing districts in the City and continues to demonstrate need for new educational facilities to support the growing student population; and

WHEREAS, the current FY2020-2024 Five-Year Plan set aside funding for the construction of new seats throughout the borough and on all grade levels; and

WHEREAS, the redevelopment of the Campus will enable the City to build 2,000 new school seats, bring the City much closer to the goal of providing 5,000 new seats to Staten Island, and will serve students from Pre-K to 12th grade, as well as students with special needs; and

WHEREAS, there were no alternative privately-owned sites of comparable size, residential context, and unencumbered by Special Flood Hazard Areas and State-Regulated Wetlands on the market for sale in the vicinity of the proposed site; and

WHEREAS, the Parties agree that it is in the public interest to fully demolish the Villa, Elementary School, High School, Pre-K Center, Annex, and Garage in order to design and construct a new state-of-the-art educational campus that would comply with all building and safety codes and satisfy the educational requirements and needs of the school district; and

WHEREAS, NYCSCA and the OPRHP are State Agencies as defined by Section 14.03 of NYSHPA, and have mutual interests and obligations in the protection and preservation of historic properties located on lands within the State; and

WHEREAS, the Parties desire to enter into this Letter of Resolution to memorialize the obligations of the NYCSCA and the OPRHP with respect to the Campus.

NOW, THEREFORE, NYCSCA and the OPRHP mutually agree as follows:

1. Purpose. This Letter of Resolution (LOR) between the Parties establishes the course of action necessary for the successful mitigation of the potential adverse impacts of the demolition of the Villa, Elementary School, High School, Pre-K Center, Annex, and Garage at Saint John Villa Academy in accordance with Section 14.09 of the NYSHPA.

2. Scope of Agreement

   a. The NYCSCA will act as the lead agency in collaboration with qualified consultants, to prepare and present all necessary documentation required by the NYSHPA and State Environmental Quality Review (SEQR) to fulfill the New York State Environmental Quality Review Act (SEQRA) mandates.

   b. The Parties recognize that, in the absence of any unanticipated conditions discovered during the course of this undertaking, the successful execution of this LOR fulfills NYCSCA's responsibilities to explore all feasible and prudent alternatives to avoid and/or mitigate any adverse impacts of the undertaking, in accordance with SEQRA and Section 14.09 of the NYSHPA.

   c. NYCSCA will mitigate the adverse impacts of the demolition of the Villa, Elementary School, High School, Pre-K Center, Annex, and Garage by preparing and submitting the following documentation to OPRHP:

      (1) NYCSCA will preserve the existing Chapel building and will submit a restoration plan to OPRHP, who will have thirty days to review and comment upon the proposed work.

      (2) NYCSCA will preserve the existing stone wall, iron fencing, and gates located at a portion of the site's perimeter. Where they are in good condition, the stone wall and iron fence will be preserved, and a reconstruction will be provided around a larger extent of the campus boundary.

(3) NYCSCA will continue to consult with OPRHP on the designs of the new buildings and site work proposed on the Campus that will aim to reflect existing visual cues, massing, and scale of the historic buildings currently existing at the Saint John Villa Academy. NYCSCA will submit its proposed design to OPRHP, who will have thirty days to respond and comment on the proposed designs.

(4) Prior to their demolition, NYCSCA will compile photo documentation of the Villa, Elementary School, High School, Pre-K Center, Annex, and Garage buildings in the manner set forth in Exhibit 1. Two (2) copies of the photo documentation shall be provided to OPRHP. NYCSCA will send one copy of the photographs to a local library or historical society. A proof sheet will be provided to OPRHP for review thirty days before the buildings are scheduled for demolition. The actual photos will be included in the documentation reports, which NYCSCA will send to OPRHP within six months after the buildings are demolished.

(5) NYCSCA has scanned existing drawings of the existing buildings at Saint John Villa Academy and has archived same in its electronic database. These will be included in the documentation report.

(6) NYCSCA will install interpretive panels in the Chapel building that may include photos of the existing Campus. The designs for the interpretive panels shall be submitted to OPRHP for review and comment before design is final.

3. Completion of Project. Pursuant to Section 14.09 of the NYSHPA, this LOR specifies how the undertaking will proceed. At the completion of the Project, NYCSCA will certify in writing that it has completed the undertaking in accordance with the LOR and will provide any additional documentation regarding the Project at the reasonable request of the OPRHP.

4. Execution. This LOR may be executed in counterparts, each of which shall be regarded as an original and all of which shall constitute one and the same instrument. Execution of this LOR by the NYCSCA and the OPRHP, and implementation of its terms shall demonstrate that the NYCSCA has taken into account the impact of the undertaking on historic properties.

SIGNATURE PAGES FOLLOW

NEW YORK STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION

BY: _____ DATE: 10/16/23
Daniel Mackay
Deputy Commissioner

NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY

BY: _____ DATE: 10/11/23
Stanley Dahir, RA
Chief Design and Construction Innovation Officer / Agency Preservation Officer

EXHIBIT 1

Photo Documentation Requirements

- Photographs submitted as documentation should be clear, well-composed, and provide an accurate visual representation of the building and its significant features.
- Digital photographs should be taken using a ten (10) megapixel or greater digital SLR camera.
- Images should be saved in Tag Image File format (TIFF) or RAW format images. RGB color digital TIFFs are preferred.
- Selected images for documentation package should be printed as follows: 1-3, 8 by 10-inch views of the overall facility. Sufficient 5 by 7-inch additional images to fully document the present condition of all elevations at the facility.
- Several historic images (if available) depicting the facility should be reprinted at the 5 by 7-inch size and included in the documentation.
- Images should be printed on a high-quality color printer on compatible high quality photographic paper stock (HP printer us HP Paper, Epson printer use Epson paper)
- Each photograph must be numbered, and that number must correspond to the photograph number on a photo log or key. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.
- The label information will be written within the white margin on the front of the photograph using an archival photo labeling pen. Label information can also be generated by computer and printed directly in the white margin (no adhesive labels).
- Information will not be printed on the actual image – only the photo margin or back of the photograph will be used for labeling.
- At a minimum, photographic labels will include the following information: Photograph number, Name of the Property, County, and State.
- Photos will be placed in archival quality photo sleeves. Two (2) sets of images should be produced.

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

March 1, 2021

Thomas Nielsen, RA
Architect
NYC School Construction Authority
30-30 Thomson Ave
Long Island City, NY 11101

NYCSCA
Redevelopment of St. John Villa Academy
57 Cleveland Pl.
Staten Island, Richmond Co.
21PR00621

Dear Thomas Nielsen:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6NYCRR Part 617).

The project consists of the demolition of an entire complex of historic school buildings. Linda Mackey in our National Register unit has determined that the complex is eligible for listing in the National Register and she has prepared an extensive Resource Evaluation that describes the cultural, historical, and architectural significance of the complex and it is attached in CRIS. Because of the historic status of the complex, we have reviewed the SCA's proposal to demolish the historic campus.

It is the opinion of OPRHP that the project will have an Adverse Impact on the historic Catholic complex. At this time, we recommend that you consult with our office on ways to avoid the adverse impact. Please prepare an alternatives analysis for our review and approval.

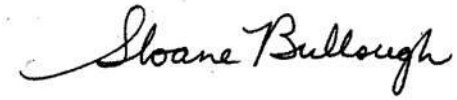
An alternatives analysis should include, but not be limited to:

1. Information about whether the historic structures can be reused to meet SCA's needs.
2. Alternative site analysis. Is there another site that could be used to meet SCA's needs instead of this site?
3. Marketability information about the site. Have there been any other developers interested in the site and how long was it listed?
4. An analysis of whether some of the buildings can be completely or partially

reused.

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS). If you have any questions, I can be reached at sloane.bullough@parks.ny.gov.

Sincerely,



Sloane Bullough
Historic Sites Restoration Coordinator via email only

HISTORICAL PERSPECTIVES INC.

Phase IA Archaeological Documentary Study

St. John Villa Academy Campus Redevelopment
57 Cleveland Place
Staten Island, Richmond County, New York 10305
Block 3087, Lot 1 and Block 3089, Lot 59

NYSOPRHP # 21PR00621

Phase IA Archaeological Documentary Study

St. John Villa Academy Campus Redevelopment
57 Cleveland Place
Staten Island, Richmond County, New York 10305
Block 3087, Lot 1 and Block 3089, Lot 59

NYSOPRHP # 21PR00621

Prepared For:

New York City School Construction Authority
30-30 Thomson Avenue
Long Island City, NY 11101

Prepared By:

Historical Perspectives, Inc.
P.O. Box 529
Westport, CT 06881

Author:
Julie Abell Horn, M.A., R.P.A.

February 2024

MANAGEMENT SUMMARY

SHPO Project Review Number (if available): **21PR00621**

Involved State and Federal Agencies: **NYCSCA**

Phase of Survey: **Phase IA Archaeological Documentary Study**

Location Information
- Location: **Block 3087, Lot 1 and Block 3089, Lot 59**
- Minor Civil Division: **08501, Staten Island**
- County: **Richmond**

Survey Area
- Length: **varies, irregular shape**
- Width: **varies, irregular shape**
- Number of Acres Surveyed: **approximately 8.5**

USGS 7.5 Minute Quadrangle Map: **The Narrows, N.Y.-N.J.**

Archaeological Survey Overview
- Number & Interval of Shovel Tests: **N/A**
- Number & Size of Units: **N/A**
- Width of Plowed Strips: **N/A**
- Surface Survey Transect Interval: **N/A, urban area**

Results of Archaeological Survey
- Number & name of precontact sites identified: **None**
- Number & name of historic sites identified: **None**
- Number & name of sites recommended for Phase II/Avoidance: **None**

Report Authors(s): **Julie Abell Horn, M.A., R.P.A., Historical Perspectives, Inc.**

Date of Report: **February 2024**

EXECUTIVE SUMMARY

The New York City School Construction Authority (SCA) proposes to acquire and redevelop the existing St. John Villa Academy campus property at 57 Cleveland Place, Staten Island, New York (Figures 1 and 2). The property is located on portions of two blocks: Block 3087, Lot 1 contains the existing campus, including a Villa (built 1847), an elementary school (built 1931), a chapel (built 1938), an annex (built 1943), a high school (built 1957/2006), a pre-k center (built 1960), a garage (date unknown) and a gymnasium (built 1987). With the exception of the chapel, which will be retained, all of the existing buildings will be demolished as part of the proposed project and the grounds will be extensively graded and reconfigured. Proposed new buildings on the property will include four schools: a 3-K school, a Primary School, and two Intermediate/High Schools. New athletic fields also will be constructed. Block 3089, Lot 59 is an undeveloped surface parking lot across Cleveland Place from the main campus on Block 3087.

The New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) has determined that the St. John Villa Academy is eligible for the State/National Register of Historic Places (S/NRHP). The eligibility form's Statement of Significance notes:

> Based on the information submitted, the St. John Villa Academy in Staten Island is significant under Criterion A in the area of education for its association with the Sisters of St. John the Baptist, a Catholic religious order of nuns that had a significant educational impact on Staten Island during the twentieth century. The property is additionally significant under Criterion C in the area of architecture for its collection of architectural resources including its Gothic Revival style Villa (1847; former estate residence), Gothic-inspired Elementary School (1931) and Chapel (1938), and mid-twentieth century Annex (1943), High School (1957) and Pre-K Center (1960), that reflect the growth of the St. John Villa Academy campus during the twentieth century. Except for the Villa, designed by James Renwick Jr., nearly all of the primary buildings are architect-designed by the firm DePace & Juster, and architect Anthony DePace independently, and reflect both the Sisters' interest in maintaining a consistent design for their complex (Mackey 2021).

Additionally, the NYSOPRHP has indicated the project site is located in an area of archaeological sensitivity, based on proximity to previously recorded precontact period archaeological sites. Given the history of the property and its potential archaeological sensitivity, the SCA has requested a Phase IA Archaeological Documentary Study for any portions of the project site that will experience ground disturbance as part of the proposed project. This report constitutes the recommended Phase IA Archaeological Documentary Study. This study complies with the standards of the NYSOPRHP (New York Archaeological Council 1994, NYSOPRHP 2005).

From what is known of precontact period settlement patterns in New York City, most habitation and processing sites are found in sheltered, elevated sites close to wetland features, major waterways, and with nearby sources of fresh water. Several small glacial ponds were located in the general vicinity, with one pond located to the northeast of the project site at the base of a steep ravine. Original soils on the site may have been well drained. However, the project site has significant topography, with much of the property containing very substantial slopes, as shown on Figure 2. Based on these factors, in its natural state if there were sections of the project site that were not excessively sloped, those areas would have had a moderate precontact sensitivity. However, there has been significant grading and filling across the property, associated with construction of former and existing buildings and extensive subgrade utility work and subterranean passageways. The present parking lot parcel once had a high knolltop that has been eradicated through grading. Given the steep slopes of the project site, combined with the significant disturbance to the property, HPI concludes that there is low precontact period archaeological sensitivity for the property.

The project site was undeveloped until the present Villa was constructed, in 1847. Originally erected for merchant William H. Townsend and his family, the Villa had a succession of owners until being sold to the Sisters of St. John the Baptist in 1922. Some of the owners could be documented as living at the Villa, likely as a summer home, including the Townsends through the early 1860s, and Charles Luling and his family into the 1870s. Both the Townsends and the Lulings employed domestic help who lived in the Villa with them. Several additional owners of the Villa from the 1880s through the first decades of the 1900s may have rented the property to tenants or used the large home for boarding. During the first decades of the twentieth century, the Villa was known as Clar Manor.

Prior to the property's use by the St. John Villa Academy, there may have been historic period archaeological resources present on the project site associated with the nineteenth-century occupation of the parcel by the Townsends, the Lulings, their workers, and others. Potential resources may have included archaeological deposits in shaft features, such as privies in use before the installation of sewers, or wells and cisterns used to collect water before municipal piped water was available on Staten Island. Shaft features such as privies, wells, and cisterns are often filled with contemporary refuse related to the dwellings and their occupants, can provide important stratified cultural deposits for the archaeologist and frequently provide the best remains recovered on sites. Frequently, wells or cisterns would be located in reasonably close proximity to a residence, for use in washing or cooking (additional wells and/or cisterns might be located further away from a residence for other uses, such as watering livestock). Privies often were situated further away from the residence, for sanitary purposes. Portions of these shaft features are often encountered because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in some cases construction often preserves the lower sections of the features by sealing them beneath structures and fill layers. Wells would have been excavated as far as the water table, and cisterns and privies often were dug up to 10-15 feet below grade. Thus, these shaft features often survive in truncated form after grading episodes. Other commonly occurring but more fragile yard remains include fence lines, paths, traces of landscaping and sheet midden scatter.

Although these shaft features or other archaeological deposits likely once existed on the project site in proximity to the Villa, it appears that very significant disturbance noted in this report almost certainly has destroyed any traces of these features. In particular, the original footprint of the Villa was once smaller than it is today. The building has been extended on several sides, including construction of a full basement across the entire building footprint. Former shaft features, particularly wells or cisterns, may have been located at the rear of the house in areas now covered by the basement. On the two sides of the Villa, there are underground passages linking the building to the chapel and the elementary school that would have further disturbed potential resources when they were constructed. Last, there are substantial buried utilities on all sides of the Villa, also in areas where potential historic period archaeological resources once may have been located. The remainder of the project site also has been substantially disturbed from grading, filling, and construction of the existing and former buildings on the property. Soil borings indicated up to 20 feet of fill across the parcel. As such, HPI concludes that the historic period archaeological sensitivity for the project site is low.

Based on the conclusions outlined above, which indicated a low sensitivity for both precontact and historic period archaeological resources, HPI recommends that no additional study is warranted.

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FIGURES

PHOTOGRAPHS
(see Figure 2 for locations)

1. The entrance to the St. John Villa campus from Cleveland Place. The former chapel building is on the right and the former elementary school building is in the far background. View looking east.

2. The former Villa building, flanked by the former elementary school on the left and the former chapel on the right. View looking southeast.

3. The west side of the former Villa on the right, showing the connection to the former chapel on the left. Note the window well for the Villa's basement on the right. View looking northwest.

4. The rear of the former Villa, showing the former location of the wraparound porch that has been enclosed as an addition with a full basement. Window wells to the basement are located along the edges. View looking northeast.

5. The former elementary school building. View looking northeast.

6. The former elementary school building, showing its construction into the side of the hill. View looking northwest.

7. The former chapel building, also built into the side of the hill. View looking southeast.

8. The former annex building on the right, with the former Villa and the former elementary school in the left background.

9. The rear of the former high school. View looking southwest.

10. The side of the former high school. View looking southwest.

11. The former childcare building and play area. View looking north.

12. The former gymnasium building. View looking southeast.

13. The former swimming pool complex. View looking north.

14. The steep slope rising up to the former Villa, former chapel and former elementary school in the background.

15. The steeply sloped area at the northeast corner of the campus. View looking northeast.

16. The surface parking lot on Block 3089. View looking northwest from Cleveland Place.

I. INTRODUCTION

The New York City School Construction Authority (SCA) proposes to acquire and redevelop the existing St. John Villa Academy campus property at 57 Cleveland Place, Staten Island, New York (Figures 1 and 2). The property is located on portions of two blocks: Block 3087, Lot 1 contains the existing campus, including a Villa (built 1847), an elementary school (built 1931), a chapel (built 1938), an annex (built 1943), a high school (built 1957/2006), a pre-k center (built 1960), a garage (date unknown) and a gymnasium (built 1987). With the exception of the chapel, which will be retained, all of the existing buildings will be demolished as part of the proposed project and the grounds will be extensively graded and reconfigured. Proposed new buildings on the property will include four schools: a 3-K school, a Primary School, and two Intermediate/High Schools. New athletic fields also will be constructed. Block 3089, Lot 59 is an undeveloped surface parking lot across Cleveland Place from the main campus on Block 3087.

The New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) has determined that the St. John Villa Academy is eligible for the State/National Register of Historic Places (S/NRHP). The eligibility form's Statement of Significance notes:

> Based on the information submitted, the St. John Villa Academy in Staten Island is significant under Criterion A in the area of education for its association with the Sisters of St. John the Baptist, a Catholic religious order of nuns that had a significant educational impact on Staten Island during the twentieth century. The property is additionally significant under Criterion C in the area of architecture for its collection of architectural resources including its Gothic Revival style Villa (1847; former estate residence), Gothic-inspired Elementary School (1931) and Chapel (1938), and mid-twentieth century Annex (1943), High School (1957) and Pre-K Center (1960), that reflect the growth of the St. John Villa Academy campus during the twentieth century. Except for the Villa, designed by James Renwick Jr., nearly all of the primary buildings are architect-designed by the firm DePace & Juster, and architect Anthony DePace independently, and reflect both the Sisters' interest in maintaining a consistent design for their complex (Mackey 2021).

Additionally, the NYSOPRHP has indicated the project site is located in an area of archaeological sensitivity, based on proximity to previously recorded precontact period archaeological sites. Given the history of the property and its potential archaeological sensitivity, the SCA has requested a Phase IA Archaeological Documentary Study for any portions of the project site that will experience ground disturbance as part of the proposed project.

This report constitutes the recommended Phase IA Archaeological Documentary Study. This study complies with the standards of the NYSOPRHP (New York Archaeological Council 1994, NYSOPRHP 2005). The HPI project team consisted of Julie Abell Horn, M.A., R.P.A., who conducted the research, the site visit, and wrote the report and Sara Mascia, Ph.D, R.P.A., who conducted the site visit and assisted with site recommendations.

II. METHODOLOGY

The present study entailed review of various resources including:

- Primary and secondary sources concerning the general precontact period and history of Staten Island and specific events associated with the project site were reviewed using materials available from the New York Public Library, the Staten Island Historical Society, the Staten Island Museum, and other online resources.
- Historic maps and photographs were reviewed from the Map Division of the New York Public Library, the Staten Island Historical Society, the Staten Island Museum, and using various online resources. These maps and photographs provided an overview of the topography and a chronology of land usage for the study site. Appendix B presents a selection of these images.
- A Master Plan for the St. John Villa Campus was provided that included historic and architectural assessments of the existing buildings (Kliment Halsband Architects 2021).
- A Phase I Environmental Site Assessment and a Phase II Environmental Site Investigation were provided by the project sponsors (AKRF 2017a, 2017b). The Phase II Environmental Site Investigation included a geotechnical report and a soil testing program.
- Selected records from the Richmond County Clerk's Land Records Office were reviewed to establish ownership of the property over time using familysearch.org.

- Census records and vital statistics were searched for information about former site occupants using resources on ancestry.com and familysearch.org.
- Historic newspapers were searched for references to the project site.
- Information about previously recorded archaeological sites and surveys in the area was compiled from data available at the NYSOPRHP and the LPC.
- A site visit was conducted on November 20, 2023, to photo document the site and assess any obvious or unrecorded subsurface disturbance (Photographs 1–16; Figure 2).

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

The project site consists of land on two adjacent blocks. The larger parcel is on Block 3087, Lot 1, and comprises the former St. John Villa Academy buildings and grounds. The smaller parcel is a rectangular-shaped, surface parking lot on Block 3089, Lot 59. Both lots are accessed off Cleveland Place.

The main parcel is hillside tract that rises steeply from all sides (Photograph 1). The highest point on the lot contains the former "Villa" building, which was designed by James Renwick, Jr. and constructed in 1847 as a private residence for its first owners, William H. Townsend and his family (Photograph 2). The Villa has an interior layout reminiscent of a Tuscan villa, but has a Gothic Revival architectural style, which has been modified substantially through numerous alterations (Kliment Halsband Architects 2021). It is two stories high with a full basement. The rear (southern) section of the building was formerly an open wraparound porch, which later was enclosed and the original basement extended to match its footprint (Photographs 3 and 4). There are window wells along the periphery of the building that allow light and air into the basement level.

Flanking the Villa are two 1930s buildings, a former elementary school (Photographs 5 and 6) and a former chapel (Photograph 7). Both of these multiple-story buildings with basements are constructed into the east and west sides of the natural hillside. There are subterranean passageways linking the Villa to each of these buildings as well as an above-ground link to the chapel (see Photograph 3).

Additional buildings on Lot 1 include a 1940s two-story annex building and a one-story garage located southeast of the Villa, a 1950s two-story high school building fronting Landis Avenue, a 1960s one-story childcare center on the eastern side of the lot, and a large gymnasium building fronting Hastings Street (Photographs 8-12). There is also an inground swimming pool complex to the north of the childcare center building (Photograph 13). All of the buildings are serviced by multiple underground utilities.

The grounds on Lot 1 exhibit steep slopes, particularly to the south of the Villa, and have been highly modified in other public areas, with pathways, driveways, and parking lots encircling the buildings (Photograph 14). The undeveloped northeastern corner of the lot contains a very steeply sloped natural hillside merging with an artificial embankment rising to meet the elevated roadway of Narrows Road South (Photograph 15).

The lot on Block 3089 has been significantly graded and filled to create the artificial level and paved parking area (Photograph 16).

B. Topography and Hydrology

Early maps of Staten Island record the general topography and environment of the project site prior to development. The project site is located within an area of undulating topography and includes steep slopes. The earliest recorded numerical elevations are derived from topographic maps and real estate atlases. The 1891 U.S.G.S. topographical map showed that the project site had elevations ranging from less than 80 feet above sea level at the lowest point to over 140 feet above sea level at the highest point (U.S.G.S. 1891). The 1908 topographic survey (Figure 9) clarified that the Block 3087 project site ranged in elevation from 65 feet above sea level at the northeast corner of the project site to approximately 150 feet above sea level in the location of the Villa, and 155 feet above sea level within the current parking lot on Block 3089. Comparison with the modern topographical survey (Figure 2) shows the degree to which the natural landforms have been modified through grading, filling, and construction of the St. John Villa

campus buildings, roadways, and infrastructure. In particular, the natural slopes surrounding the highest point on Block 3087, where the Villa is located, have been modified through construction of the campus buildings, some of which have been built into the hillsides. The periphery of the campus grounds on Block 3087 have been modified through construction of additional buildings, including the high school, the Pre-K, and the gymnasium. At the northeast corner of Block 3087, the former low-lying area has been artificially filled to create the steep slope bordering Narrows Road South. Last, the Block 3089 portion of the project site formerly had a high knolltop, with elevations up to 155 feet above sea level. The modern topographical survey shows that the entire knoll was removed, as the landform of the parking lot today is generally level, with elevations in this area at approximately elevation 135 (NAVD 88 Datum).

This portion of Staten Island once contained scattered small glacial kettle holes that filled with water, creating small ponds. One of these ponds was shown on the 1908 topographical map (Figure 9), immediately northeast of the project site, in an area now covered by Interstate 278 and Narrows Road South. Grasmere Lake is the closest natural water source to the project site, located over 2500 feet to the northwest. There are no other fresh water sources in the vicinity.

C. Geology

The project site is located along the terminal moraine of the Piedmont Lowlands. As described by Boesch (after Wolfe 1977),

> The Piedmont Lowlands make up about one fifth of the land area of Staten Island and consist of gently rolling terrain, generally between 50 and 100 feet in elevation, which gradually slopes to the southeast. The undulating surface is interrupted by an intrusive ridge, 200 to 250 feet in elevation, and by slightly lower, plateau-like topographic features. The rolling lowlands are generally underlain by Triassic and Jurassic age shales, siltstones, and sandstones of the Brunswick Formation of the Newark Group[,] while the ridges are composed of basaltic lava flows and diabase traprock. The plateau-like features developed on erosion resistant Lockatong Formation Argillites (Boesch 1994: 3).

During the precontact era the woodlands of the Piedmont Lowlands consisted of broadleaf deciduous trees, which provided a habitat for "game birds, small mammals, deer, bear, and during at least a portion of the precontact period, elk" (Boesch 1994: 6). Mixed wetland ecologies provided numerous floral and faunal resources, the most important faunal resources being the shellfish found in saltwater and brackish environments. Freshwater faunal resources include "mussels, fish, certain amphibians and reptiles, migratory fowl, and semi-aquatic mammals. Anadromous fish species would have been present seasonally within Staten Island via streams emptying into the estuary system (Boesch 1994: 5-6).

D. Soils

There are two soil mapping units within the project site, as shown on Figure 3. The majority of the project site is mapped as Urban land-Greenbelt complex, 3 to 8 percent slopes, low impervious surface (UGBI). A portion of the eastern side of the project site bordering Narrows Road South is mapped as Urban land, till substratum, 3 to 8 percent slopes (UtB). Both of these soil mapping units are indicative of areas that have been substantially altered through modern development.

As part of the Phase II Environmental Site Investigation of the project site, a total of 24 soil borings were advanced at specific areas within the project site, in both interior and exterior locations (AKRF 2017b). The boring location maps and boring logs are included as Appendix A. Results of the soil borings indicated widespread and thick strata of fill within the upper reaches of all of the borings, regardless of location. Depth of the fill strata ranged from 5 feet below grade to 20 feet below grade, which was the terminal depth of most of the soil borings. Natural subsoil was recorded below the fill strata in those soil borings that had shallower fill mantles. None of the soil borings reached bedrock. Where groundwater was measured, it was in excess of 28 feet below grade. Most of the soil borings did not reach groundwater.

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Precontact Summary

For this report, the word precontact is used to describe the period prior to the use of formal written records. In the western hemisphere, the precontact period also refers to the time before European exploration and settlement of the New World. Archaeologists and historians gain their knowledge and understanding of precontact Native Americans on Staten Island from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

Based on data from these sources, a precontact cultural chronology has been devised for the New York City area. Scholars generally divide the precontact era into three main periods, the Paleo-Indian (c. 14,000-9,500 years ago), the Archaic (c. 9,500-3,000 years ago), and the Woodland (c. 3,000-500 years ago). The Archaic and Woodland periods are further divided into Early, Middle, and Late substages. The Woodland was followed by the Contact Period (c. 500-300 years ago). Artifacts, settlement, subsistence, and cultural systems changed through time with each of these stages. Characteristics of these temporal periods have been well documented elsewhere, and in keeping with guidelines issued by the NYSOPRHP (2005), will not be fully reiterated here.

In general, scholars characterize precontact sites by their close proximity to a water source, fresh game, and exploitable natural resources (i.e., plants, raw materials for stone tools, clay veins, etc.). These sites are often separated into three categories: primary (campsites or villages), secondary (tool manufacturing, food processing), and isolated finds (a single or very few artifacts either lost or discarded). Primary sites are often situated in locales that are easily defended against both nature (weather) and enemies. Secondary sites are often found in the location of exploitable resources (e.g., shell fish, lithic raw materials).

B. Previously Recorded Archaeological Sites and Surveys

Records on file at the NYSOPRHP and the New York State Museum (NYSM) as well as the Boesch (1994) *Archaeological and Sensitivity Assessment of Staten Island, New York* indicate that although no archaeological sites have been previously recorded on the project site, there have been a number of both precontact period archaeological sites and historic period archaeological sites documented within one mile of the project site. They are listed in the table, below. Of note, NYSM site locations and descriptions often are vague, due to the fact that many of these sites were documented based on non-professional records (such as information from local landowners, avocational collectors, or historic accounts); descriptions and distances of these sites from the project site are given based on available mapping and other data, but should not be considered definitive. Some sites have had different numbers and names applied to them over time; all known appellations are listed in the first column.

Site # and Name	Location	Time Period	Site Type
08501.000007 Fountain-Moquin House	Fort Wadsworth	Woodland Period, 1790-1907	House site with precontact component
08501.000027 Old Town Oude Dorp	Southern corner of Fort Wadsworth Reservation, beach area, includes NYSM 750, below	Precontact (Archaic-Woodland), Dutch (1641+)	Precontact and Dutch settlement site
08501.000031 Fort Wadsworth. U.S. Army Reservation	Fort Wadsworth	Precontact and historic	Unknown precontact, military installation
08501.00167 Fort Wadsworth	Fort Wadsworth shoreline	Late Woodland	Camp

Site # and Name	Location	Time Period	Site Type
08501.004307 Meade 5098 Saint Mary's Church, Rosebank (Father John Lewis Grave)	Bay Street and Church Lane	Historic	Grave
08501.004309 Meade 5064 Saint Mary's Cemetery	155 Parkinson Avenue	Historic	Cemetery
08501.004311 Meade 5020 Fort Wadsworth Cemetery	Fort Wadsworth	Historic	Cemetery
08501.004312 Meade 5081 Van der Venter-Jacobson Family Vault	Fort Wadsworth	Historic	Family vault
NYSM 750 Walton-Stillwell Boesch 76	Southern corner of Fort Wadsworth Reservation, beach area	Dutch (1670+), unknown precontact	Historic house remains and aboriginal refuse pit/house
NYSM 7320 Fort Wadsworth	Fort Wadsworth shoreline	Unknown precontact	Isolated precontact point
NYSM 8479	Area east of Grasmere Lake (Brady's Pond)	Unknown precontact	Camp
NYSM 8478	Large, vaguely shaped area on both sides of Staten Island Expressway in Arrochar and Grasmere neighborhoods, overlapping project site	Unknown precontact	Traces of occupation
NYSM 8477	Area near intersection of Hylan Boulevard and Steuben Street	Unknown precontact	Camp
NYSM 4611 Boesch 75	Area roughly bounded by Fort Wadsworth, Robin Road, Major Road, and Sand Lane	Unknown precontact, possible Woodland	Camp, shell middens
Boesch 36 STD 24-4	Fort Wadsworth	Unknown precontact	Unknown
Boesch 45 Van-Deventer Fountain House	Fort Wadsworth	Middle-Late Woodland	Camp
Boesch 99 STD-FH Fox Hills	Fox Hills neighborhood	Unknown precontact	Unknown
Boesch 100 STD-RB Rosebank	Bay Street and Hylan Boulevard	Unknown precontact	Unknown
Boesch 103 STD-C Clifton	Tompkins Avenue and Staten Island Railroad	Woodland	Unknown

Site # and Name	Location	Time Period	Site Type
Boesch 108 Brady's Pond Grasmere	West side of Brady's Pond (Grasmere Lake)	Woodland	Camp
Boesch 111 STD-25-4	Shoreline of South Beach between lines of Sand Lane and Vulcan Street	Unknown precontact	Unknown

Last, based on proximity to previously recorded archaeological sites, the NYSOPRHP GIS indicates that the project site is within an area of archaeological sensitivity and the Boesch (1994) study notes that the project site is within an area of moderate archaeological sensitivity.

The project site has never been subjected to a previous archaeological survey. However, there have been a number of archaeological surveys conducted within a one-mile radius of the project site, submitted to both the NYSOPRHP and the LPC. Several studies addressed beachfront resources along the south shore of Staten Island and South Beach, including Fort Wadsworth (Lipson et al. 1978, JMA 1978, Panamerican Consultants 2005; Salwen et al. 1984; LBA 1985, 1990; NPS 1994). Archaeological studies also have been conducted for the South Beach watershed area (HPI 2011) and on several individual parcels in the area (Pickman 2006, 2007, 2008; HPI 2014). Within the last ten years, many of the archaeological surveys have been undertaken in advance of new infrastructure for energy and telecommunications, as well as in conjunction with repair and resiliency projects in proximity to the coastline (NPS 2017, Chrysalis 2019, E2 Project Management 2017, Hunter 2020, AKRF 2023, Stantec 2023). No archaeological sites, other than those noted in the above table, have been recorded as a result of these surveys.

C. History of the Project Site

The project site is near the neighborhood of Oude Dorp, or Old Town, which was established near the shoreline southwest of what is now Fort Wadsworth along Old Town Road (now Olympia Boulevard) in the 1660s, and was the earliest historic period settlement within the watershed. Early roads in the area included Old Town Road, Richmond Road, and Fingerboard Road, which although officially designated in 1774, was said to follow an earlier road, possibly a Native American trail (Leng and Davis 1930, Vol. I: 142; McMillen 1946:14). Revolutionary War era maps, such as the 1780-1783 Anglo-Hessian Map, the 1781 Taylor and Skinner map, the 1797 Conner and Sprong map, and McMillen's *A Map of Staten Island During the Revolution, 1775-1783* (1933) show that there was only sparse settlement within the overall project site vicinity with structures located along or branching off from these major roads at that time. No improvements were shown within the project site itself. The project site had been part of a larger rectangular-shaped land grant that had a frontage on the Lower New York Bay waterfront and extended inward from the shoreline. The approximately 80 acre parcel was attributed to William Beekman in 1686 (Skene 1907).

Despite the presence of nearby Richmond Road and Fingerboard Road, the project site and vicinity remained undeveloped until the 1840s (U.S.C.S. 1836, 1844; Blood 1845). By this time, the project site was part of a large undeveloped and wooded parcel owned by William Bloodgood (Blood 1845). In 1846 William Bloodgood sold an approximately 20-acre tract including the project site to William H. Townsend (Liber 14:72). Both men were merchants living in New York City at the time. Townsend was the first owner to develop the project site. In 1847 the present Villa on the project site was constructed from a design by noted architect James Renwick, Jr. (Kliment Halsband Architects 2021, Mackey 2021).

Although William H. Townsend had another home and worked in Manhattan, he and his family spent at least part of their time at their home on the project site. The 1850 federal census for the Town of Southfield, Richmond County listed William H. Townsend, 48, Merchant, living in a household with his wife Sarah, 34, children Mary (12), Alice (10) , William (6), and Grace (4), as well as with three Black residents with no occupations listed, although they likely were domestic workers: Mary Simons (39), Thomas Simons (16) and Jacob Bartley (44). The 1860 federal census for Southfield indicated a similar overall makeup of the Townsend household, although only Alice and Grace remained living at home. William was now listed as a manufacturer rather than a merchant. The Black domestic workers had been replaced by Irish domestic workers by 1860. Names included Rose Curren (32), waitress; Ellen Leonard (30), servant; Ann Rylay (27), cook, and Michael Ryan (38), coachman.

The 1853 Butler map was among the first historic maps to identify the Townsend home on the roughly rectangular-shaped property (Figure 4). Although not to scale (showing the building too far to the south on the property) the map did indicate that the Villa was situated atop a high knoll and there were access drives linking to Fingerboard Road on the north and to Richmond Road on the south. The current parking lot on the project site also was depicted as containing a knoll landform. The 1856 U.S.C.S. map (Figure 5) showed the property in greater detail, including tract lines and additional topography. In addition to the Villa, another building was depicted at the southeast corner of the property, with a driveway leading from the main house to the building, which likely was a stable or carriage house. The Townsend house also was shown and labeled on the 1859 and 1860 Walling maps.

In 1863, the Townsends sold their property, including the project site, to Elena Luling, whose husband Charles Luling also was a wealthy New York City merchant (Liber 51:458). The 1870 federal census for Southfield listed a household that included Charles Luling, 49, Merchant, born in Bremen; his American wife Eleanor, 38; children Blanche (14), Marie (11), Eleanor (5), and Theodore (1); along with four adult female domestic workers born in England, Ireland, Germany, and New York; and a German gardener and his wife. Both the 1872 Dripps map and the 1874 Beers map (Figure 6) attributed the project site and vicinity to C. Luling. The Beers map indicated that that the overall tract measured about 45 acres. The same two buildings were shown on the main parcel of the project site: the Villa and the outbuilding, and additional paths were shown wending through the property. One small building was shown on the present parking lot parcel.

The Luling family may not have been living on the project site year round after 1870, as subsequent state and federal census records did not place them on Staten Island. Beginning in the 1880s, there was a series of land transfers for the property. In 1881, Elena Luling of Southfield sold the project site parcel to Solomon Ranger of New York City, who in turn sold the property to Louis Walter in 1882, also from New York City (Liber 138:356, Liber 142:307). In 1886, Louis Walter sold the same property to railroad magnate Alpheus B. (A.B.) Stickney of St. Paul, Minnesota (Liber 171:360).

The 1887 Beers map (Figure 7) showed similar conditions to the 1874 Beers map (Figure 6), with several changes. The property was now attributed to A.B. Stickney and the second building on the project site was labeled a stable. The soon to be constructed Arrochar Branch of the Staten Island Rapid Transit Railroad was depicted crossing through the eastern side of the Stickney property, albeit outside the project site. The railroad branch opened in 1888 on a slightly altered alignment than was shown on the 1887 Beers map. It is unclear to what degree Stickney or his family ever occupied the project site and at what point they sold it.

There were several additional owners and occupants of the project site during the first decades of the twentieth century. The 1907 Robinson map (Figure 8) attributed the property to Gustav Nassauer and indicated that the estate was called “Clar Manor.” The map showed a number of smaller, undeveloped lots on the project site that seemingly were not official city lots. By contrast, the 1908 Borough of Richmond topographic map (Figure 9) did not show any additional lot divisions within the project site. A number of the city streets also appeared to exist on paper only at this time. Approximately ten years later, the 1917 Bromley map (Figure 10) showed that the main project site parcel was attributed to Louisa G. Macdermott, the portion of the project site west of unopened Glen Street was labeled W. Knauth, and the present parking lot parcel belonged to Effie MacFarland. The 1917 Sanborn map (Figure 11) did not indicate ownership of the project site, but did show that the Villa was called Clar Manor and was used for boarding.

Newspaper listings from this time period corroborate the map data. An advertisement in 1908 under the heading “Country Board – Summer Resorts” referenced the property as being available for boarding:

> Clar Manor. Arrochar, Staten Island, near station and South Beach: beautifully situated, large grounds, ocean view large rooms, excellent board, electric light, moderate rates (*New York Evening Telegram* September 5, 1908).

In 1910, the property changed hands when a newspaper listing indicated that the Riverhead Bank, which had taken ownership of the estate (likely through foreclosure), sold the 4.3 acre estate to a new unnamed owner *(New York Press* October 23, 1910). This new owner likely was Louisa Gunst MacDermott, identified on the 1917 Bromley

map (Figure 9). Another newspaper account indicated that she owned the property in 1914, when her mother, Christina Imbery, passed away while staying there (*Brooklyn Standard Union* April 25, 1914).

In 1918, under the heading "Houses for Sale or to Let" the property again was offered to the public by the McDermotts:

> Arrochar, Clar Manor, McDermott. – Beautifully situated, splendid view, 45 minutes from Battery; vegetable garden; high class. (*New York Times* May 19, 1918).

Louisa MacDermott died in 1921. The following year, her executors sold the property, including the project site, to the Sisters of St. John the Baptist (Liber 552:129).

The Sisters of St. John the Baptist established the first educational facility on the project site. The St. John Novitiate and Boarding School opened in the fall of 1923, using the newly renovated Villa on the property to both house and educate its students. Over time, the institution grew. It was renamed St. John Villa Academy in 1931. During the 1930s, the present elementary school and chapel buildings were constructed, to the east and west of the Villa. The architects for the two new buildings and for the renovations to the Villa were the firm DePace & Juster, and later architect Anthony DePace (Kliment Halsband Architects 2021, Mackey 2021). The 1937 Sanborn map (Figure 12) illustrated the buildings on the project site after the new school and chapel had been constructed, in addition to several small frame buildings along the eastern side of the property. The former stable at the southeastern corner of the property once associated with Clar Manor had been removed by this time.

The St. John Villa Academy campus continued to develop, with additional buildings constructed during the coming decades. The 1951 Sanborn map (Figure 13) showed that by this time, the Annex building (here labeled a dormitory and laundry) had been constructed to in the southeast portion of the project site. Several additional outbuildings for the campus also were shown in this part of the project site. Additional buildings constructed in the 1950s and 1960s included a garage near the Annex, the Pre-K center, and the high school. The present gymnasium building was constructed in the 1980s. Many of the buildings were altered and/or added to during the period that St. John Villa Academy was operating, with a new addition for the high school constructed as late as 2006 (Kliment Halsband Architects 2021, Mackey 2021). The driveways and other landscape elements surrounding the buildings have been reconfigured several times. Appendix B is a collection of historic postcards that shows views of the campus over time.

Although the boarding school on the project site associated with the St. John Villa Academy ceased operations in the 1970s, the elementary school and high school remained open until 2018, when the facility closed due to the lack of adequate personnel and faculty and declining enrollment.

V. CONCLUSIONS

A. Precontact Archaeological Sensitivity

From what is known of precontact period settlement patterns in New York City, most habitation and processing sites are found in sheltered, elevated sites close to wetland features, major waterways, and with nearby sources of fresh water. Several small glacial ponds were located in the general vicinity, with one pond located to the northeast of the project site at the base of a steep ravine. Original soils on the site may have been well drained. However, the project site has significant topography, with much of the property containing very substantial slopes, as shown on Figure 2. Based on these factors, in its natural state if there were sections of the project site that were not excessively sloped, those areas would have had a moderate precontact sensitivity. However, there has been significant grading and filling across the property, associated with construction of former and existing buildings and extensive subgrade utility work and subterranean passageways. The present parking lot parcel once had a high knolltop that has been eradicated through grading. Given the steep slopes of the project site, combined with the significant disturbance to the property, HPI concludes that there is low precontact period archaeological sensitivity for the property.

B. Historic Period Archaeological Sensitivity

The project site was undeveloped until the present Villa was constructed, in 1847. Originally erected for merchant William H. Townsend and his family, the Villa had a succession of owners until being sold to the Sisters of St. John the Baptist in 1922. Some of the owners could be documented as living at the Villa, likely as a summer home, including the Townsends through the early 1860s, and Charles Luling and his family into the 1870s. Both the Townsends and the Lulings employed domestic help who lived in the Villa with them. Several additional owners of the Villa from the 1880s through the first decades of the 1900s may have rented the property to tenants or used the large home for boarding. During the first decades of the twentieth century, the Villa was known as Clar Manor.

Prior to the property's use by the St. John Villa Academy, there may have been historic period archaeological resources present on the project site associated with the nineteenth-century occupation of the parcel by the Townsends, the Lulings, their workers, and others. Potential resources may have included archaeological deposits in shaft features, such as privies in use before the installation of sewers, or wells and cisterns used to collect water before municipal piped water was available on Staten Island. Shaft features such as privies, wells, and cisterns are often filled with contemporary refuse related to the dwellings and their occupants, can provide important stratified cultural deposits for the archaeologist and frequently provide the best remains recovered on sites. Frequently, wells or cisterns would be located in reasonably close proximity to a residence, for use in washing or cooking (additional wells and/or cisterns might be located further away from a residence for other uses, such as watering livestock). Privies often were situated further away from the residence, for sanitary purposes. Portions of these shaft features are often encountered because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in some cases construction often preserves the lower sections of the features by sealing them beneath structures and fill layers. Wells would have been excavated as far as the water table, and cisterns and privies often were dug up to 10-15 feet below grade. Thus, these shaft features often survive in truncated form after grading episodes. Other commonly occurring but more fragile yard remains include fence lines, paths, traces of landscaping and sheet midden scatter.

Although these shaft features or other archaeological deposits likely once existed on the project site in proximity to the Villa, it appears that very significant disturbance noted in this report almost certainly has destroyed any traces of these features. In particular, the original footprint of the Villa was once smaller than it is today. The building has been extended on several sides, including construction of a full basement across the entire building footprint. Former shaft features, particularly wells or cisterns, may have been located at the rear of the house in areas now covered by the basement. On the two sides of the Villa, there are underground passages linking the building to the chapel and the elementary school that would have further disturbed potential resources when they were constructed. Last, there are substantial buried utilities on all sides of the Villa, also in areas where potential historic period archaeological resources once may have been located. The remainder of the project site also has been substantially disturbed from grading, filling, and construction of the existing and former buildings on the property. Soil borings indicated up to 20 feet of fill across the parcel. As such, HPI concludes that the historic period archaeological sensitivity for the project site is low.

VI. RECOMMENDATIONS

Based on the conclusions outlined above, which indicated a low sensitivity for both precontact and historic period archaeological resources, HPI recommends that no additional study is warranted.

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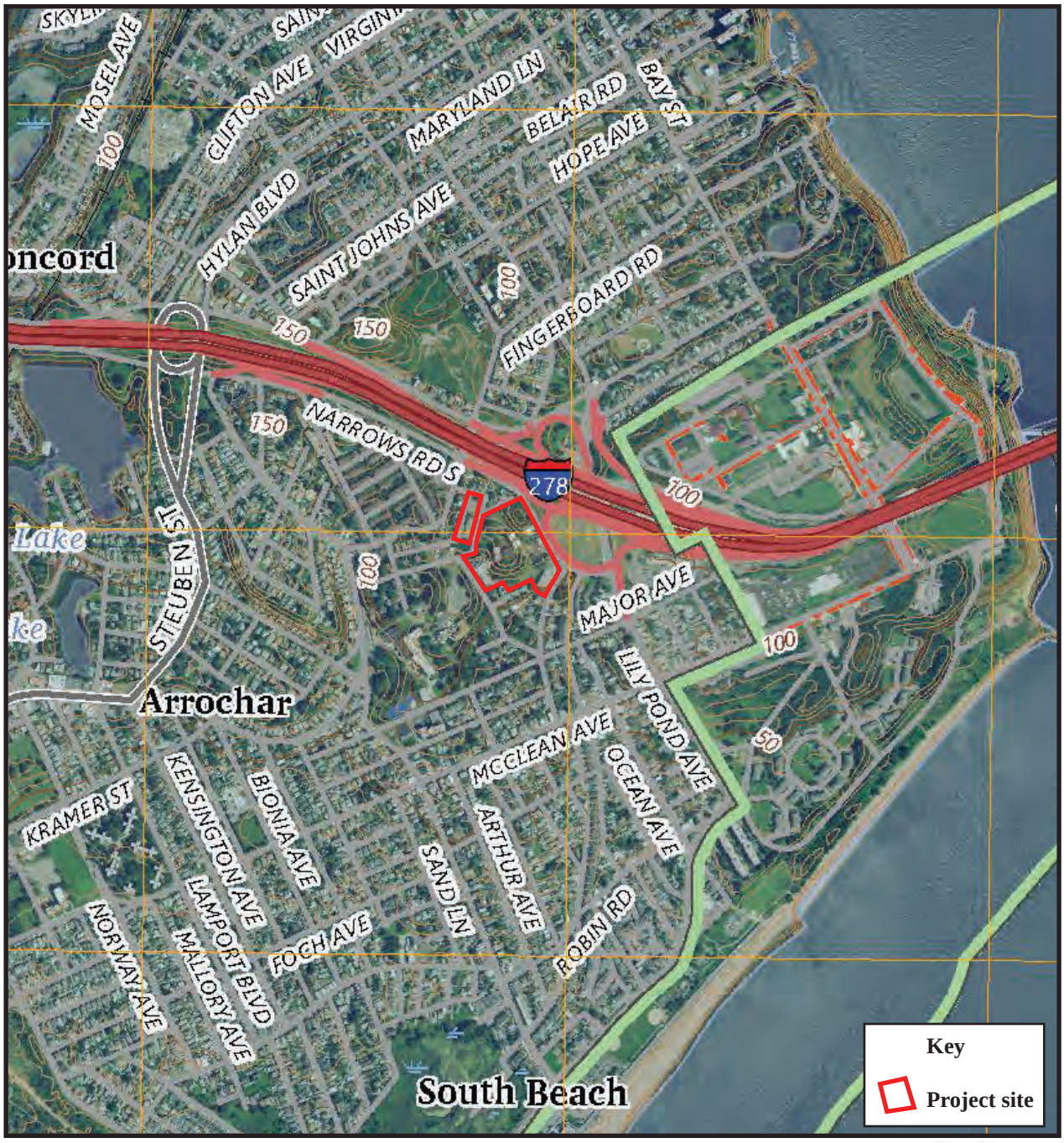


Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 1: Project site on *The Narrows, N.Y.* 7.5 minute topographic quadrangle (U.S.G.S. 2023).

0 500 1000 1500 2000 2500 FEET

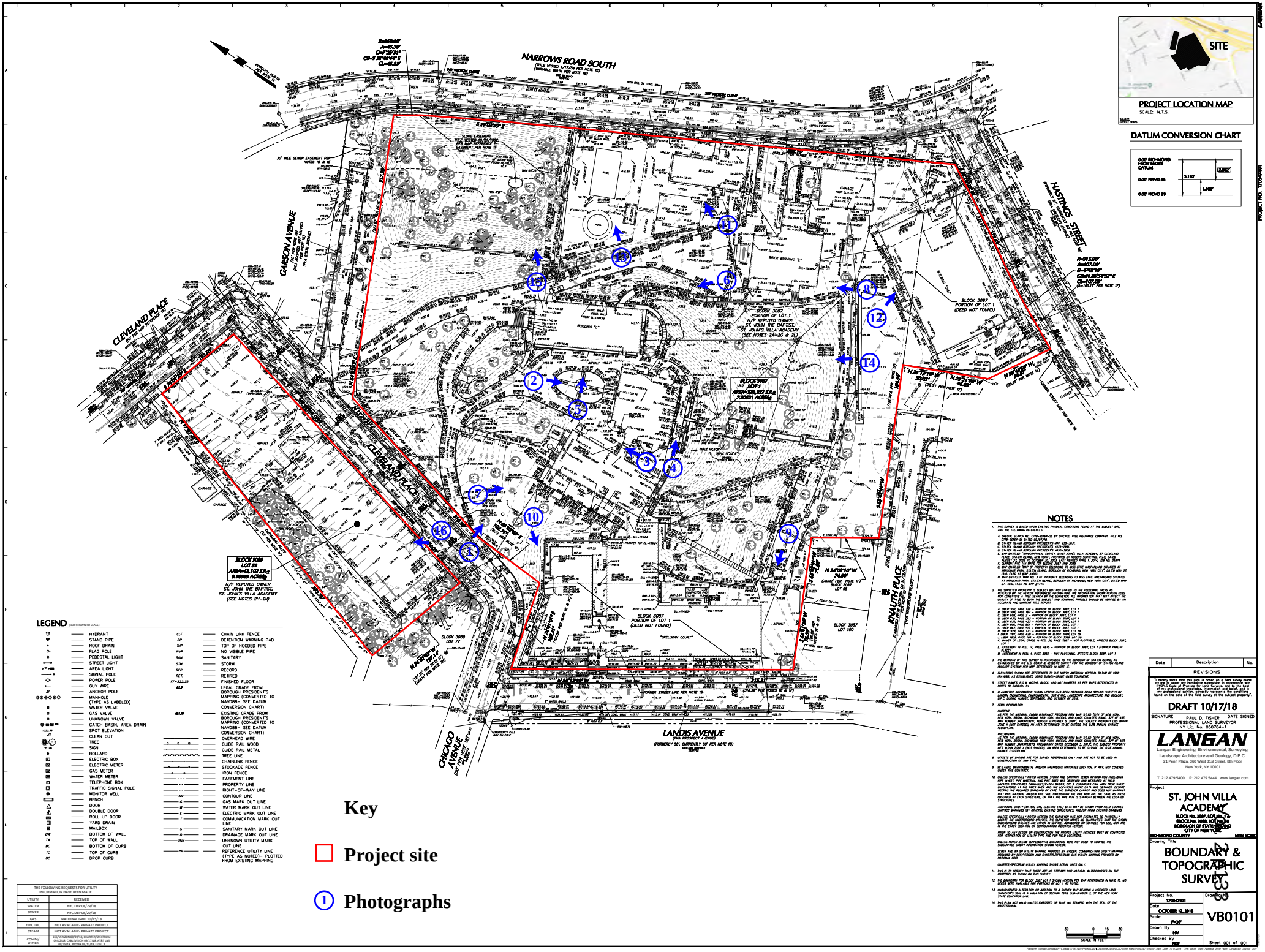
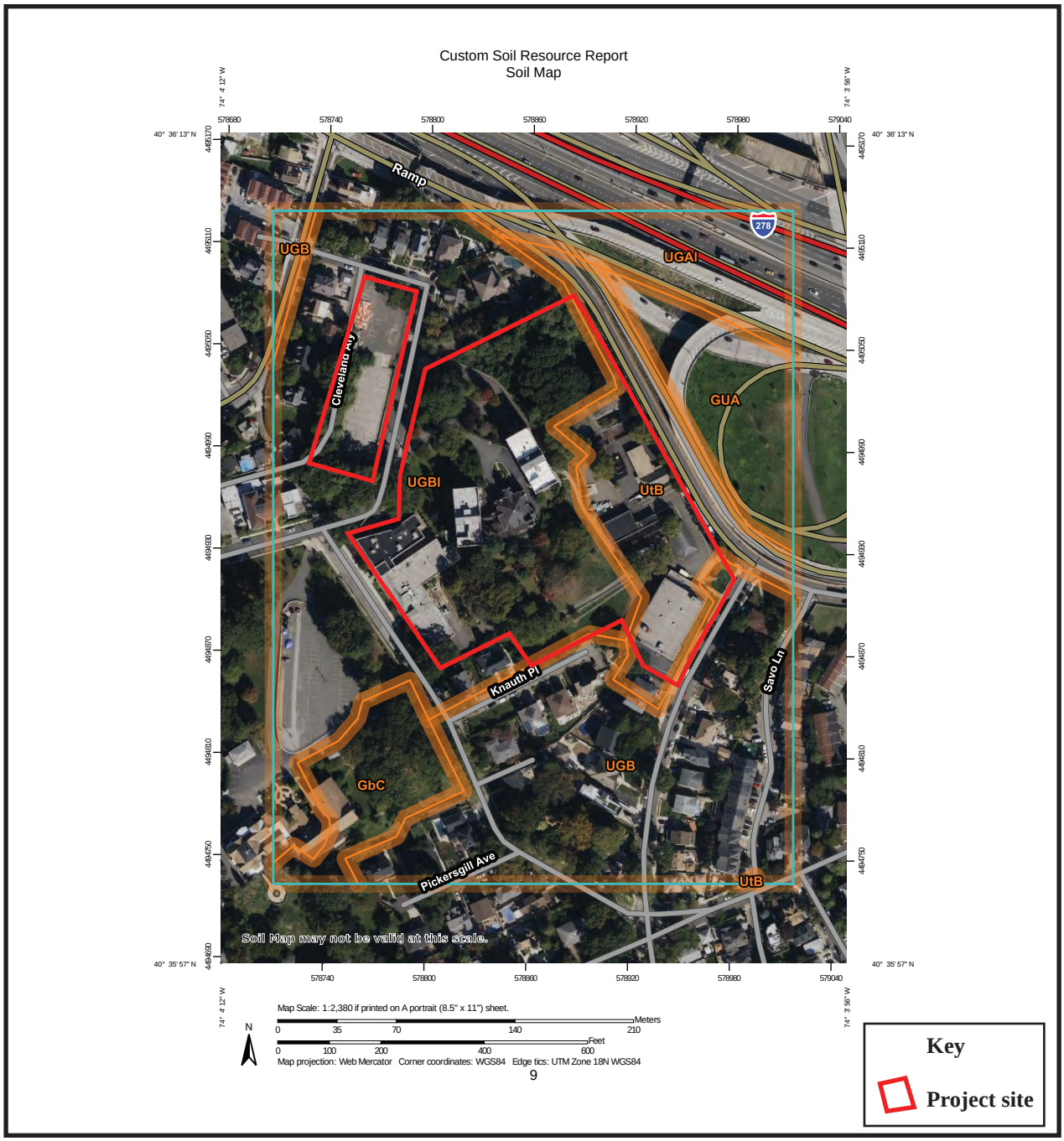
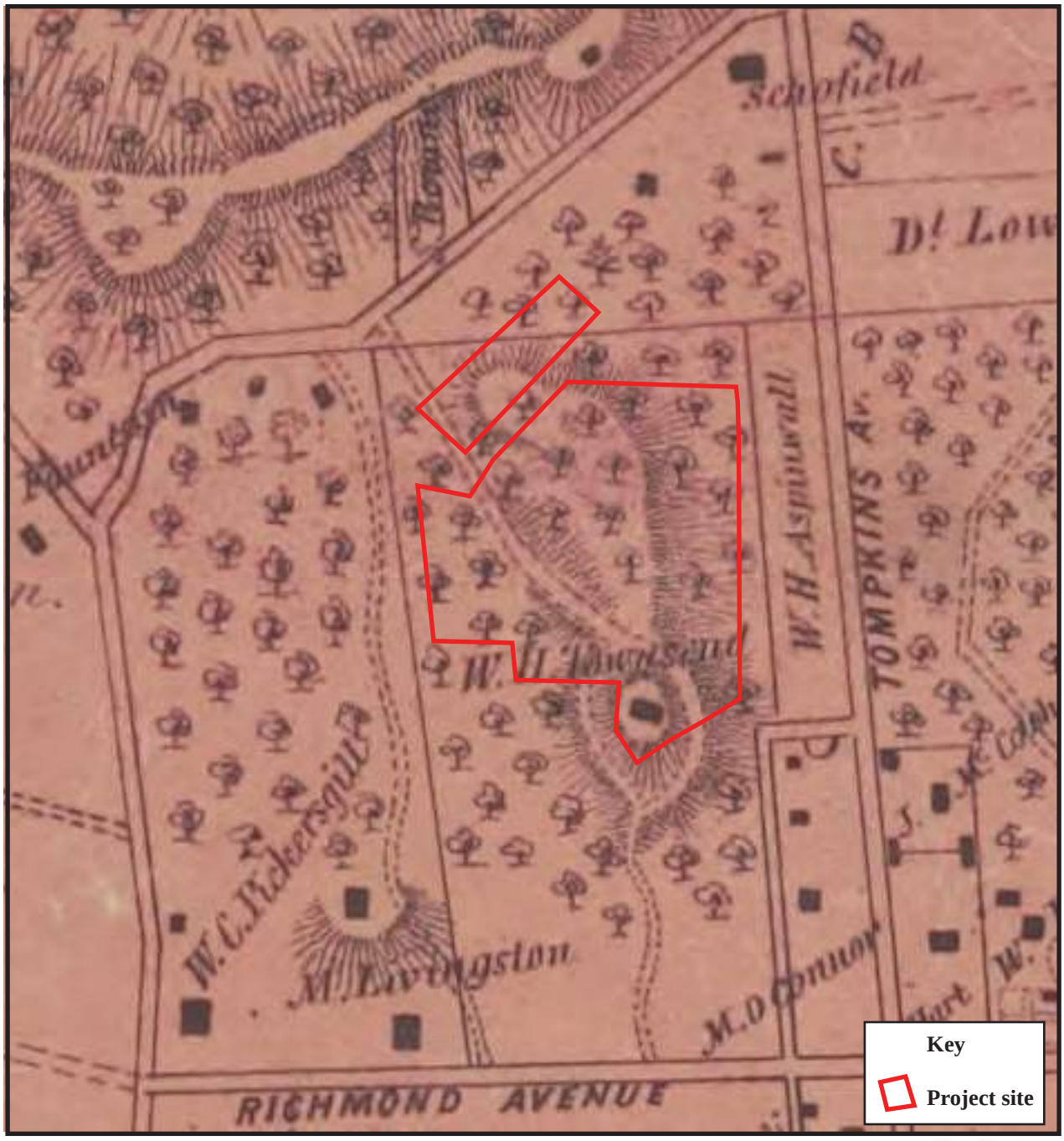


Figure 2. Project site and photograph locations on modern topographic survey map (HPI 2024 and Fisher 2018).



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

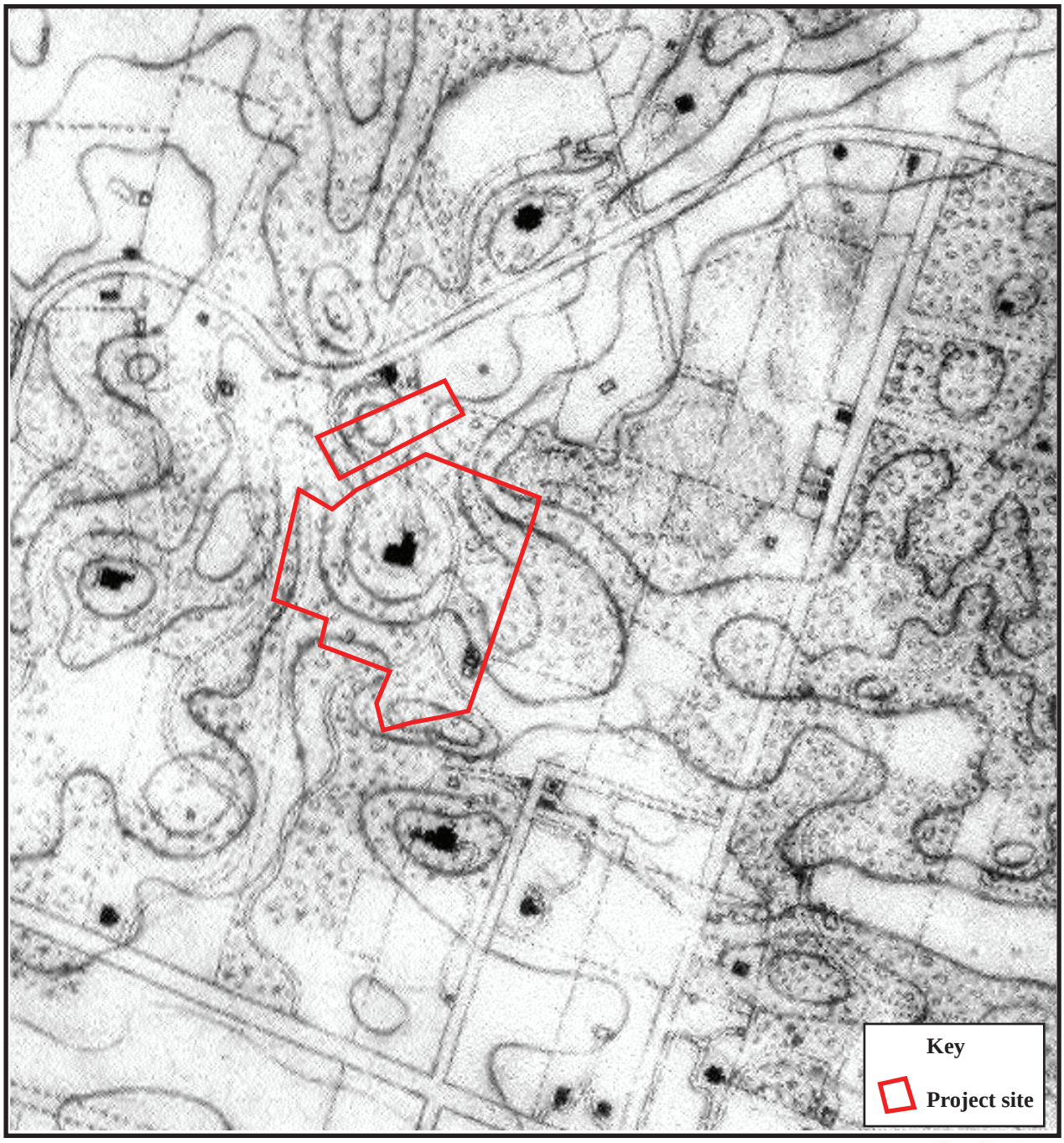
Figure 3: Project site on web soil survey (U.S.D.A. 2023).



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 4: Project site (approximate) on *Map of Staten Island or Richmond County, New York* (Butler 1853).

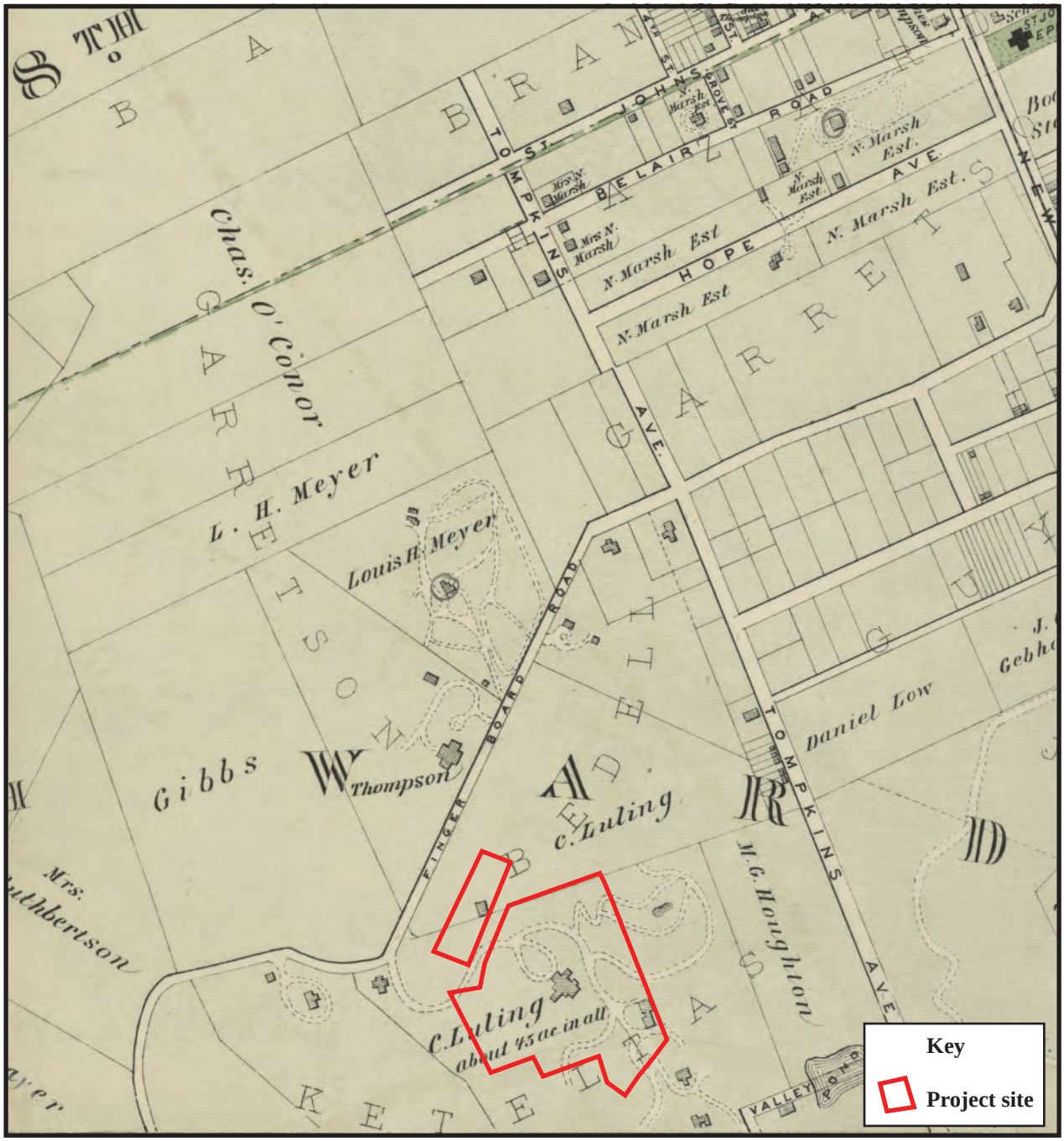
Not to scale (building is erroneously located).



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 5: Project site on *Staten Island, New York Harbor, from New Brighton to Fresh Kills* (U.S.C.S. 1856).

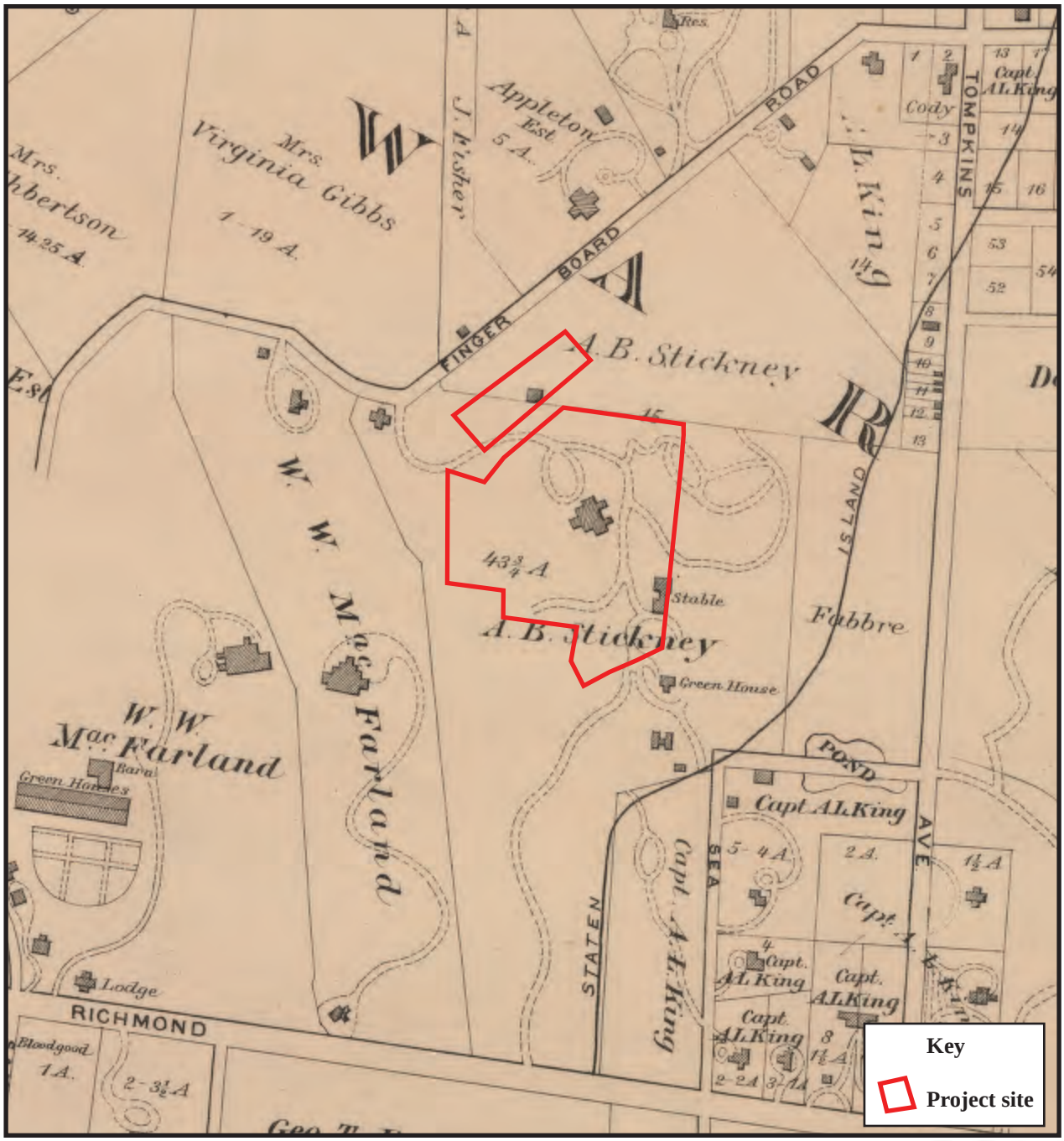
0 200 400 600 800 1000 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 6: Project site on *Atlas of Staten Island, Richmond County, New York* (Beers 1874).

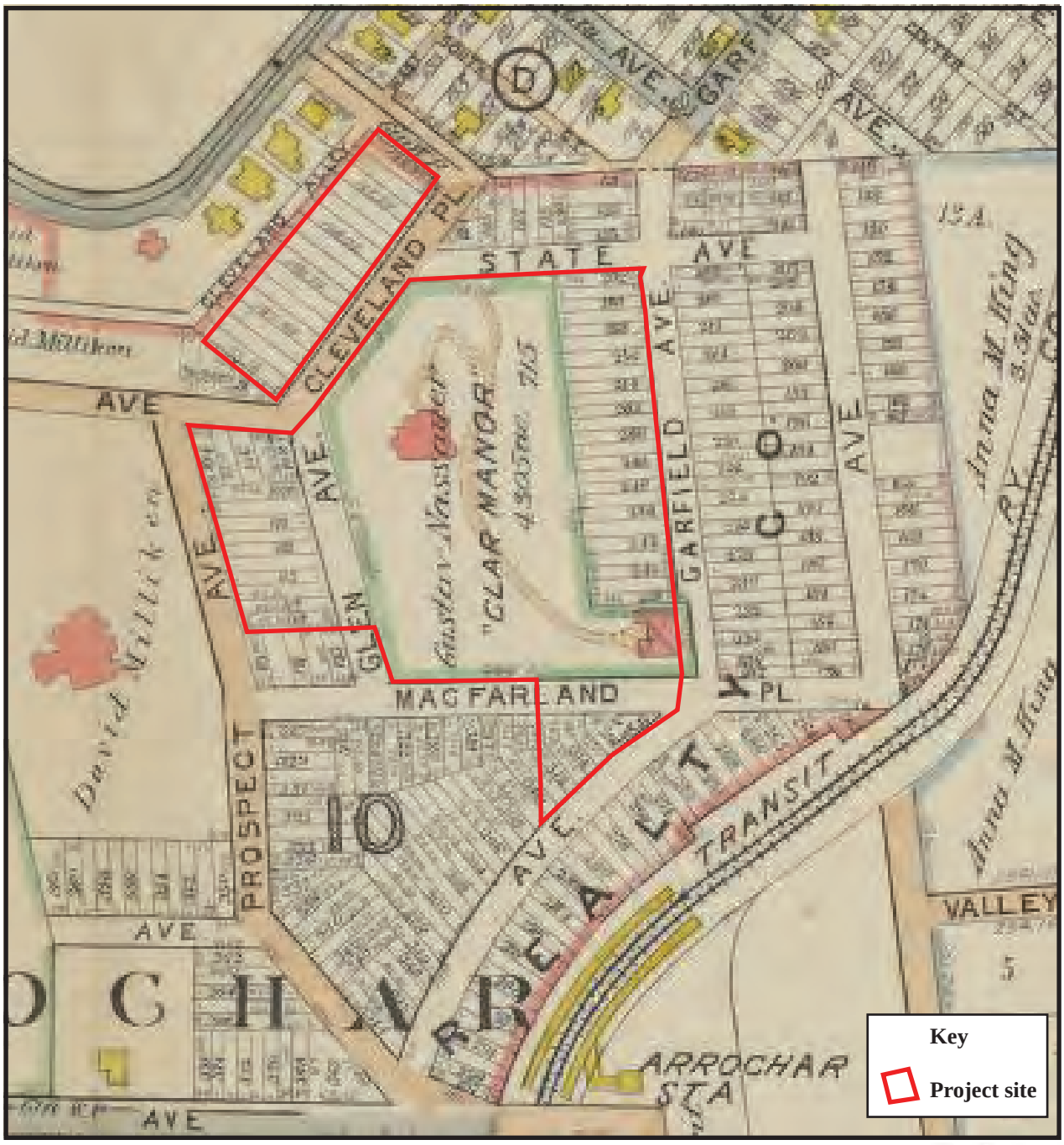
0 200 400 600 800 1000 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 7: Project site on *Atlas of Staten Island, Richmond County, New York* (Beers 1887).

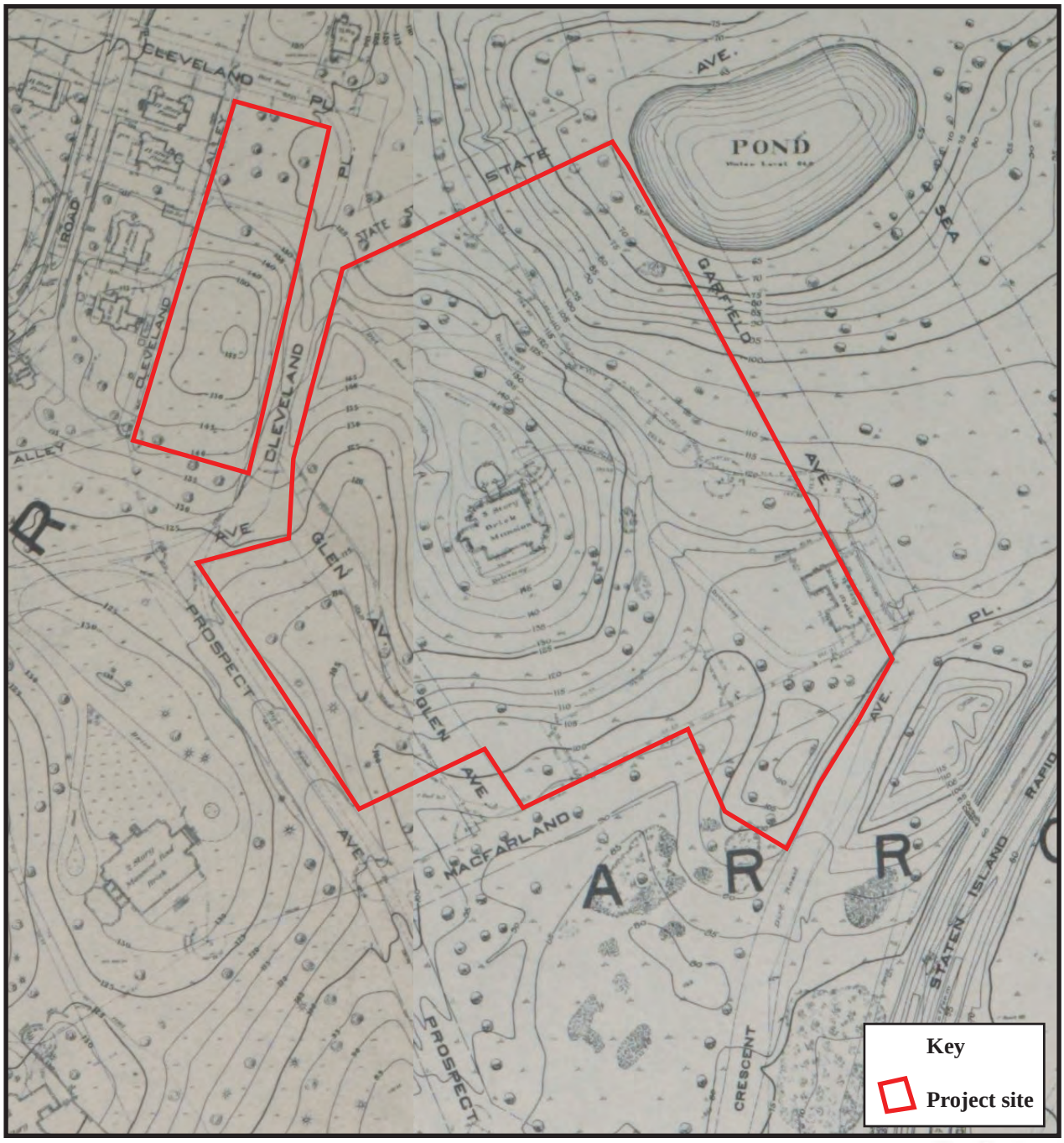
0 200 400 600 800 1000 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 8: Project site on *Atlas of the Borough of Richmond, City of New York* (Robinson 1907).

0 100 200 300 400 500 FEET



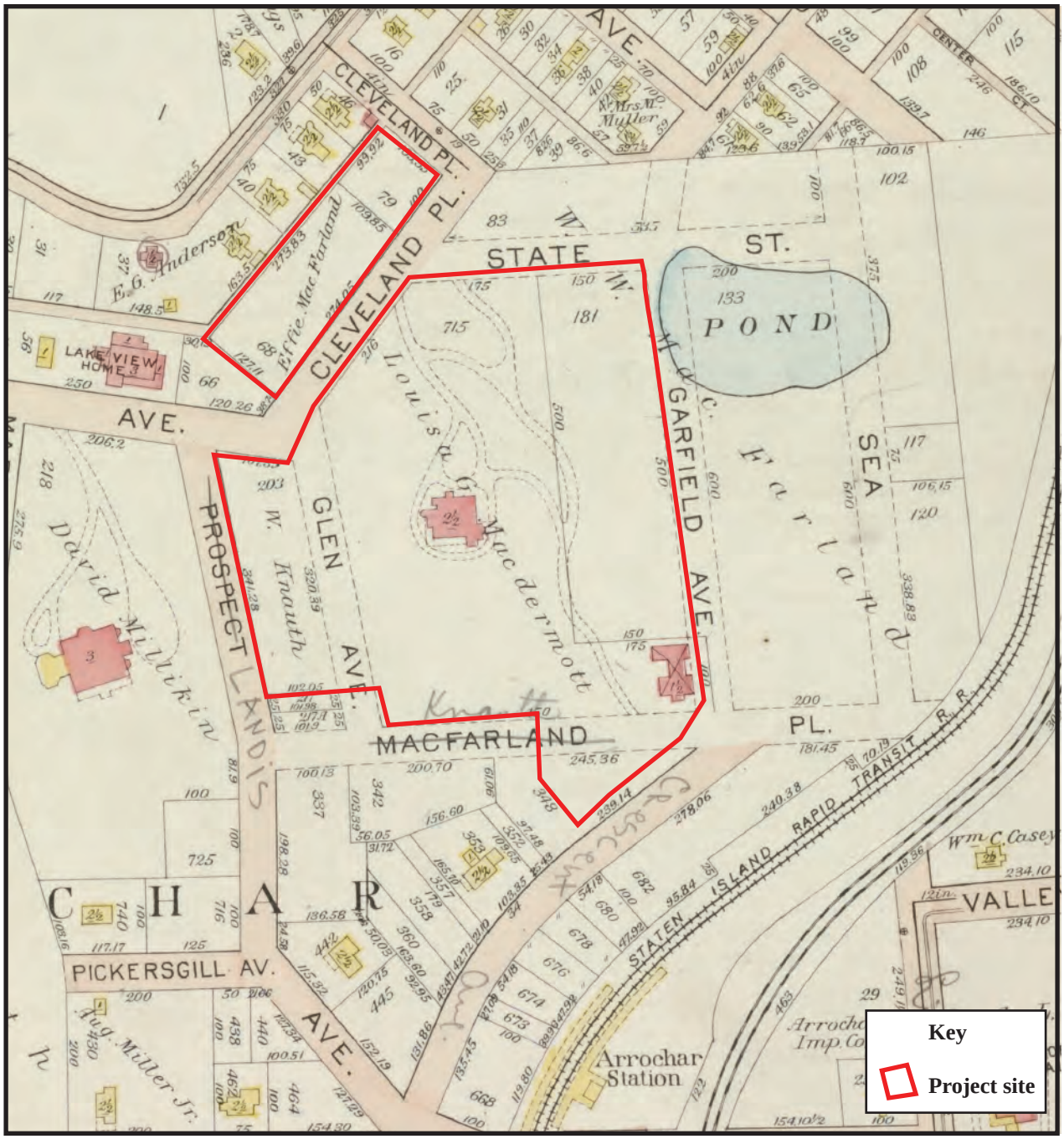
Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

N

HP

Figure 9: Project site on *Borough of Richmond Topographical Survey* (Borough of Richmond 1908).

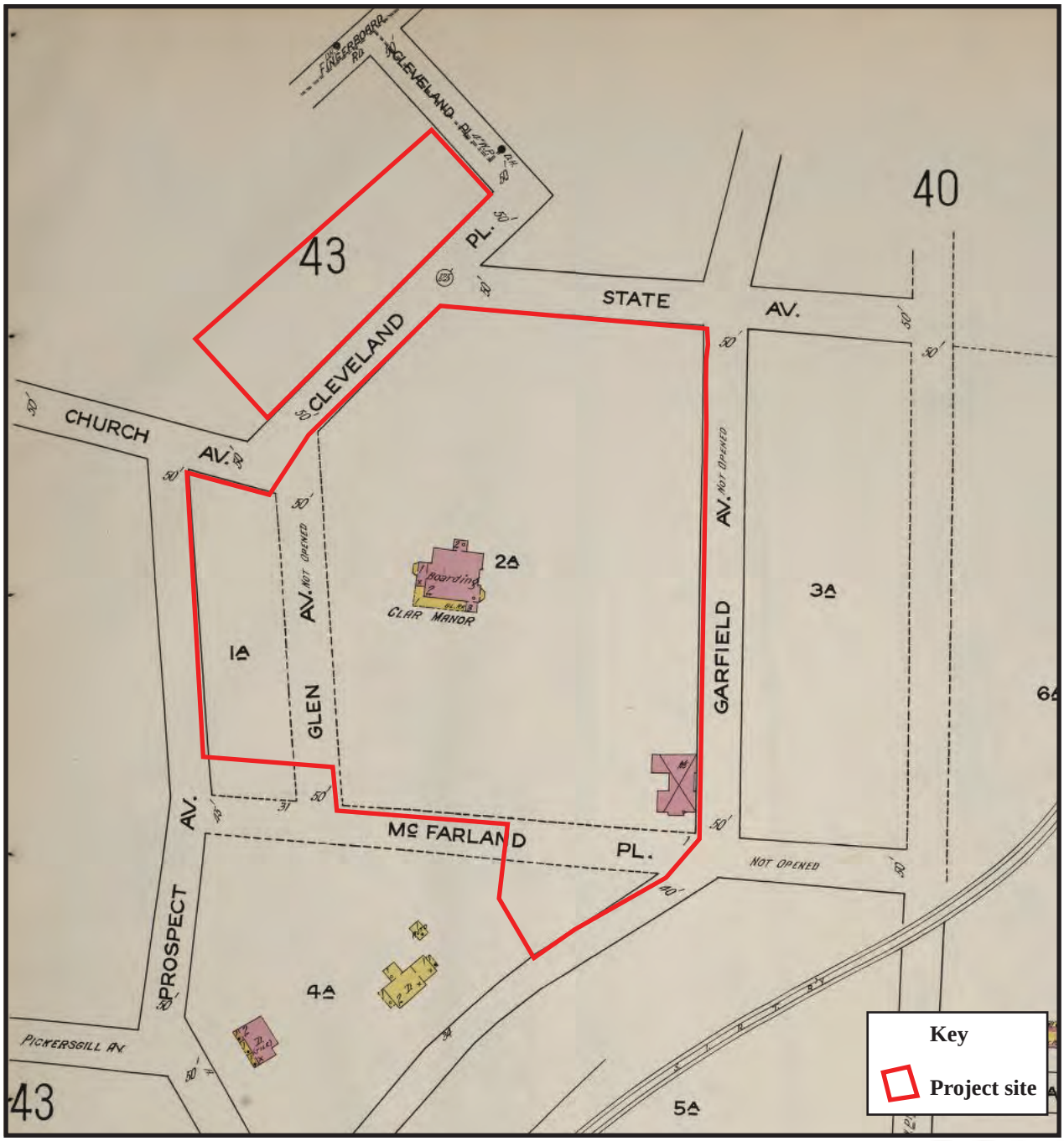
0 150 300 450 600 750 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 10: Project site on *Atlas of the City of New York, Borough of Richmond, Staten Island* (Bromley 1917).

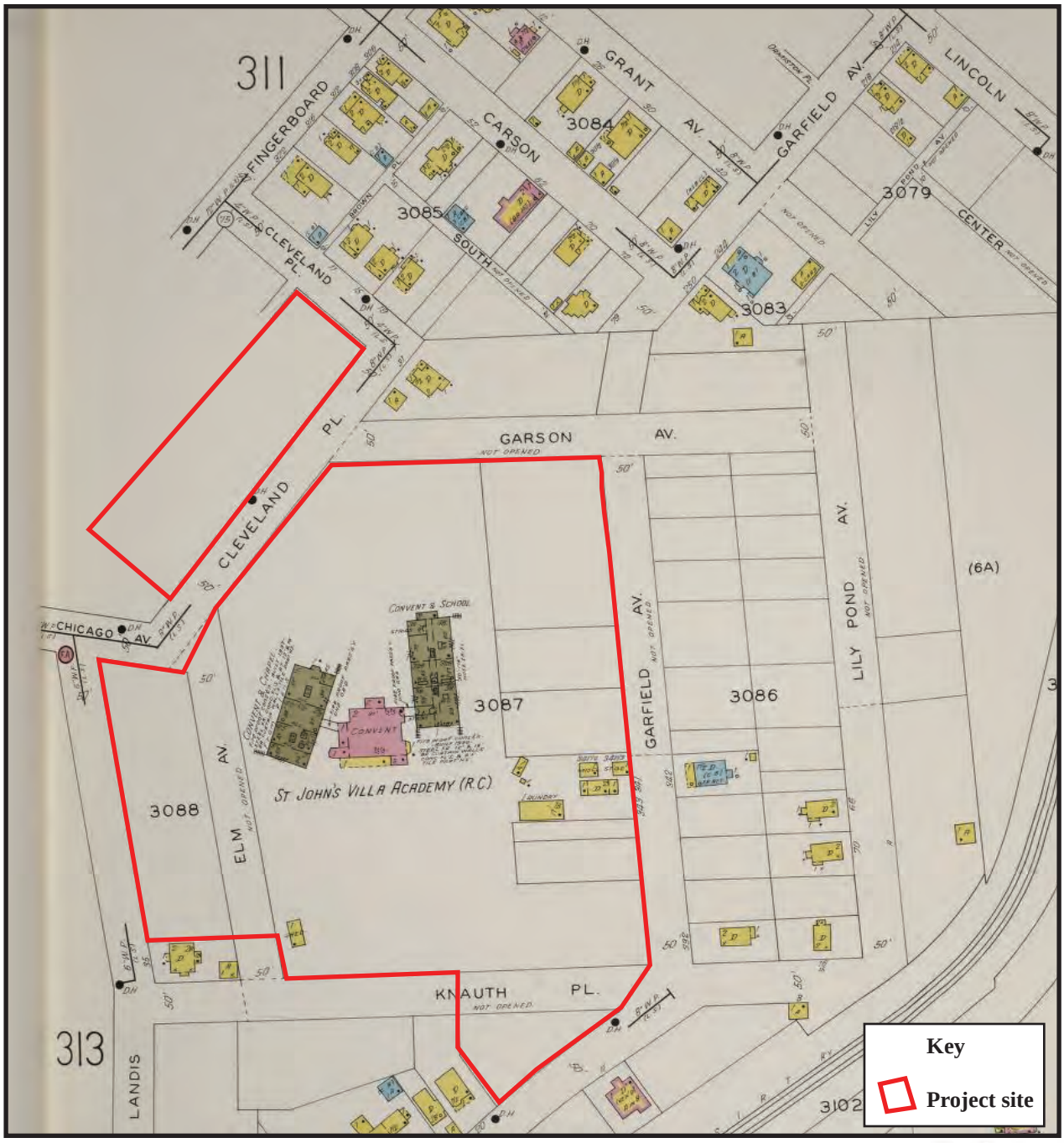
0 100 200 300 400 500 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 11: Project site on *Insurance Maps of Staten Island, Borough of Richmond, New York* (Sanborn 1917).

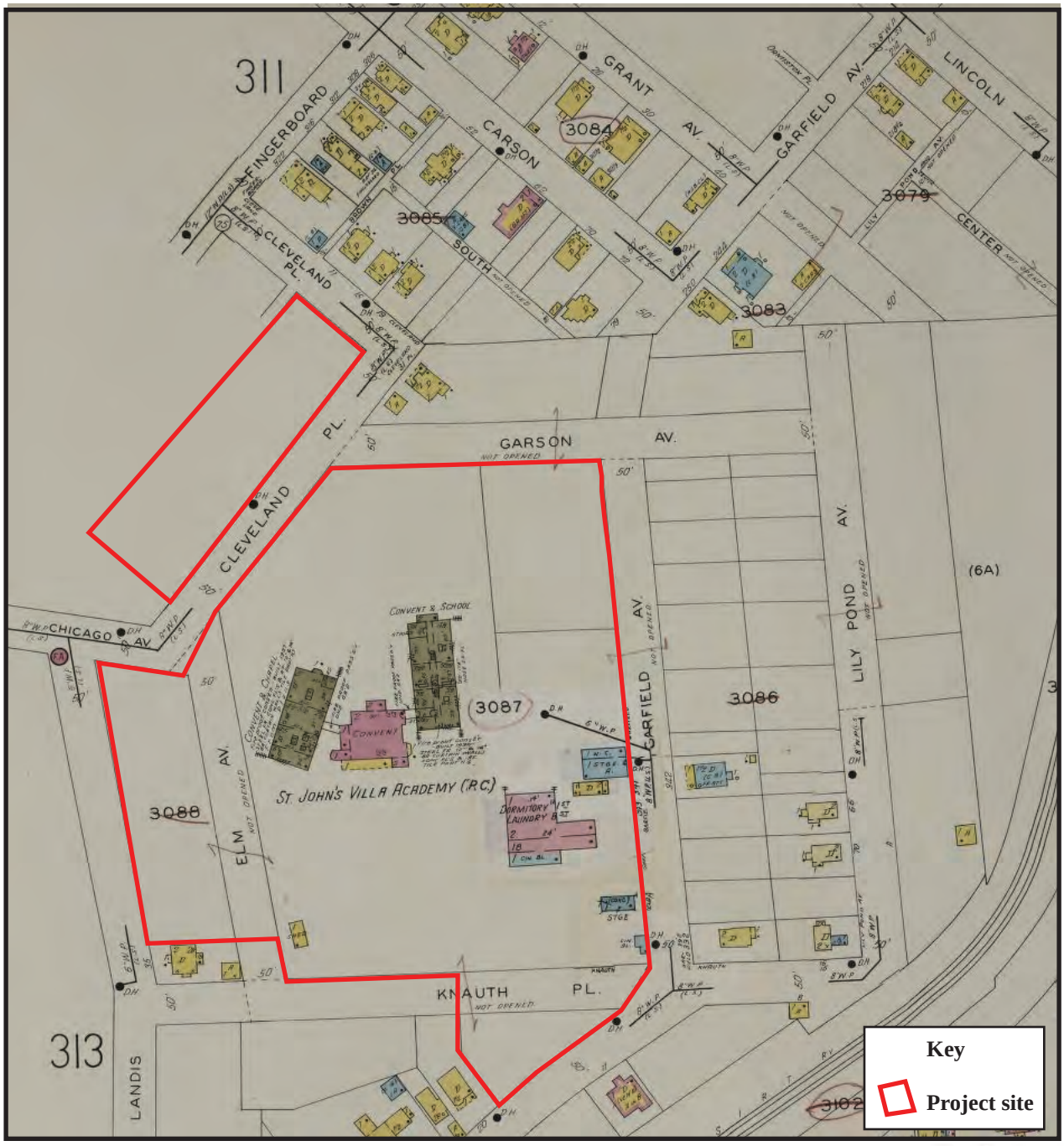
0 100 200 300 400 500 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 12: Project site on *Insurance Maps of Staten Island, Borough of Richmond, New York* (Sanborn 1937).

0 100 200 300 400 500 FEET



Phase IA Archaeological Documentary Study
St. John Villa Academy Campus Redevelopment
57 Cleveland Place, Staten Island, Richmond County, NY 10305
Block 3087, Lot 1 and Block 3089, Lot 59

Figure 13: Project site on *Insurance Maps of Staten Island, Borough of Richmond, New York* (Sanborn 1951).

0 100 200 300 400 500 FEET

PHOTOGRAPHS

Photograph 1. The entrance to the St. John Villa campus from Cleveland Place. The former chapel building is on the right and the former elementary school building is in the far background. View looking east.


Photograph 2. The former Villa building, flanked by the former elementary school on the left and the former chapel on the right. View looking southeast.

Photograph 3. The west side of the former Villa on the right, showing the connection to the former chapel on the left. Note the window well for the Villa's basement on the right. View looking northwest.

Photograph 4. The rear of the former Villa, showing the former location of the wraparound porch that has been enclosed as an addition with a full basement. Window wells to the basement are located along the edges. View looking northeast.

Photograph 5. The former elementary school building. View looking northeast.

Photograph 6. The former elementary school building, showing its construction into the side of the hill. View looking northwest.

Photograph 7. The former chapel building, also built into the side of the hill. View looking southeast.

Photograph 8. The former annex building on the right, with the former Villa and the former elementary school in the left background.

Photograph 9. The rear of the former high school. View looking southwest.

Photograph 10. The side of the former high school. View looking southwest.

Photograph 11. The former childcare building and play area. View looking north.

Photograph 12. The former gymnasium building. View looking southeast.

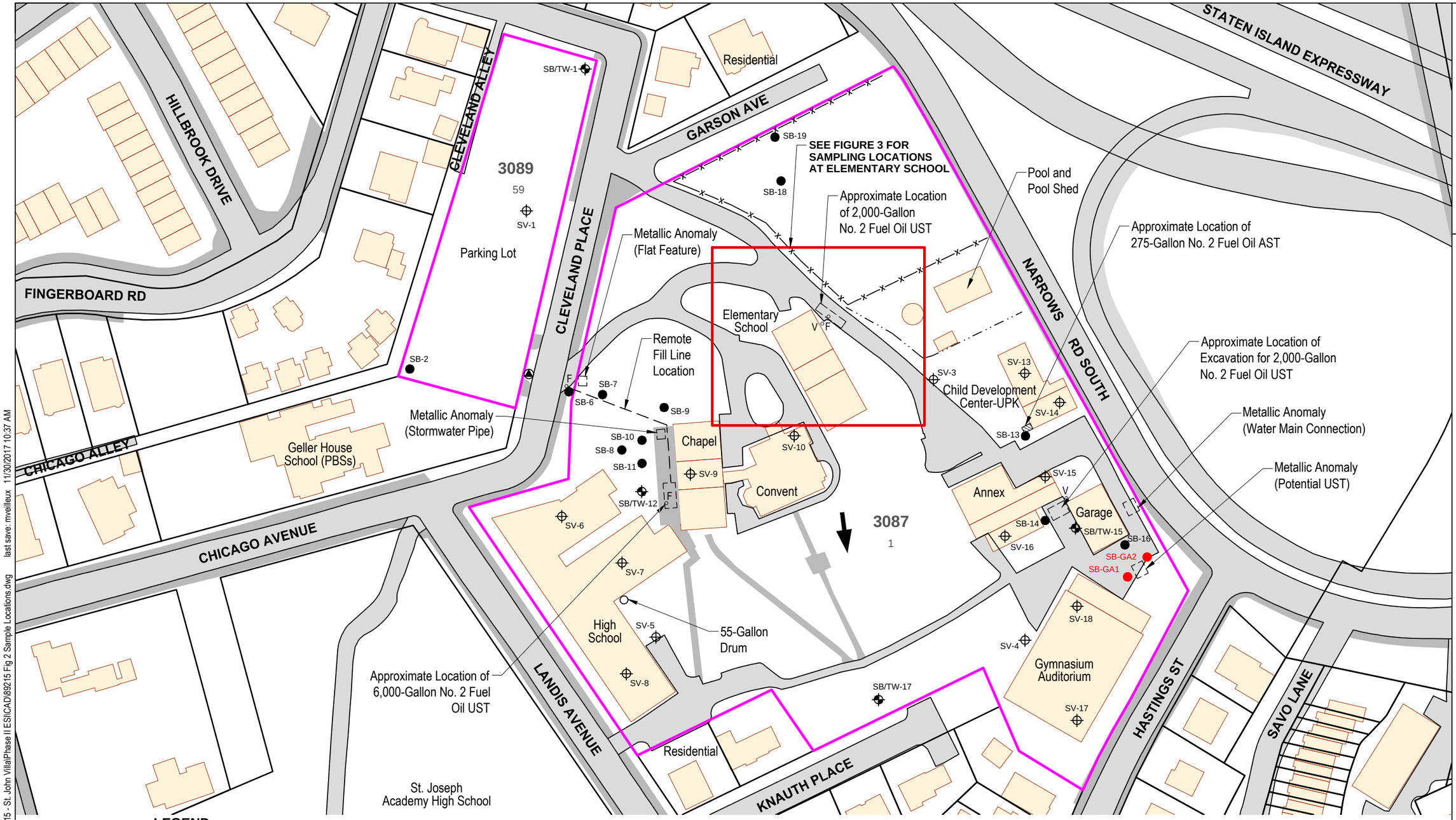

Photograph 13. The former swimming pool complex. View looking north.


Photograph 14. The steep slope rising up to the former Villa, former chapel and former elementary school in the background.

Photograph 15. The steeply sloped area at the northeast corner of the campus. View looking northeast.

Photograph 16. The surface parking lot on Block 3089. View looking northwest from Cleveland Place.

APPENDIX A: SOIL BORING DATA



LEGEND

- PROJECT SITE BOUNDARY
- 1 — LOT BOUNDARY AND TAX LOT NUMBER
- 3087 — TAX BLOCK NUMBER
- BUILDING
- PHASE II SOIL BORING
- PHASE II SOIL BORING/TEMPORARY WELL
- PHASE II SOIL VAPOR POINT
- EXISTING MONITORING WELL
- SUPPLEMENTAL PHASE II SOIL BORING
- UST — UNDERGROUND STORAGE TANK
- AST — ABOVEGROUND STORAGE TANK
- V ∘ — VENT PIPE
- F ∘ — FILL PORT
- ANTICIPATED GROUNDWATER FLOW DIRECTION
- GEOPHYSICAL ANOMALY
- —x—x— CHAIN-LINK FENCE

Map Source:
NYCDCP (NYC Dept. of City Planning 2015) GIS database.

0 50 100 200
SCALE IN FEET

AKRF
440 Park Avenue South, New York, NY 10016

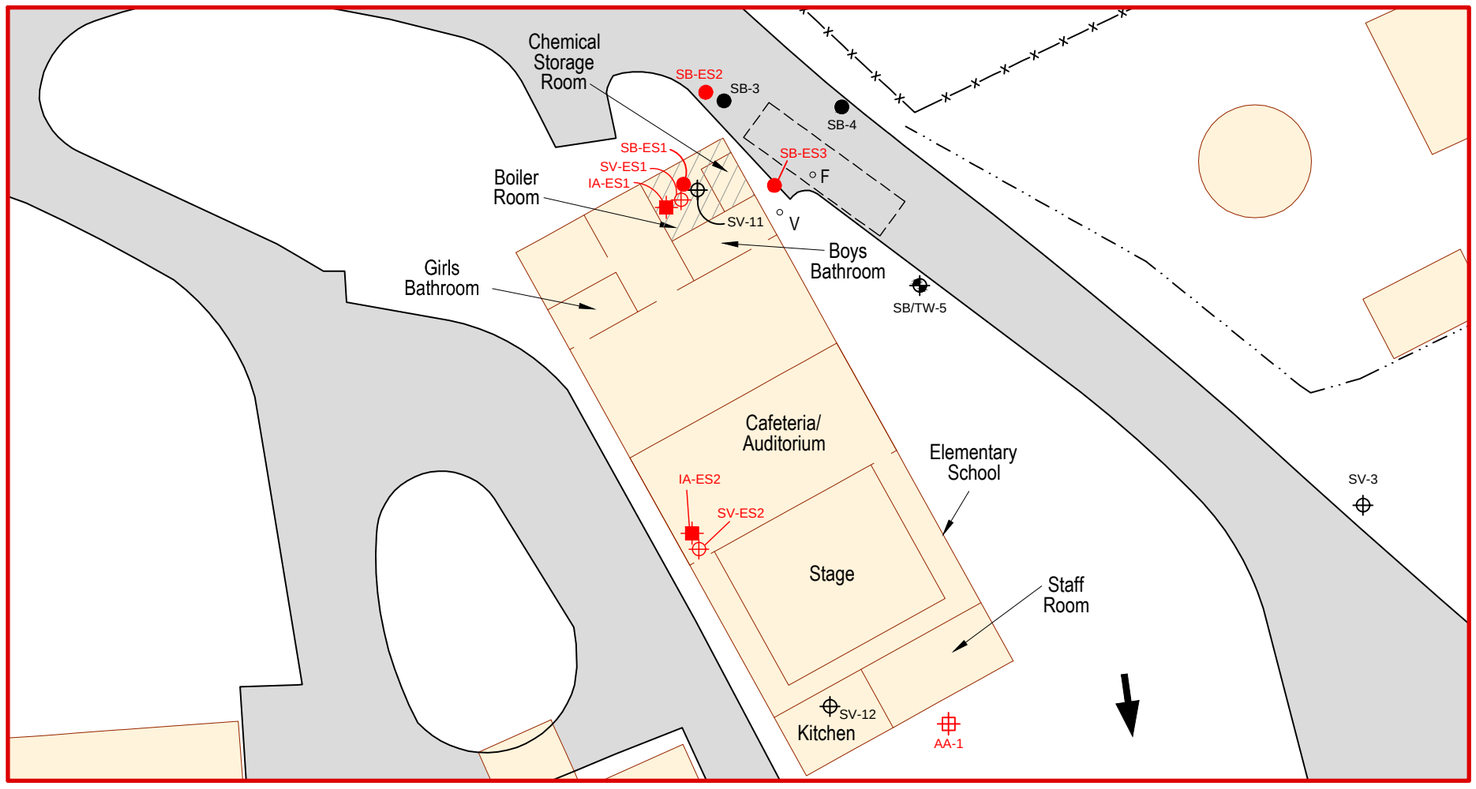
St. John Villa Campus
Staten Island, New York

SAMPLE LOCATIONS

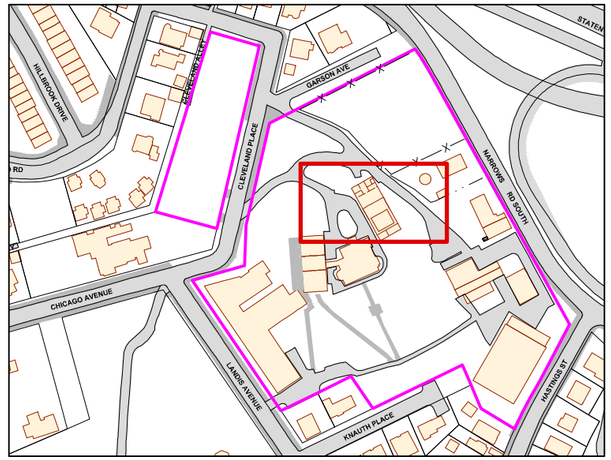
DATE
11/30/2017

PROJECT NO.
89215

FIGURE
2



Map Source:
NYCDCP (NYC Dept. of City Planning 2015) GIS database.



KEY MAP
SCALE: 1" = 300'

LEGEND

- PROJECT SITE BOUNDARY
- 1 — LOT BOUNDARY AND TAX LOT NUMBER
- 3087 — TAX BLOCK NUMBER
- BUILDING
- PARTIAL CELLAR
- PHASE II SOIL BORING
- PHASE II SOIL BORING/TEMPORARY WELL
- PHASE II SOIL VAPOR POINT
- SUPPLEMENTAL PHASE II SOIL BORING
- SUPPLEMENTAL PHASE II SOIL VAPOR POINT
- SUPPLEMENTAL PHASE II INDOOR AIR SAMPLE
- SUPPLEMENTAL PHASE II AMBIENT AIR SAMPLE
- V ° — VENT PIPE
- F ° — FILL PORT
- ANTICIPATED GROUNDWATER FLOW DIRECTION
- GEOPHYSICAL ANOMALY
- —x—x— CHAIN-LINK FENCE

0 15 30 60
SCALE IN FEET

AKRF
440 Park Avenue South, New York, NY 10016

St. John Villa Campus
Staten Island, New York

SAMPLING LOCATIONS AT ELEMENTARY SCHOOL

DATE
11/30/2017

PROJECT NO.
89215

FIGURE
3

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-1

Sheet 1 of 1

AKRF

440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75 °F,
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 08:40 **Finish Time: 09:05**

Date: 8/1/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	40	Top 2": ASPHALT.	ND	Dry	ND	ND	SB-1 (1-3')
2		Middle 6": Black coarse SAND and fine GRAVEL, trace Silt (FILL).	ND	Dry	ND	ND	
3							
4		Bottom 32": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	SB-1 (0-7') Waste Class
5							
6	48	Top 24": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
7		Middle 12": White fine GRAVEL and SAND, some Silt (FILL).	ND	Dry	ND	ND	
8							
9		Bottom 12": Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
10							
11	48	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	SB-1 (10-12')
12							
13							
14							
15							
16	36	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-2

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 08:35 **Finish Time: 08:50**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	40	Top 4": ASPHALT and GRAVEL.	ND	Dry	ND	ND	SB-2 (1-3')
2							
3		Bottom 36": Coarse Brown SAND (FILL).	ND	Dry	ND	ND	
4							
5							
6	36	Coarse Brown SAND (FILL).	ND	Dry	ND	ND	
7							
8							
9							
10							
11	36	Coarse Brown SAND (FILL).	ND	Dry	ND	ND	SB-2 (10-12')
12							
13							
14							
15							
16	44	Top 8": Light Brown SAND and fine GRAVEL, some Silt (Suspected FILL).	ND	Dry	ND	ND	
17							
18		Bottom 36": Coarse Brown SAND (Suspected FILL).	ND	Dry	ND	ND	
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-3

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	85°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 14:30 **Finish Time: 14:55**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	34	Top 2": ASPHALT.	ND	Dry	ND	ND	
		Middle 6": White SAND, some fine Gravel (FILL).	ND	Dry	ND	ND	SB-3 (1-3')
2		Middle 6": Brown-black-red Coarse SAND (FILL).	ND	Dry	ND	ND	
3							
4		Bottom 20": Brown SAND, trace fine Gravel (FILL).	ND	Dry	ND	ND	
5							
6	40	Red-brown SAND, some fine Gravel, trace Silt (Suspect FILL).	ND	Dry	ND	ND	
7							
8							
9							
10							
11	40	Red-brown SAND, some fine Gravel, trace Silt (Suspect FILL).	ND	Dry	ND	ND	SB-3 (10-12')
12							
13							
14							
15							
16	36	Red-brown SAND, some fine Gravel, trace Silt (Suspect FILL).	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-4

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	85°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 15:00 **Finish Time: 15:20**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 2": ASPHALT.	ND	Dry	ND	ND	
2		Middle 2": CONCRETE.	ND	Dry	ND	ND	SB-4 (1-3")
3		Middle 2": Red-brown-black coarse SAND (FILL).	ND	Dry	ND	ND	
4		Middle 18": Brown-black SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
5		Bottom 12": Brown-red SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
6	18	Brown-red SAND, some silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
7							
8							
9							
10							
11	36	Top 16": Brown-red SAND, some silt, trace fine Gravel (Suspected FILL).	ND	Dry	ND	ND	SB-4 (10-12")
12							
13		Middle 4": White GRAVEL (COBBLE)	ND	Dry	ND	ND	
14							
15		Bottom 16": Brown-red SAND, some Silt, trace fine Gravel (Suspected FILL).	ND	Dry	ND	ND	
16	40	Top 20": Brown-red SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
17		Middle 2": Gray Coarse SAND and fine Gravel (FILL).	ND	Dry	ND	ND	
18		Middle 12": Brown-red SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
19		Middle 4": Gray Coarse SAND and fine Gravel (FILL).	ND	Dry	ND	ND	
20		Bottom 2": Brown-red SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-5

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Overcast
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 15:25 **Finish Time: 15:55**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	28	Top 4": ASPHALT.	ND	Dry	ND	ND	
2		Middle 4": Red GRAVEL and BLACK SAND (FILL).	ND	Dry	ND	ND	SB-5 (1-3')
3		Middle 4": Black-yellow coarse SAND, some fine Gravel (FILL).	ND	Dry	ND	ND	
4		Middle 2": Brown SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
5		Middle 4": Black SAND and SILT, some fine Gravel (FILL).	ND	Dry	ND	ND	
		Bottom 10": Brown SAND and SILT (FILL).	ND	Dry	ND	ND	
6	34	Top 4": Brown fine SAND and SILT (FILL).	ND	Dry	ND	ND	
7		Middle 4": Brown-black SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
8		Middle 12": Brown SAND and SILT (FILL).	ND	Dry	ND	ND	
9		Middle 2": White GRAVEL (COBBLE).	ND	Dry	ND	ND	
10		Bottom 12": Red-brown-orange SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
11	40	Top 16": Red-brown-orange SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	SB-5 (10-12')
12							
13		Middle 6": White GRAVEL and SAND, some Silt (COBBLE)	ND	Dry	ND	ND	
14		Bottom 18": Red-brown-orange SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
15							
16	40	Red-brown-orange SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-6

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 10:00 **Finish Time: 10:15**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 3": Brown SAND, some Roots, Organics (TOPSOIL).	ND	Dry	ND	ND	SB-6 (1-3')
2							
3		Bottom 33": Brown SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
4							
5							
6	36	Brown SAND, some Silt, trace fine Gravel (Suspected FILL).	ND	Dry	ND	ND	
7							
8							
9							
10							
11	36	Brown SAND, some Silt, trace fine Gravel.	ND	Dry	ND	ND	SB-6 (10-12')
12							
13							
14							
15							
16	40	Brown SAND, some Silt, trace fine Gravel.	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-7

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	80 °F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 10:25 **Finish Time: 10:50**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	40	Top 4": Brown SAND, some Roots, Organics (TOPSOIL).	ND	Dry	ND	ND	SB-7 (1-3')
2		Middle 6": Black-brown SAND and fine GRAVEL (FILL).	ND	Dry	ND	ND	
3		Middle 2": Brown-black stained SAND and fine GRAVEL, trace Brick, Wood (FILL).	Mild Petroleum	Dry	ND	ND	
4		Middle 24": Black-brown SAND (FILL).	ND	Dry	ND	ND	
5		Bottom 4": Brown SAND, some fine Gravel (FILL).	ND	Dry	ND	ND	
6	40	Brown SAND, some fine Gravel (Suspected FILL).	ND	Dry	ND	ND	SB-7 (5-7')
7							
8							
9							
10							
11	40	Brown SAND, some fine Gravel.	ND	Dry	ND	ND	
12							
13							
14							
15							
16	40	Brown SAND, some fine Gravel.	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-8

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	80°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 11:45 **Finish Time: 12:05**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 6": Brown SAND, some Roots, Organics (Topsoil).	ND	Dry	ND	ND	
2		Middle 12": Dark Brown SAND, some Gravel (Fill).	ND	Dry	ND	ND	SB-8 (1-3')
3		Middle 6": Brown SAND, some Silt (Fill).	ND	Dry	ND	ND	
4		Bottom 12": Brown coarse SAND, trace Gravel (Fill).	ND	Dry	ND	ND	SB-8 (0-7') Waste Class
5							
6	36	Brown coarse SAND, trace fine Gravel (Suspected FILL).	ND	Dry	ND	ND	SB-8 (5-7')
7							
8							
9							
10							
11	36	Brown coarse SAND, trace fine Gravel.	ND	Dry	ND	ND	
12							
13							
14							
15							
16	36	Brown coarse SAND, trace fine Gravel.	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-9

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	80 °F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 12:10 **Finish Time: 12:20**

Date: 7/31/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 6": Brown SAND, some Roots, Organics (TOPSOIL).	ND	Dry	ND	ND	SB-9 (1-3')
2							
3		Bottom 30": Brown SAND, trace fine Gravel (FILL).	ND	Dry	ND	ND	
4							
5							
6	30		ND	Dry	ND	ND	SB-9 (5-7')
7							
8		Brown SAND, trace fine Gravel (FILL).	ND	Moist	ND	ND	
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 10 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-10

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 12:45 **Finish Time: 13:00**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 6": Brown SAND, some Roots, Silt (TOPSOIL).	ND	Dry	ND	ND	SB-10 (1-3')
2							
3		Bottom 30": Brown SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
4							
5							
6	36	Top 4": Brown SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
7							
8		Middle 12": Black-brown fine SAND, some Silt, trace Clay (FILL).	ND	Moist	ND	ND	
9							
10		Bottom 20: Brown SAND, some fine Gravel, trace Silt, Brick and fine black Sand (FILL).	ND	Dry	ND	ND	
11	40	Brown SAND, some fine Gravel, trace Silt, Brick, bands of fine black Sand (FILL).	ND	Dry	ND	ND	SB-10 (10-12')
12							
13							
14							
15							
16	40	Brown SAND, some fine Gravel, trace Silt, Brick, bands of fine black Sand (FILL).	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-11

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 12:15 **Finish Time: 12:45**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	34	Top 4": Brown SAND, some Roots, Organics (TOPSOIL).	ND	Dry	ND	ND	SB-11 (1-3')
2							
3		Bottom 30": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
4							
5							
6	36	Top 24": Brown SAND, some fine Gravel, trace Silt, Brick, (FILL).	ND	Dry	ND	ND	
7							
8							
9		Bottom 12": Black-brown SAND, some Silt, trace Clay (FILL).	ND	Dry	ND	ND	
10							
11	36	Top 12": Black-brown SAND, some Silt, Clay (Suspected FILL).	ND	Dry	ND	ND	SB-11 (10-12')
12							
13							
14		Bottom 24": Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
15							
16	36	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-12

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 11:30 **Finish Time: 11:50**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 2": Organics, Roots, Brown SAND and SILT (TOPSOIL).	ND	Dry	ND	ND	SB-12 (1-3')
2							
3		Bottom 34": Orange-brown SAND, some Gravel and trace Silt (FILL).	ND	Dry	ND	ND	
4							
5							
6	50	Top 18": Orange-brown SAND, some fine Gravel and trace Silt (FILL).	ND	Dry	ND	ND	
7							
8		Middle 12": Brown SAND, trace Silt (FILL).	ND	Moist	ND	ND	
9							
10		Bottom 20": Brown SAND, some fine Gravel (FILL).	ND	Moist	ND	ND	
11	30	Top 10": Brown SAND, some fine Gravel (FILL).	ND	Moist	ND	ND	SB-12 (10-12')
12							
13		Middle 10": Brown fine SAND, some Clay, trace silt (Suspected FILL).	ND	Moist	ND	ND	
14		Bottom 10": Brown SAND, some fine Gravel, trace Silt, some bands of black fine Sand.	ND	Moist	ND	ND	
15							
16	40	Brown SAND, some Gravel, trace Silt, some bands of black fine Sand.	ND	Moist	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-13

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Rain
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 16:10 **Finish Time: 16:30**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	40	Top 3": ASPHALT.	ND	Dry	ND	ND	SB-13 (1-3')
2		Middle 3": Gray SAND and fine GRAVEL, trace Silt (FILL).	ND	Dry	ND	ND	
3							
4		Bottom 34": Brown SAND, trace fine Gravel (FILL).	ND	Dry	ND	ND	
5							
6	40	Top 12": Brown SAND, trace fine Gravel (FILL).	ND	Dry	ND	ND	
7		Middle 2": Black SAND (FILL).	ND	Dry	ND	ND	
8							
9		Bottom 26": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
10							
11	40	Top 6": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	SB-13 (10-12)
12		Middle 4": Black-brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
13							
14		Bottom 30": Brown SAND, some fine Gravel, trace Silt.	ND	Dry	ND	ND	
15							
16	40	Brown SAND, some Gravel, trace Silt.	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-14

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 10:10 **Finish Time: 10:30**

Date: 8/1/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	30	Top 2": ASPHALT.	ND	Dry	ND	ND	SB-14 (1-3')
2		Middle 2": Gray SAND and fine GRAVEL (FILL).	ND	Dry	ND	ND	
3		Middle 4": White SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
4		Bottom 22": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
5							
6	40	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	
7							
8							
9							
10							
11	48	Top 12": Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	SB-14 (10-12')
12							
13		Bottom 36": Light Brown-grey-orange (Mottled) CLAY, trace Silt.	ND	Dry	ND	ND	
14							
15							
16	48	Light Brown-grey-orange (Mottled) CLAY, trace Silt.	ND	Dry	ND	ND	
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING AND WELL INSTALLATION LOG	St. John Villa Academy AKRF Project Number: 89215	Groundwater Monitoring Well ID: Sheet 1 of 2	TW-15	Soil Boring ID:	SB-15

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged by:	Jacob Menken, AKRF

Drilling

Start Time: 10:35 | Finish Time: 11:20

Date: 8/1/2017

Well Construction: 1" diameter PVC well casing: 0' to 20' below grade

Surface Condition: Asphalt

Depth (feet)	Recovery (Inches)	Soil Boring Log	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	30	Top 2": ASPHALT.	ND	Dry	ND	ND	
2		Middle 4": Gray SAND and fine GRAVEL, trace Silt (FILL).	ND	Dry	ND	ND	SB-15 (1-3')
3		Middle 4": White SAND and fine GRAVEL, trace Silt (FILL).	ND	Dry	ND	ND	
4		Bottom 20": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
5							
6	24	Brown SAND, some Gravel, trace Silt (FILL).	ND	Dry	ND	ND	SB-15 (0-7') Waste Class @ 11:00
7							
8							
9							
10							
11	40	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	ND	SB-15 (10-12')
12							
13							
14							
15							
16	48	Top 44": Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Moist	ND	ND	
17							
18		Bottom 4": Orange-brown-gray (Mottled) CLAY, some Silt, trace Sand.	ND	Moist	ND	ND	
19							
20							

Notes: ▼ Groundwater Depth Indicator

Groundwater measured at 26.5 feet below grade

Groundwater monitoring well installed to 30 feet below grade.

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000) Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)

Groundwater encountered at approximately 26.5 feet below grade during soil boring.

End of soil boring at 30 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING AND WELL INSTALLATION LOG	St. John Villa Academy AKRF Project Number: 89215	Groundwater Monitoring Well ID: Sheet 2 of 2	TW-15	Soil Boring ID:	SB-15

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged by:	Jacob Menken, AKRF

Drilling

Start Time: 10:35 | Finish Time: 11:20

Date: 8/1/2017

Depth (feet)	Well Construction	Surface Condition: Asphalt	Recovery (Inches)	Soil Boring Log	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
21				No Samples Collected					
22									
23									
24									
25									
26									
27									
28									
29		0.020-inch slotted PVC well screen: 20' to 30' below grade							
30		End cap: 30' below grade							
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									

Notes: ▼ Groundwater Depth Indicator

Groundwater measured at 26.5 feet below grade

Groundwater monitoring well installed to 30.0 feet below grade.

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000) Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)

Groundwater encountered at approximately 26.5 feet below grade during soil boring.

End of soil boring at 30 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-16

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 11:55 **Finish Time: 12:25**

Date: 8/1/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	36	Top 8": Asphalt.	ND	Dry	ND	ND	SB-16 (1-3')
2		Middle 4": White SAND and fine GRAVEL, some Silt (FILL).	ND	Dry	ND	ND	
3							
4		Bottom 24": Brown SAND, some fine Gravel, trace Silt, Brick (FILL).	ND	Dry	ND	ND	
5							
6	36	Top 12": Brown SAND, some fine Gravel, trace Silt, Brick (FILL).	ND	Dry	ND	ND	
7		Middle 2": Gray fine GRAVEL AND SAND, some Silt (FILL).	ND	Dry	ND	ND	
8							
9		Bottom 22": Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	
10							
11	40	Brown SAND, some fine Gravel, trace Silt.	ND	Dry	ND	ND	SB-16 (10-12')
12							
13							
14							
15							
16	36	Brown SAND, some fine Gravel, trace Silt.	ND	Dry	ND	ND	
17							
18							
19							
20			ND	Moist	ND	ND	

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-17

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	80°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 13:30 **Finish Time: 13:55**

Date: 8/1/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	28	Top 6": Brown coarse SAND, some Roots, Organics, fine Gravel (TOPSOIL).	ND	Dry	ND	Dry	
2		Middle 6": Black SAND, some Gravel, trace Silt (FILL).	ND	Dry	ND	Dry	SB-17 (1-3)
3		Middle 4": Gray GRAVEL, some Sand, Silt (Fill)	ND	Dry	ND	Dry	
4		Middle 2": Red fine SAND, some Clay (Fill)	ND	Dry	ND	Dry	
5		Middle 6": Black coarse SAND, some Gravel (Fill)	ND	Dry	ND	Dry	
6	36	Bottom 4": Yellow SAND, some Silt, Gravel (Fill)	ND	Dry	ND	Dry	
7		Brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	Dry	SB-17 (0-7') Waste Class
8							
9							
10							
11	36	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	Dry	SB-17 (10-12)
12							
13							
14							
15							
16	36	Brown SAND, some fine Gravel, trace Silt (Suspected FILL).	ND	Dry	ND	Dry	
17							
18							
19							
20			ND	Moist	ND	ND	

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)
Groundwater not encountered during soil boring.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-18

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Slide Hammer
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 09:55 **Finish Time: 10:20**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	30	Brown SAND, some fine Gravel, trace Silt, Roots (FILL).	ND	Dry	ND	ND	SB-18 (0-2') w/ Waste Class
2							
3							SB-18 (3-5')
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Waste Class sample analyzed for Cyanide (EPA 9012), Hexavalent Chromium (EPA 7196), DRO/GRO TPH (EPA 8015)
Groundwater not encountered during soil boring.
End of soil boring at 5 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-19

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Slide Hammer
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	75°F, Sunny
Logged By:	Jacob Menken, AKRF

Drilling

Start Time: 10:25 **Finish Time: 10:55**

Date: 8/2/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Grass	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	30	Brown SAND, some fine Gravel, trace Silt, Roots (FILL).	ND	Dry	ND	ND	SB-18 (0-2')
2							
3							SB-18 (3-5')
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Notes: Soil samples analyzed for VOCs (EPA 8260), SVOCs + TICs (EPA 8270), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082), Target Analyte List (TAL) Metals (EPA 6000/7000)
Groundwater not encountered during soil boring.
End of soil boring at 5 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-ES1

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Hand Auger
Sampling Method:	Hand Auger
Driller:	Cascade
Weather:	30°F, Sunny
Logged By:	MJ & TM, AKRF

Drilling

Start Time: 09:30 **Finish Time: 10:10**

Date: 11/11/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Concrete	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	60	Top 6": CONCRETE.	ND	Dry	ND	ND	
2		Next 14": Dark Brown SAND, little Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	SB-ES1 (0-2)
3							
4		Bottom 40": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
5							
6	60	Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	SB-ES1 (8-10)
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Notes: Soil sample analyzed for: Target Compound List (TCL) & Commissioners Policy-51 (CP-51) VOCs (EPA 8260)
Groundwater not encountered during soil boring installation.
End of soil boring at 10 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-ES2

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	30°F, Sunny
Logged By:	MJ & TM, AKRF

Drilling

Start Time: 10:40 **Finish Time: 10:55**

Date: 11/11/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	28	Top 6": ASPHALT.	ND	Dry	ND	ND	
2		Next 4": CONCRETE.	ND	Dry	ND	ND	SB-ES2 (0-2)
3							
4		Bottom 18": Brown SAND, little Silt, fine Gravel (FILL).	ND	Dry	ND	ND	
5							
6	30	Top 8": SLOUGH.	ND	Dry	ND	ND	
7							SB-ES2 (8-10)
8		Bottom 22": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
9							
10							
11	27	Top 6": SLOUGH.	ND	Dry	ND	ND	
12							
13		Bottom 21": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
14							
15							
16	36	Top 10": SLOUGH.	ND	Dry	ND	ND	
17		Next 8": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
18							
19		Bottom 18": Brown fine SAND, some Silt.	ND	Dry	ND	ND	
20							

Notes: Soil sample analyzed for: Target Compound List (TCL) & Commissioners Policy-51 (CP-51) VOCs (EPA 8260)
Groundwater not encountered during soil boring installation.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: **SB-ES3**

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	30°F, Sunny
Logged By:	MJ & TM, AKRF

Drilling

Start Time: 11:20 **Finish Time: 11:40**

Date: 11/11/2017

Depth (feet)	Recovery (Inches)	**Surface Condition:** Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	25	Top 6": ASPHALT.	ND	Dry	ND	ND	
2		Next 4": CONCRETE.	ND	Dry	ND	ND	SB-ES3 (0-2)
3							
4		Bottom 15": Brown SAND, some Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	
5							
6	40	Top 6": SLOUGH.	ND	Dry	ND	ND	
7		Next 12": Brown SAND, some Silt, trace fine Gravel.	ND	Dry	ND	ND	SB-ES3 (8-10)
8							
9		Bottom 22": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
10							
11	36	Top 6": SLOUGH.	ND	Dry	ND	ND	
12							
13		Bottom 30": Brown SAND, little Silt, fine Gravel.	ND	Dry	ND	ND	
14							
15							
16	28	Top 4": SLOUGH.	ND	Dry	ND	ND	
17		Next 12": Brown SAND, little Silt, fine Gravel.	ND	Dry	ND	ND	
18							
19		Bottom 12": Brown SAND, trace Silt, fine Gravel.	ND	Dry	ND	ND	
20							

Notes: Soil sample analyzed for: Target Compound List (TCL) & Commissioners Policy-51 (CP-51) VOCs (EPA 8260)
Groundwater not encountered during soil boring installation.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-GA1

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	35°F, Sunny
Logged By:	MJ & TM, AKRF

Drilling

Start Time: 12:20 **Finish Time: 12:40**

Date: 11/11/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Asphalt	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	39	Top 6": ASPHALT.	ND	Dry	ND	ND	
2		Next 12": Dark brown SAND, some fine Gravel, trace Silt (FILL).	ND	Dry	ND	ND	SB-GA1 (0-2)
3							
4		Bottom 21": Gray CLAY, trace Silt.	ND	Dry	ND	ND	
5							
6	58	Gray CLAY and SILT.	ND	Dry	ND	ND	SB-GA1 (8-10)
7							
8							
9							
10							
11	60	Gray CLAY and SILT.	ND	Wet	ND	ND	
12							
13							
14							
15							
16	60	Gray CLAY and SILT.	ND	Wet	ND	ND	
17							
18							
19							
20							

Notes: Soil sample analyzed for: Target Compound List (TCL) & Commissioners Policy-51 (CP-51) VOCs (EPA 8260), TCL & CP-51 SVOCs (EPA 8260), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082)
Groundwater encountered at 10 feet below grade during soil boring installation.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

SOIL BORING LOG

St John Villa Academy

AKRF Project Number: 89215

Soil Boring ID: SB-GA2

Sheet 1 of 1

AKRF
440 Park Avenue South, 7th Floor
New York, NY 10016

Drilling Method:	Geoprobe
Sampling Method:	5' Macrocore
Driller:	Cascade
Weather:	35°F, Sunny
Logged By:	MJ & TM, AKRF

Drilling

Start Time: 13:00 **Finish Time: 13:25**

Date: 11/11/2017

Depth (feet)	Recovery (Inches)	Surface Condition: Concrete	Odor	Moisture	PID	NAPL	Soil Samples Collected for Laboratory Analysis
1	42	Top 6": CONCRETE.	ND	Dry	ND	ND	
2		Next 12": Brown SAND, little Silt, trace fine Gravel (FILL).	ND	Dry	ND	ND	SB-GA2 (0-2)
3							
4		Bottom 24": Light brown CLAY, trace Silt.	ND	Dry	ND	ND	
5							
6	42	Top 12": SLOUGH.	ND	Dry	ND	ND	
7							
8		Bottom 30": Brown SAND, little Silt, fine Gravel.	ND	Dry	ND	ND	
9							
10							
11	58	Top 24": SLOUGH.	ND	Dry	ND	ND	
12							SB-GA2 (13-15)
13		Bottom 34": Light brown/gray CLAY and SILT.	ND	Dry	ND	ND	
14							
15							
16	60	Top 24" SLOUGH.	ND	Dry	ND	ND	
17							
18		Bottom 36": Light brown/gray CLAY and SILT.	ND	Dry	ND	ND	
19							
20							

Notes: Soil sample analyzed for: Target Compound List (TCL) & Commissioners Policy-51 (CP-51) VOCs (EPA 8260), TCL & CP-51 SVOCs (EPA 8260), Pesticides (EPA 8081), Herbicides (EPA 8152), PCBs (EPA 8082)
Groundwater not encountered during soil boring installation.
End of soil boring at 20 feet below grade.

PID = photoionization detector NAPL = non-aqueous phase liquid ND = not detected

Soil classifications and descriptions presented are based on the Modified Burmister Classification System. Descriptions were developed for environmental purposes only.

APPENDIX B: HISTORIC POSTCARDS OF ST JOHN VILLA (NEW YORK PUBLIC LIBRARY DIGITAL GALLERY)

An undated view of the campus showing the original gated entrance near Cleveland Place. Note that the elementary school (built 1931) is present but the chapel (built 1938) has not yet been constructed. View looking southeast.

A similar undated view, without the original gate, looking southeast.

An undated view of the elementary school and Villa prior to 1935, looking southeast.

A similar undated view after the third story had been added to the elementary school in 1935, looking southeast.

An undated view of the campus after the third story had been added to the elementary school and the chapel had been constructed, looking southeast.

An undated view of the chapel, looking southeast.

An undated view of the Villa and the chapel, looking south.

An undated view of the rear of the Villa, showing the wraparound porch that later was rebuilt and enclosed as an extension with a full basement. View looking northwest.

Appendix B:

Transportation

Contents

Transportation Planning Factors
Technical Memorandum

MEMO

TO: New York City Department of Transportation
FROM: STV Incorporated
DATE: September 23, 2024
SUBJECT: Proposed Redevelopment of the former St. John Villa Campus at 57 Cleveland Place, Staten Island - Transportation Travel Planning Factors Memo

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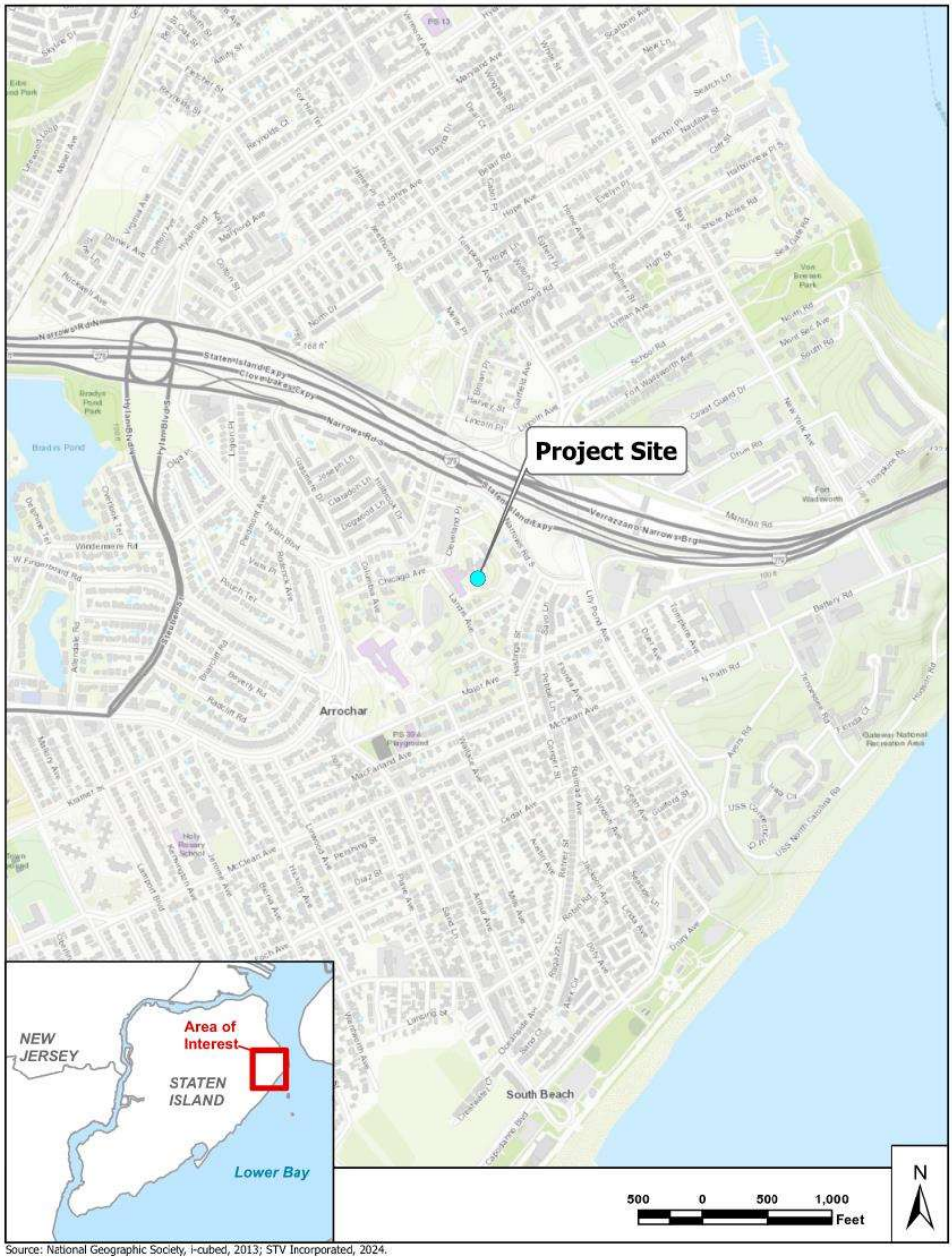
This memo is submitted to the New York City Department of Transportation (NYCDOT) for its review of the preliminary trip generation to determine if detailed traffic, parking, transit, and/or pedestrian analyses are required as part of NYCSCA's Environmental Assessment Form and Supplemental Environmental Studies in connection with the proposed redevelopment of the former St. John Villa campus located at 57 Cleveland Place in Staten Island, New York within Community School District 31 (see Figure 1). The proposed project would create three new school facilities, including an approximately 764-seat Gifted and Talented primary school/intermediate school (PS/IS) and a shared facility for two separate, independently operated, approximately 627-seat intermediate/high schools (IS/HS); and an athletic field with a 700-seat bleacher section, a maintenance building, two separate internal driveway networks, two on-site and one off-site parking lots (the "Proposed Project") on the former St. John Villa campus at 57 Cleveland Place in the Arrochar section of Staten Island. In total, the proposed school buildings would provide approximately 2,114 seats and would replace the former Saint John Villa Academy (HS) school buildings. Of the 2,114 new seats, approximately 192 seats will be provided for D75 (special education) students (96 within the PS/IS and 96 within the IS/HS buildings), approximately 668 seats will be provided for Gifted and Talented PS and IS students, and approximately 1,254 seats will be provided for general education IS and HS students. It is anticipated that the school would employ an estimated 257 teachers and staff.

The project site comprises the former St. John Villa campus, which was previously occupied by the St. John Villa Academy, a private, Roman Catholic school that supported educational facilities for grades Pre-K through twelve until its closure in 2018. Before closing, about 724 students were enrolled at the former school in 2018. The buildings associated with this former use remain on the project site and consist of a former convent building ("villa"), chapel building, elementary school, annex, garage, high school, high school addition, and Pre-K Center. Due to the conditions of the existing buildings, they cannot feasibly accommodate the modern school functions that the proposed project is intended to achieve. All but the chapel building would be removed as part of the proposed actions in order to construct the three proposed schools and athletic field. The existing chapel building would be maintained for school uses only and would not be made available to the public.



Source: National Geographic Society, i-cubed, 2013; STV Incorporated, 2024.

Figure 1

Proposed Redevelopment of the former St. John Villa Campus 57 Cleveland Place, Staten Island

PROJECT LOCATION

Trip Generation – School Buildings

Students would arrive at and depart from school by a number of travel modes, including private autos, public transit, school buses, and walking or riding a bicycle from nearby residences. Trip generation estimates by mode for the PS Gifted and Talented component of the proposed PS/IS were developed based on *CEQR Technical Manual,* data provided by New York City Department of Education (NYCDOE) for existing Gifted and Talented programs at PS 45 and PS 50 on Staten Island, and consultation with NYCDOT. Trip generation estimates by mode for the IS Gifted and Talented component are similar to those of the PS Gifted and Talented component, except a higher percentage of IS students would be expected to use public transit instead of school buses.

Trip generation estimates by mode for the general education component of the proposed IS/HS were developed based on *CEQR Technical Manual,* data provided by NYCDOE for a similar IS/HS school on Staten Island, and NYCDOT survey data.

In summary, the student travel mode choice by school was estimated as follows.

Mode	School			
	PS (Gifted)	IS (Gifted)	IS (Gen. Ed.)	HS (Gen. Ed.)
Auto (Drop-off/Pick-up & drive alone)	59%	59%	32%	30%
Walk/Bicycle	14%	14%	35%	15%
Transit (Bus)	2%	10%	15%	55%
School Bus	27%	18%	18%	0%

For the D75 component of the proposed project an estimated 95 percent of students would be bussed to school while the remaining five percent would be dropped off and picked up via private auto trips. This mode split is consistent with other NYCSCA school studies with D75 students. Using the student-to-bus ratio of 7:1 for the D75 students for the proposed schools (this ratio is based on NYCSCA's Environmental Assessment Form and Supplemental Environmental Studies for a proposed IS/HS 89 at PS 37 in Staten Island serving D75 students), an estimated 26 buses would serve 181 students, and using a student-to-vehicle ratio of 1:1, ten vehicle drop offs and pickups would serve ten special education students at the proposed PS/IS/HS.

It is expected that the school would employ an estimated 257 staff members. The student-to-staff ratio for the Gifted and Talented and general education student population is estimated to be 10:1 and the D75 student-to-special education teacher-to-paraprofessional ratio is estimated to be 6:1:1, yielding a total of approximately 193 Gifted and Talented and general education staff members and 64 D75 staff members. The staff mode choice was determined using reverse-journey-to-work data for Richmond County Census Tracts 20.01, 20.02, 50, 64, and 74, which surround where the proposed school is located. The modal split indicates that 13 percent of the staff would utilize public transit, 80 percent would travel in private automobile, and the remaining seven percent would walk to the school.

School bus and auto drop-off trips were assumed to make a complete in-and-out cycle within the AM and PM peak hours, i.e., arrive full and depart empty within the AM study peak hour and arrive empty and depart full in the PM study peak hour. Based on available data from PS/IS 70 in Staten Island and reverse-journey-to-work data, an auto

vehicle occupancy rates of 1.9 for PS students, 1.3 for IS/HS students and 1.06 for staff which were applied to the vehicle trips.

Temporal Distribution – School Buildings

It is assumed that 99 percent of students and 80 percent of staff would arrive at the school during the AM peak hour and depart during the PM peak hour following the guidelines of the *CEQR Technical Manual*. Assuming that the arrival and dismissal schedules would be the same for each school, this would result in a net increase of 710 student vehicle arrivals and 689 departures during the AM peak period, and 689 student vehicle arrivals and 710 departures during the PM peak period at high school dismissal[1]. Staff were assumed to arrive and depart during the AM and PM peak analysis hours, resulting in 156 staff vehicle arrivals during the AM peak period and 156 vehicle departures during the PM peak period.

Table 1 summarizes the transportation planning factors and Table 2 identifies the proposed net trip generation data for the PS, IS, and HS schools. The total number of new school-generated student and staff vehicle trips is projected to be 1,553 trips, consisting of – 866 arrivals and 689 departures during the AM peak period, and 689 arrivals and 866 departures during the PM peak period.

The primary/intermediate school and the intermediate/high school are anticipated to have different arrival and dismissal schedules to distribute the arrival and dismissal of student trips to the campus over a longer time period. Based on the direction of NYC Department of Education, school arrival times should be within the 8:00 AM to 8:45 AM period. Therefore, the student and staff arrival and departure trips for the proposed St. John Villa campus were distributed over a 45-minute arrival and dismissal period assuming that the start time for each school building is staggered by 45 minutes. Hours for each school were assumed to be 8:45 AM to 3:15 PM for the PS/IS and 8:00 AM to 2:30 PM for the IS/HS. Student and staff arrival and departure trips were estimated in 15-minute intervals for the proposed St. John Villa campus assuming that 98 percent of the student trips and 80 percent of the staff trips arrive/depart within the peak hour for each school. The student arrival and departure patterns were based on trip data collected at two intersections near PS 39 located at 99 MacFarland Avenue which is located one block south of the former St. John Villa campus, as well as pedestrian data collected near a similar IS/HS school located in the Stapleton section of Staten Island. Table 3 summarizes vehicle trips in 15-minute increments and identifies the peak hour vehicle, transit, and walking trip increments.

Overall, the total number of vehicle trips generated during the AM and PM peak hours, assuming staggered school arrival and dismissal times, is a respective 1,161 and 1,068 trips, which accounts for approximately 75 percent and 69 percent of the total peak period trips. The number of incremental trips is more than the 50-trip threshold specified in the *CEQR Technical Manual*; therefore, detailed traffic and parking analyses are needed.

All schools were assumed to be open to borough-wide enrollment. Given the relatively small number of Gifted and Talented programs located on Staten Island, it was assumed that students would travel from all parts of the borough to the Gifted and Talented program on the St. John Villa campus. Therefore, trip assignments for the PS/IS school were developed based on the US census data[2] for the concentration of residential population on Staten Island. The majority of students for the IS/HS schools are estimated to predominantly reside in neighborhoods within the northeastern part of the borough; therefore, student trip assignments for the IS/HS schools were developed based

[1] No trip credit is being applied for the previous enrollment of 724 students at the former St. John Villa campus.
[2] U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates (TABLE ID: B14002)

on US census data for the concentration of residential developments within these areas. Trip assignments for faculty/staff were based on reverse-journey-to-work data for Richmond County Census Tracts 20.01, 20.02, 50, 64, and 74.

Student vehicle trips were assigned to one of nine possible approach routes on the roadway network using suggested directions provided by Google Maps. These directions were filtered based on traffic conditions during typical school arrival and dismissal times. Figure 2, "PS/IS Vehicle Trip Assignments" and Figure 3, "IS/HS Vehicle Trip Assignments" show each of the nine possible routes and the percentage of total vehicle trips projected to use them.

The auto drop-offs and pick-ups for the PS/IS students were assumed to take place along northbound Landis Avenue in front of the proposed PS building. IS/HS student auto drop-offs and pick-ups were assumed to occur along Cleveland Place north of Landis Avenue as well as along Narrows Road South north of Hastings Street. School bus pick-ups/drop-offs would occur inside the proposed campus. PS/IS school buses are expected to enter via the Hastings Street driveway and exit via the Landis Avenue driveway and the IS/HS school buses are expected to enter via the Cleveland Place driveway and exit via the Narrows Road South driveway.

Based on the assignment of vehicle trips to the roadway network, several intersections would experience more than the 50-trip threshold and would require detailed traffic analysis. The following 31 locations – 25 intersections and six campus driveway locations – near the St. John Villa campus have been identified as representative intersections for detailed traffic analysis (see Figure 4):

1. Fingerboard Road and Hylan Boulevard
2. Fingerboard Road and Columbia Avenue
3. Fingerboard Road and Cleveland Place
4. Fingerboard Road and Narrows Road South
5. Fingerboard Road and Narrows Road North
6. Fingerboard Road and Tompkins Avenue
7. Fingerboard Road and Bay Street
8. Hylan Boulevard and West Fingerboard Road
9. Sand Lane and Major Avenue
10. Sand Lane and MacFarland Avenue
11. Sand Lane and McClean Avenue
12. Hastings Street and Landis Avenue/Major Avenue
13. Hastings Street and MacFarland Avenue
14. Hastings Street and McClean Avenue
15. Lily Pond Avenue and Major Avenue
16. Lily Pond Avenue and Narrows Road South
17. Lily Pond Avenue and McClean Avenue
18. Landis Avenue and Cleveland Place
19. Narrows Road South and Hastings Street
20. Columbia Avenue and Chicago Avenue
21. Hastings Street and St. John Villa campus driveway
22. Landis Avenue and St. John Villa campus driveway
23. Cleveland Place and St. John Villa campus driveway

24. Cleveland Place and St. John Villa campus parking lot entrance
25. Cleveland Place and Garson Avenue/St. John Villa campus parking lot exit
26. Narrows Road South and St. John Villa campus driveway
27. Narrows Road North and Hylan Boulevard East
28. Narrows Road North and Hylan Boulevard West
29. Narrows Road South and Hylan Boulevard West
30. Narrows Road South and Hylan Boulevard East
31. School Road and Bay Street

More than 50 vehicle trips would be expected to travel to and from the schools via the Staten Island Expressway (I-278) based on the vehicle assignments to the roadway network. Therefore, a detailed freeway analysis would be required. The following ten elements near the St. John Villa campus have been identified as elements for the detailed freeway analysis (see Figure 5):

1. I-278 Eastbound Exit 14 to Hylan Boulevard
2. I-278 Eastbound Mainline between Hylan Boulevard and Targee Street
3. I-278 Eastbound Exit 15 to Fingerboard Road
4. I-278 Westbound Exit 13B to Targee Street
5. I-278 Westbound Mainline between Hylan Boulevard and Targee Street
6. I-278 Westbound Entrance east of Targee Street
7. I-278 Westbound Exit 13A to Clove Road
8. Narrows Road North Service Road weaving segment between I-278 Westbound Exit 13B and entrance ramp east of Targee Street

Table 1: Proposed St. John Villa Campus – Transportation Planning Factors (School Buildings)

	PS/IS Building							
	PS Students	**PS Parents**	**Pre-K Students**	**Pre-K Parents**	**IS Students in PS/IS Bldg.**	**6th Grade Parents in PS/IS Bldg.**	**PS D75 Students**	**PS/IS Faculty/Staff**
Project Component:	430	48	31	3	207	12	96	99
Attendance Rate:	(1) 100%	--	(1) 100%	--	(1) 100%	--	(1) 100%	--
Daily Trip Generation:	(2) 2.0 per student	(2) 4.0 per student	(2) 2.0 per student	(2) 4.0 per student	(2) 2.0 per student	(2) 4.0 per student	(2) 2.0 per student	(2) 2.0 per employee
Temporal Distribution:	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
AM	49.5%	49.5%	49.5%	49.5%	49.5%	49.5%	49.5%	40.0%
PM	49.5%	49.5%	49.5%	49.5%	49.5%	49.5%	49.5%	40.0%
In/Out Splits:	In / Out	In / Out	In / Out	In / Out	In / Out	In / Out	In / Out	In / Out
AM	100% / 0%	100% / 0%	100% / 0%	100% / 0%	100% / 0%	100% / 0%	100% / 0%	100% / 0%
PM	0% / 100%	0% / 100%	0% / 100%	0% / 100%	0% / 100%	0% / 100%	0% / 100%	0% / 100%
Modal Splits:	(3) **AM / PM**	(3) **AM/PM**	(3) **AM / PM**	(3) **AM/PM**	(3, 7) **AM / PM**	(3, 7) **AM/PM**	(6) **AM / PM**	(5) **AM/PM**
Auto	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	80% / 80%
Dropoff/Pickup	59% / 59%	0% / 0%	85% / 85%	0% / 0%	59% / 59%	0% / 0%	5% / 5%	0% / 0%
Bicycle	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%
Walk/Other	14% / 14%	90% / 90%	14% / 14%	90% / 90%	14% / 14%	57% / 57%	0% / 0%	7% / 7%
Subway/Rail	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%	0% / 0%
Bus (Transit)	2% / 2%	10% / 10%	2% / 2%	10% / 10%	10% / 10%	43% / 43%	0% / 0%	13% / 13%
School Bus	27% / 27%	0% / 0%	0% / 0%	0% / 0%	18% / 18%	0% / 0%	95% / 95%	0% / 0%
	100% / 100%	100% / 100%	100% / 100%	100% / 100%	100% / 100%	100% / 100%	100% / 100%	100% / 100%
Vehicle Occupancy:	(8)		(8)				(6)	(5)
Auto	1	--	1	--	1	--	--	1.06
Dropoff/Pickup	1.9	--	1.9	--	1.3	--	1.0	--
School Bus/Van	15	--	15	--	15	--	7	--

Table 1 (continued): Proposed St. John Villa Campus – Transportation Planning Factors (School Buildings)

	IS/HS Buildings				
	IS Students	**6th Grade Parents**	**HS Students**	**IS/HS D75 Students**	**IS/HS Faculty/Staff**
Project Component:	537	68	717	96	158
	(1)		(1)	(1)	
Attendance Rate:	100%	--	100%	100%	--
	(2)	(2)	(2)	(2)	(2)
Daily Trip Generation:	2.0 per student	4.0 per student	2.0 per student	2.0 per student	2.0 per employee
Temporal Distribution:	(2)	(2)	(2)	(2)	(2)
AM	49.5%	49.5%	49.5%	49.5%	40.0%
PM	49.5%	49.5%	49.5%	49.5%	40.0%
In/Out Splits:	In Out	In Out	In Out	In Out	In Out
AM	100% 0%	100% 0%	100% 0%	100% 0%	100% 0%
PM	0% 100%	0% 100%	0% 100%	0% 100%	0% 100%
	(4)	(4)	(4)	(6)	(5)
Modal Splits:	**AM PM**	**AM/PM**	**AM PM**	**AM PM**	**AM/PM**
Auto	0% 0%	0% 0%	3% 3%	0% 0%	80% 80%
Dropoff/Pickup	32% 32%	0% 0%	27% 27%	5% 5%	0% 0%
Bicycle	0% 0%	0% 0%	1% 1%	0% 0%	0% 0%
Walk/Other	35% 35%	70% 70%	14% 14%	0% 0%	7% 7%
Subway/Rail	0% 0%	0% 0%	0% 0%	0% 0%	0% 0%
Bus (Transit)	15% 15%	30% 30%	55% 55%	0% 0%	13% 13%
School Bus	18% 18%	0% 0%	0% 0%	95% 95%	0% 0%
	100% 100%	100% 100%	100% 100%	100% 100%	100% 100%
Vehicle Occupancy:				(6)	(5)
Auto	1	--	1	--	1.06
Dropoff/Pickup	1.3	--	1.3	1.0	--
School Bus/Van	15	--	15	7	--

Notes:

1. No absentee rate was applied for the proposed HS. The school was assumed to be at full capacity during both the AM and PM peak hours.
2. Based on data from the *City Environmental Quality Review (CEQR) Technical Manual* .
3. Estimates for the PS students and parents were based on gifted & talented programs at PS 45 and PS 50, Staten Island. Pre-K students would not receive school bus services; it was assumed that the Pre-K would have the same mode choice as PS with 0% school bus share.
4. Estimates for IS/HS students were based on data provided by New York City Department of Education (NYCDOE) and adjusted based on New York City Department of Transportation (NYCDOT) recommendations.
5. U.S. Census Bureau, American Community Survey 2012-2016 Five-year estimates. Special Tabulation (A202105)- Census Tracts 20.01, 20.02, 50, 64 and 74, Richmond County, New York
6. Based on data provided by NYCSCA for schools with D75 students.
7. Modal splits for the gifted & talented IS students were adjusted based on data provided by NYCDOE for other gifted & talented PS/IS schools (Brooklyn School of Inquiry and The 30th Avenue School, Queens).
8. Estimates for the PS students were based on the proposed PS 70, Staten Island.

Table 2: Proposed St. John Villa Campus – Travel Demand Forecast (School Buildings)

		PS/IS Building															
		PS Students		PS Parents		Pre-K Students		Pre-K Parents		IS Students in PS/IS Bldg.		6th Grade Parents in PS/IS Bldg.		PS D75 Students		PS/IS Faculty/Staff	
Project Component:		430		48		31		3		207		12		96		99	
Peak Hour Trips:																	
	Weekday AM	426		96		31		6		205		24		95		79	
	Weekday PM	426		96		31		6		205		24		95		79	
In/Out Splits:		**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
	Weekday AM	426	0	48	48	31	0	3	3	205	0	12	12	95	0	79	0
	Weekday PM	0	426	48	48	0	31	3	3	0	205	12	12	0	95	0	79
Peak Hour Person Trips:		**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
AM	Auto	0	0	--	--	0	0	--	--	0	0	--	--	0	0	63	0
	Dropoff/Pickup	249	0	--	--	26	0	--	--	120	0	--	--	5	0	0	0
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Walk/Other	57	0	44	44	4	0	3	3	28	0	7	7	0	0	6	0
	Bus (Transit)	6	0	5	5	0	0	0	0	20	0	5	5	0	0	10	0
	School Bus	113	0	--	--	0	0	--	--	37	0	--	--	90	0	0	0
		425	0	48	48	30	0	3	3	205	0	12	12	95	0	79	0
PM	Auto	0	0	--	--	0	0	--	--	0	0	--	--	0	0	0	63
	Dropoff/Pickup	0	249	--	--	0	26	--	--	0	120	--	--	0	5	0	0
	Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Walk/Other	0	57	44	44	0	4	3	3	0	28	7	7	0	0	0	6
	Bus (Transit)	0	6	5	5	0	0	0	0	0	20	5	5	0	0	0	10
	School Bus	0	113	--	--	0	0	--	--	0	37	--	--	0	90	0	0
		0	425	48	48	0	30	3	3	0	205	12	12	0	95	0	79
Peak Hour Vehicle Trips:		**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
AM	Auto	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	0
	Dropoff/Pickup/Taxi	249	249	--	--	14	14	--	--	93	93	--	--	5	5	--	--
	School Bus/Van	8	8	--	--	0	0	--	--	3	3	--	--	13	13	--	--
PM	Auto	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0	60
	Dropoff/Pickup/Taxi	249	249	--	--	14	14	--	--	93	93	--	--	5	5	--	--
	School Bus/Van	8	8	--	--	0	0	--	--	3	3	--	--	13	13	--	--

Table 2 (continued): Proposed St. John Villa Campus – Travel Demand Forecast (School Buildings)

	IS/HS Buildings												
	IS Students		6th Grade Parents		HS Students		IS/HS D75 Students		IS/HS Faculty/Staff				
Project Component:	537		68		717		96		158				
Peak Hour Trips:													
Weekday AM	532		136		709		95		126				
Weekday PM	532		136		709		95		126				
In/Out Splits:	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**			
Weekday AM	532	0	68	68	709	0	95	0	126	0			
Weekday PM	0	532	68	68	0	709	0	95	0	126			
Peak Hour Person Trips:	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**Net In**	**Out**	**Total**
AM Auto	0	0	--	--	21	0	0	0	101	0	185	0	185
Dropoff/Pickup	170	0	--	--	192	0	5	0	0	0	767	0	767
Bicycle	0	0	0	0	7	0	0	0	0	0	7	0	7
Walk/Other	186	0	48	48	99	0	0	0	9	0	491	102	593
Bus (Transit)	80	0	21	21	390	0	0	0	16	0	552	30	583
School Bus	96	0	--	--	0	0	90	0	0	0	426	0	426
	532	0	68	68	709	0	95	0	126	0	2428	132	2560
	0												
PM Auto	0	0	--	--	0	21	0	0	0	101	0	185	185
Dropoff/Pickup	0	170	--	--	0	192	0	5	0	0	0	767	767
Bicycle	0	0	0	0	0	7	0	0	0	0	0	7	7
Walk/Other	0	186	48	48	0	99	0	0	0	9	102	491	593
Bus (Transit)	0	80	21	21	0	390	0	0	0	16	30	552	583
School Bus	0	96	--	--	0	0	0	90	0	0	0	426	426
	0	532	68	68	0	709	0	95	0	126	132	2428	2560
Peak Hour Vehicle Trips:	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**	**Net In**	**Out**	**Total**
AM Auto	--	--	--	--	21	0	--	--	96	0	177	0	177
Dropoff/Pickup/Taxi	131	131	--	--	148	148	5	5	--	--	645	645	1290
School Bus/Van	7	7	--	--	0	0	13	13	--	--	44	44	88
											866	689	**1555**
PM Auto	--	--	--	--	0	21	--	--	0	96	0	177	177
Dropoff/Pickup/Taxi	131	131	--	--	148	148	5	5	--	--	645	645	1290
School Bus/Van	7	7	--	--	0	0	13	13	--	--	44	44	88
											689	866	**1555**

Notes:

1. The number of student auto trips consist of 710 arrivals and 689 departures during the AM analysis hour, and 689 arrivals and 710 departures during the PM
2. The staff auto trips consists of 156 arrivals to the area and 0 departures from the area during the AM analysis hour, and 0 arrivals to the area and 156 departures from the area during the PM analysis hour, assuming a vehicle occupancy rate of 1 persons per auto.

Table 3: Proposed St. John Villa Campus – Incremental Trip Projections (School Buildings)

	PS/IS Building	IS/HS Buildings

Vehicle Trips (Auto+ School Bus)

15-Min Period		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		IS Parents		D75- PS		PS Staff		IS		IS Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
6:00 AM	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	12	0	12
7:00 AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	1	0	27	35	30	2	2	2	2	12	0	12	0	90	62	153
7:15 AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	2	0	28	37	32	2	2	2	2	12	0	12	0	94	66	160
7:30 AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	17	1	0	16	20	18	1	1	1	1	12	0	12	0	71	37	107
7:45 AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	65	3	0	61	79	69	4	4	5	5	12	0	12	0	191	143	334
8:00 AM	8:15 AM	16	0	0	15	1	0	0	1	6	0	0	6	1	1	15	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0	50	23	74
8:15 AM	8:30 AM	187	6	0	181	10	0	0	10	70	2	0	68	13	13	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	295	280	575
8:30 AM	8:45 AM	55	2	0	53	3	0	0	3	20	1	0	20	4	4	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97	82	178
8:45 AM	9:00 AM	3	0	0	3	0	0	0	0	1	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	4	15
1:30 PM	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	132	0	149	0	8	0	10	0	0	6	0	6	307	12	319
2:30 PM	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	139	0	0	0	171	0	8	0	10	0	6	0	6	0	340	340
2:45 PM	3:00 PM	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	18	4	36	40
3:00 PM	3:15 PM	0	3	189	0	0	0	11	0	2	1	70	0	14	0	0	8	0	0	0	0	0	0	0	0	0	0	0	12	0	12	286	35	321
3:15 PM	3:30 PM	6	195	25	0	0	11	1	0	0	73	9	0	2	14	0	8	0	0	0	0	0	0	0	0	0	0	0	12	0	12	44	323	367
3:30 PM	3:45 PM	1	26	20	0	0	1	1	0	0	10	8	0	1	2	0	23	0	0	0	0	0	0	0	0	0	0	0	6	0	6	31	73	105
3:45 PM	4:00 PM	1	21	15	0	0	1	1	0	0	8	6	0	1	1	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	46	70

Vehicle Trips (Auto+ School Bus)

Peak Hour		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		IS Parents		D75- PS		PS Staff		IS		IS Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:45 AM	8:45 AM	257	8	0	249	14	0	0	14	96	3	0	93	18	18	60	0	65	3	0	61	79	69	4	4	5	5	18	0	18	0	537	528	96	0	633	528	1161
2:30 PM	3:30 PM	6	197	216	0	0	11	12	0	3	74	81	0	16	14	0	15	0	139	0	0	0	171	0	8	0	10	0	48	0	48	334	624	0	111	334	735	1068

Table 3 (continued): Proposed St. John Villa Campus – Incremental Trip Projections (School Buildings)

Walk Trips (Veh Peak Hour)

Peak Hour		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		6th in PS Par		D75- PS		PS Staff		IS		6th Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:00 AM	8:00 AM	0	0	0	0	4	0	3	3	0	0	0	0	0	0	2	0	186	0	0	0	99	0	0	0	0	0	4	0	4	0	292	3	9	0	301	3	304
2:30 PM	3:30 PM	0	46	38	35	0	3	3	2	0	23	6	6	0	0	0	2	0	186	0	48	0	99	0	0	0	0	0	4	0	4	47	448	0	9	47	457	504

Public Transit (Bus) Trips (Veh Peak Hour)

		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		6th in PS Par		D75- PS		PS Staff		IS		6th Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:00 AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	81	0	21	21	394	0	0	0	0	0	8	0	8	0	495	21	20	0	515	21	536
2:30 PM	3:30 PM	0	5	4	4	0	0	0	0	0	15	4	4	0	0	0	3	0	81	0	21	0	394	0	0	0	0	0	8	0	8	8	523	0	19	8	541	550

School Bus Trips

Peak Hour		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		IS Parents		D75- PS		PS Staff		IS		IS Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:45 AM	8:45 AM	8	8	0	0	0	0	0	0	3	3	0	0	13	13	0	0	3	3	0	0	0	0	3	3	3	3	0	0	0	0	33	33	0	0	33	33	66
2:30 PM	3:30 PM	6	6	0	0	0	0	0	0	3	2	0	0	11	11	0	0	0	7	0	0	0	0	0	7	0	7	0	0	0	0	20	39	0	0	20	39	60

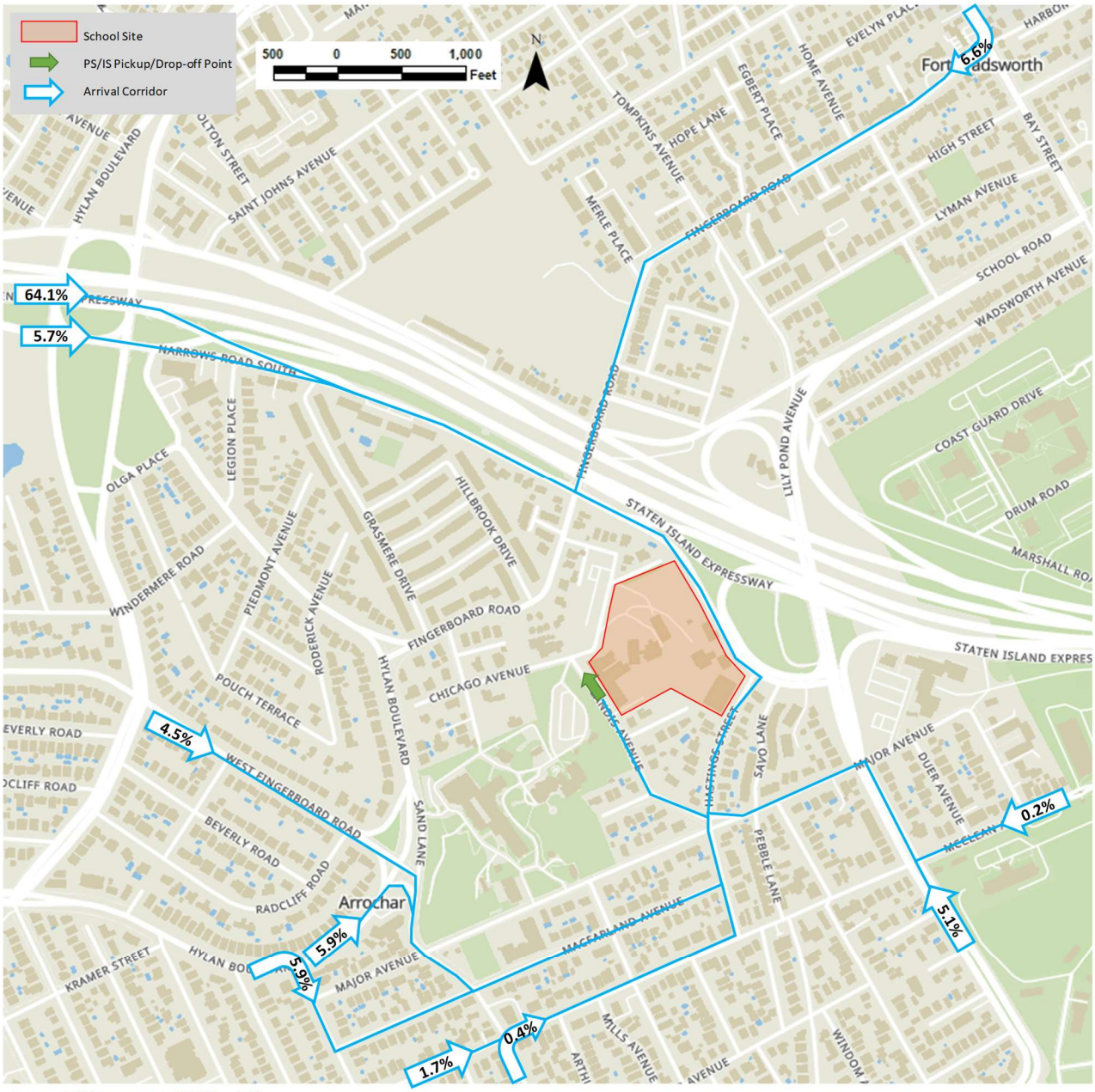
Bicycle Trips

Peak Hour		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		IS Parents		D75- PS		PS Staff		IS		IS Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:00 AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	3
2:30 PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	7	0	0	0	7	7

Auto Trips

Peak Hour		PS		PS Parents		Pre-K		Pre-K Parents		IS in PS		IS Parents		D75- PS		PS Staff		IS		IS Parents		HS		D75-IS		D75- HS		IS Staff		HS Staff		Students/ Pare		Staff		Total		Grand
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
7:45 AM	8:45 AM	249	0	0	249	14	0	0	14	93	0	0	93	5	5	60	0	61	0	0	61	79	69	1	1	2	2	18	0	18	0	504	495	96	0	600	495	1095
2:30 PM	3:30 PM	0	191	216	0	0	11	12	0	0	71	81	0	4	3	0	15	0	132	0	0	0	171	0	1	0	4	0	48	0	48	314	584	0	111	314	695	1009

Note: 7:45-8:45 AM is the identified vehicle AM peak hour; however, it does not represent the peak hour for transit and walk trips. The 7-8 AM period represents the peak hour for transit and walk trips and data for this period was used for the pedestrian and transit analyses.

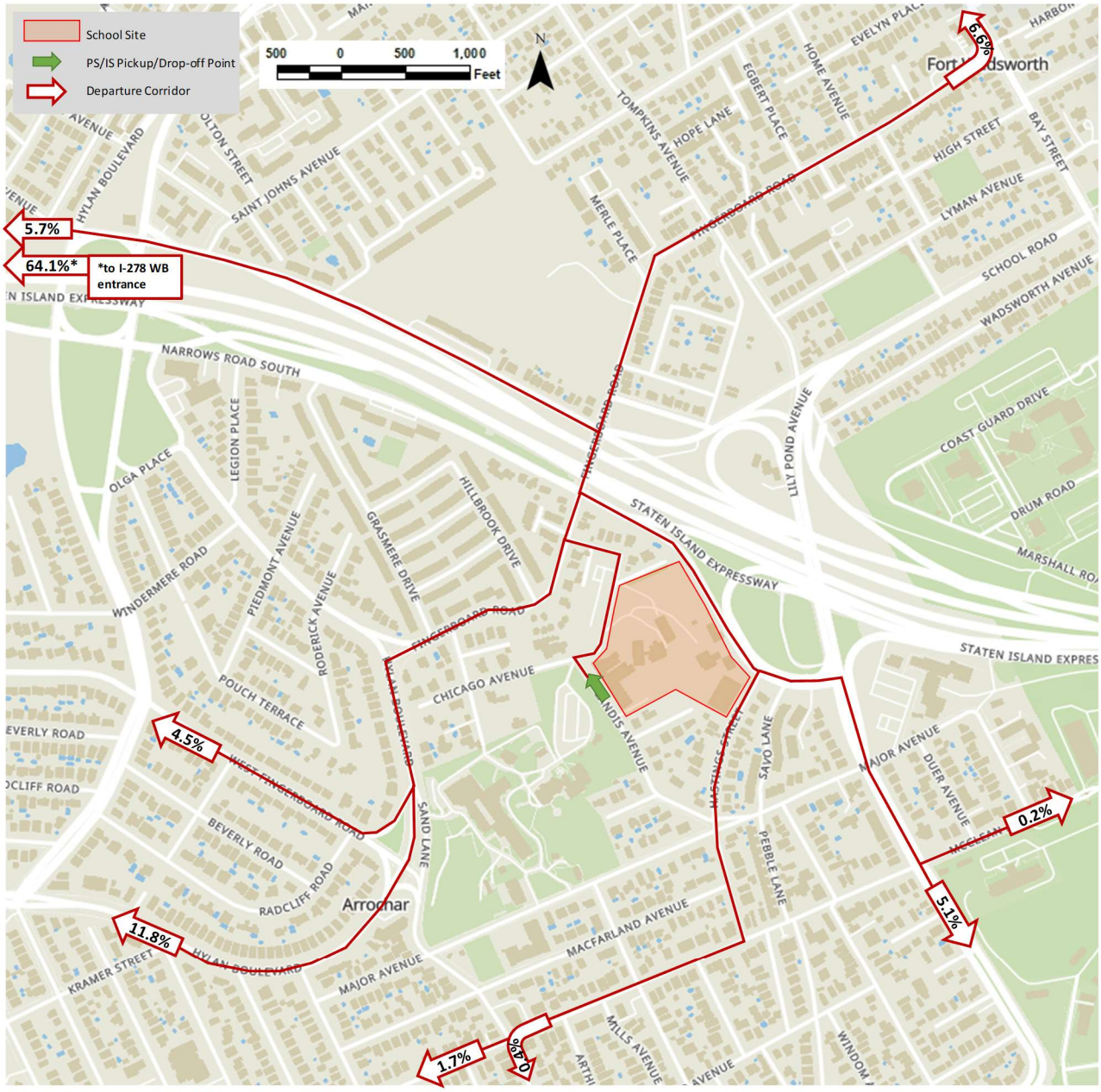


Source: STV Incorporated, 2024/Google Maps

Figure-2A

PS/IS VEHICLE TRIP ASSIGNMENTS
ARRIVAL CORRIDORS

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

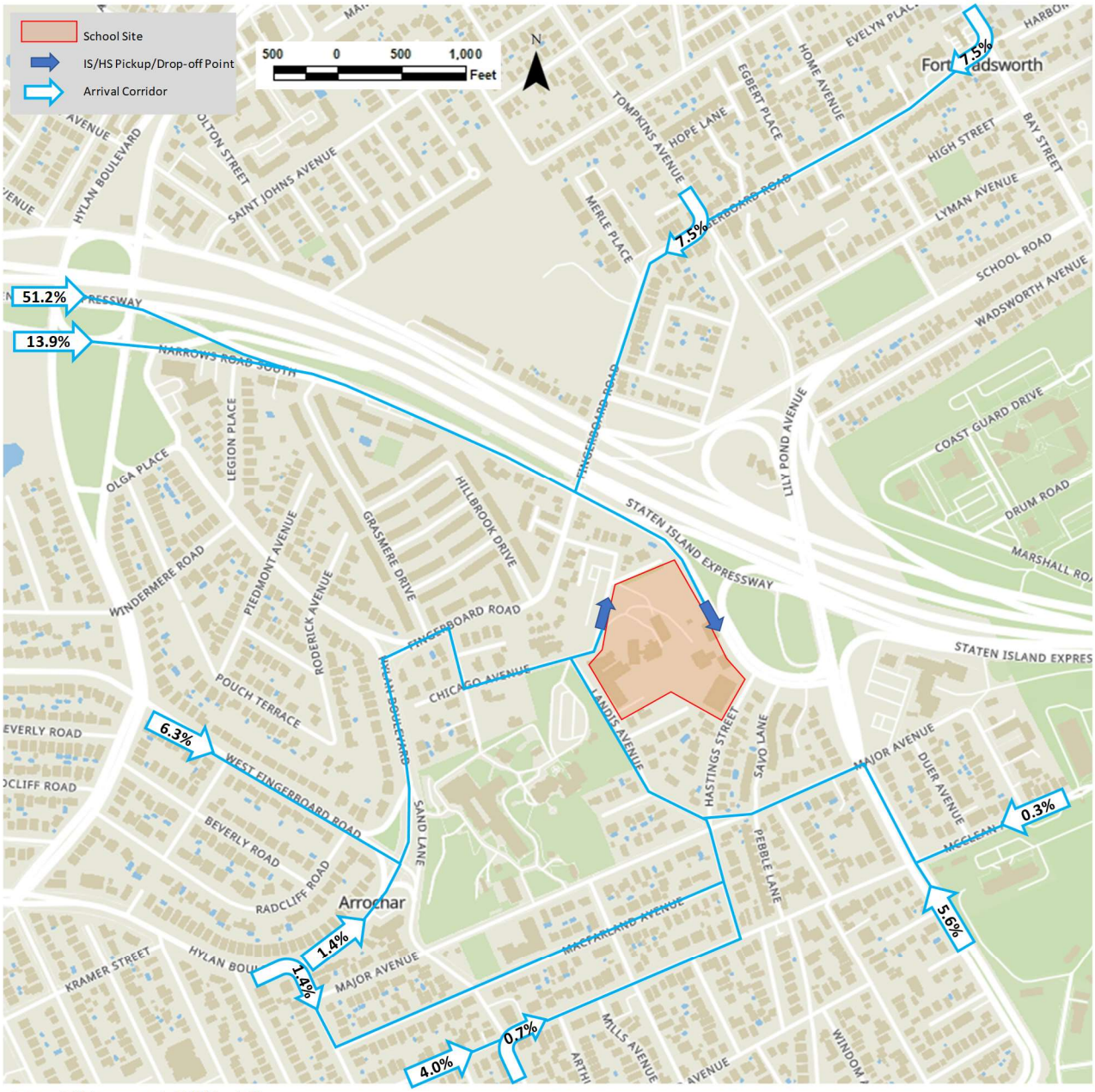


Source: STV Incorporated, 2024/Google Maps

Figure-2B

PS/IS VEHICLE TRIP ASSIGNMENTS
DEPARTURE CORRIDORS

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

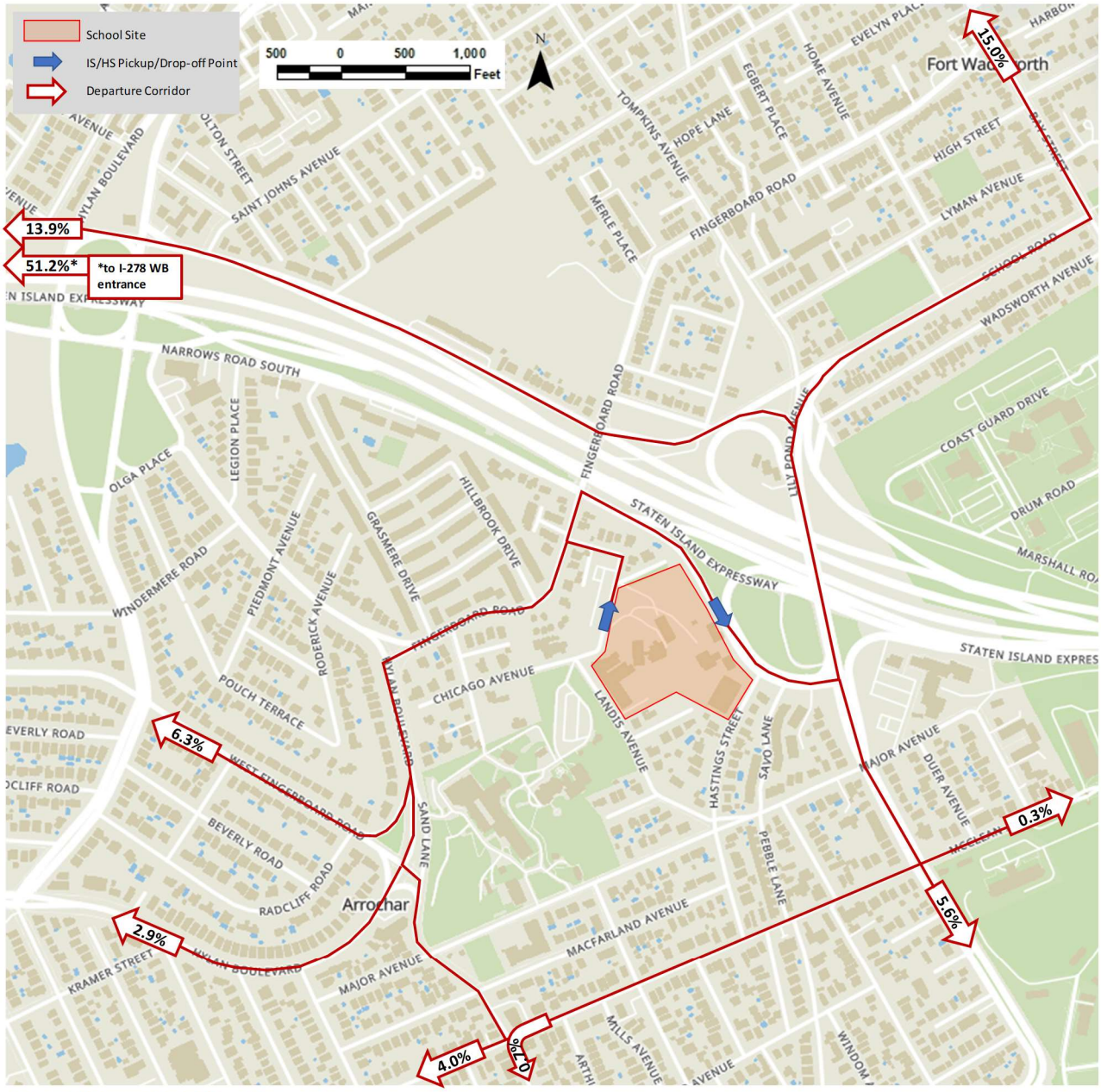


Source: STV Incorporated, 2024/Google Maps

Figure-3A

IS/HS VEHICLE TRIP ASSIGNMENTS
ARRIVAL CORRIDORS

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island



Source: STV Incorporated, 2024/Google Maps

Figure-3B

IS/HS VEHICLE TRIP ASSIGNMENTS
DEPARTURE CORRIDORS

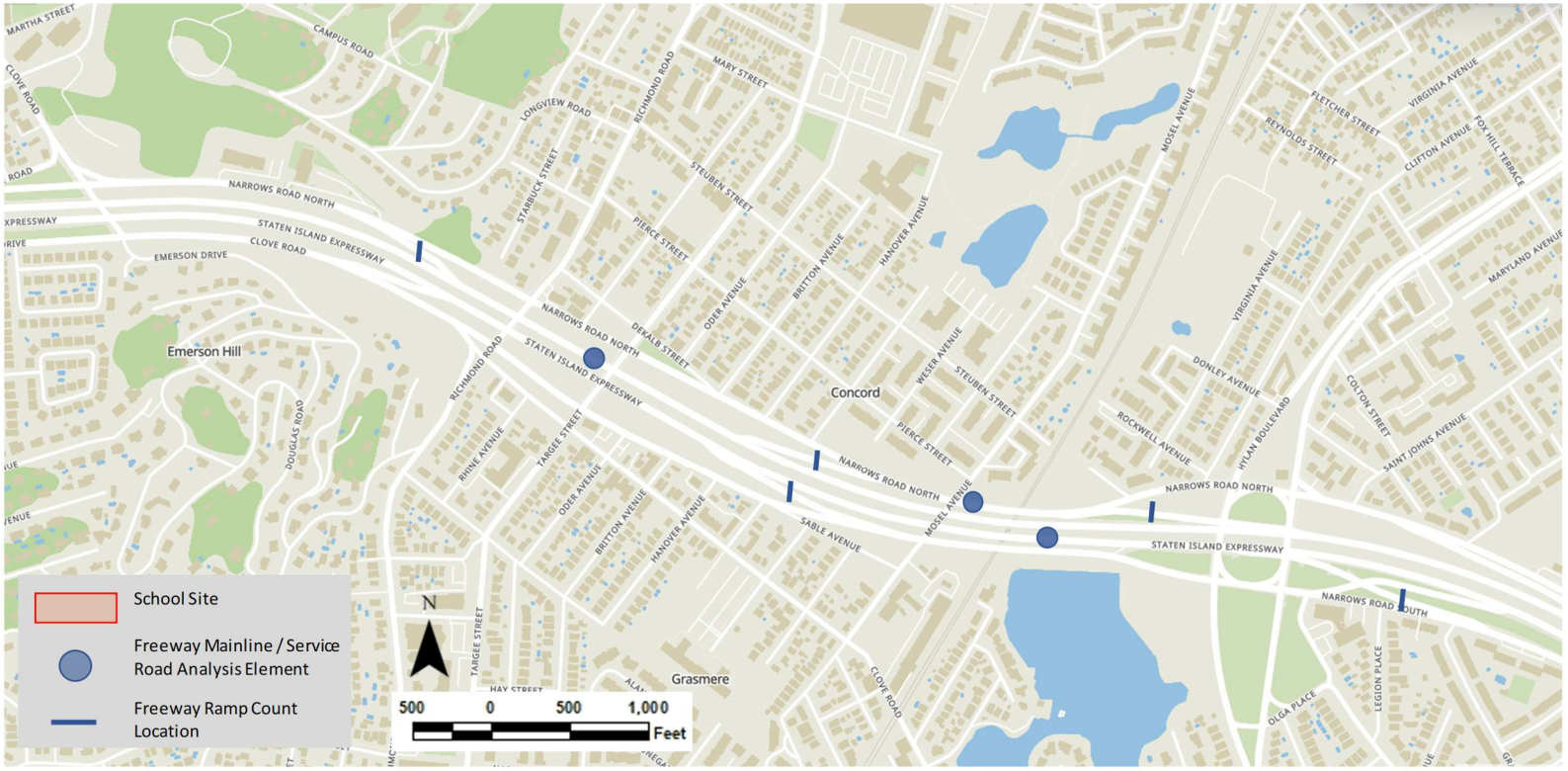
Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

Source: STV Incorporated, 2024/Google Maps

Figure-4

PROPOSED INTERSECTION ANALYSIS LOCATIONS

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island



Source: STV Incorporated, 2024/Google Maps

Figure-5

PROPOSED FREEWAY ANALYSIS LOCATIONS

Trip Generation – Athletic Fields

The proposed redevelopment will include an athletic field with a 700-seat bleacher section. Trip generation for the athletic fields were conservatively estimated based on the seating capacity and assuming a sport that consists of the most participants per team, such as football, which typically has 30-40 players per team, plus coaches, support staff, and officials. Therefore, trip generation was estimated assuming a fully attended event (700 attendees in the bleachers) with another 100 participants on the field (e.g., players, coaches, officials).

Well-attended sporting events typically occur on weekend afternoons and peak activity would likely occur for the game departure hour when everyone leaves the site within the same hour. Given that trip generation data for high school sporting events is not available, the following trip generation estimates were developed based on prior experience of high school sporting events and engineering judgment. The mode choice for the athletic fields and assignment to the roadway network were assumed to be similar to the estimates developed for the school staff, except that the percentage of transit use would be lower and replaced by more auto drop-off/pick-up trips. Overall, the total number vehicle trips generated during the Saturday peak hour for an athletic field event is 299 trips. Based on the assignment of vehicle trips to the roadway network, several of the weekday analysis intersections would experience more than the 50-trip threshold during the Saturday midday period and would require detailed traffic analysis. The following eight intersections near the St. John Villa campus have been identified as intersections for detailed Saturday midday traffic analysis:

1. Fingerboard Road and Cleveland Place
2. Fingerboard Road and Narrows Road South
3. Fingerboard Road and Narrows Road North
4. Lily Pond Avenue and Major Avenue
5. Lily Pond Avenue and Narrows Road South
6. Cleveland Place and Garson Avenue/St. John Villa campus parking lot
7. Narrows Road North and Hylan Boulevard East
8. Narrows Road North and Hylan Boulevard West

More than 50 vehicle trips would be expected to depart from sporting events via Westbound I-278 on the assignments to the roadway network. Therefore, a detailed freeway analysis of the westbound direction would be required during the Saturday midday period.

Table 4: Proposed St. John Villa Campus – Transportation Planning Factors (Athletic Fields)

	Football Field Team/ Staff		Football Field Spectators	
Project Component:	100		700	
	(1)		(1)	
Attendance Rate:	100%		100%	
Daily Trip Generation:	2.0		2.0	
Sat. Game Departure Peak Hour	per person		per attendees	
Temporal Distribution:				
Sat. Game Departure Peak Hour	50.0%		50.0%	
In/Out Splits:	In	Out	In	Out
Sat. Game Departure Peak Hour	0%	100%	0%	100%
Modal Splits:				
Auto	40%		80%	
Dropoff/Pickup	10%		10%	
Walk/Other	5%		5%	
Subway/Rail	0%		0%	
Bus (Transit)	5%		5%	
School Bus (2)	40%		0%	
	100%		100%	
Vehicle Occupancy:				
Auto	2		3	
Dropoff/Pickup	1		2	

Notes:
1. All parameters are based on engineering assumptions.
2. Assumes that the visiting team's players/staff would be bussed to the field.

Table 5: Proposed St. John Villa Campus – Travel Demand Forecast (Athletic Fields)

	Football Field Team/ Staff		Football Field Spectators				
Project Component:	100		700				
Peak Hour Trips:							
Saturday Game Departure Peak Hour	100		700				
In/Out Splits:	**In**	**Out**	**In**	**Out**			
Saturday Game Departure Peak Hour	0	100	0	700			
Peak Hour Person Trips:	**In**	**Out**	**In**	**Out**	**Net In**	**Out**	**Total**
Auto	0	40	0	560	0	600	600
Dropoff/Pickup	0	10	0	70	0	80	80
Walk/Other	0	5	0	35	0	40	40
Bus (Transit)	0	5	0	35	0	40	40
School Bus	0	40	0	0	0	40	40
	0	100	0	700	0	800	800
Peak Hour Vehicle Trips:	**In**	**Out**	**In**	**Out**	**In**	**Out**	**Total**
Auto	0	20	0	187	0	207	207
School Bus (1)	0	2	0	0	0	2	2
Dropoff/Pickup/Taxi	10	10	35	35	45	45	90
					45	254	299

Notes
1. Assumes 30 persons per school bus.

Parking

Based on the trip generation estimates, approximately 195 faculty/staff and 21 HS students would drive to/from the proposed school during the peak hours. Parking is anticipated to be provided on-site for faculty/staff only. A parking lot on Cleveland Place, opposite the school's campus would provide 112 parking spaces. An additional 48 spaces would be provided on the campus within two internal parking lots. Thus, a total of 160 spaces would be provided. The proposed on-site parking spaces are not anticipated to accommodate the overall incremental parking demand by the faculty/staff, students, and visitors; 56 vehicles would be expected to park on-street. As such, detailed existing on-street parking inventories will be conducted to document the existing supply and demand during each period. On-street parking surveys will be conducted to determine the number of spaces within an acceptable walking distance (i.e., a quarter-mile radius) of the project site. Surveys will be conducted during the weekday morning and afternoon periods, and during the Saturday midday period.

Transit and Pedestrians

The new incremental students, parents and staff would generate an estimated 583 new transit trips during the AM and PM peak periods. According to general thresholds used by the *CEQR Technical Manual* and MTA, if the proposed action is projected to result in greater than 200 peak hour subway or bus trips, additional quantified analysis would be needed. Furthermore, according to general thresholds used by the *CEQR Technical Manual* and MTA, if the proposed action is projected to result in greater than 50 bus passengers assigned to a single bus line in one direction, then additional detailed analysis is needed. The Project Site is served by six MTA bus routes (S51, S52, S53, S78, S79-SBS, and S93 Limited routes). After performing a transit trip assignment, the proposed project would add more than 50 bus trips to the S52, S78, and S79-SBS routes during both the AM and PM peak hours for at least one bus route direction; therefore, a detailed bus analysis will be performed for each route.

The student and staff pedestrian trips to the proposed St. John Villa campus will include walk trips as well as other modes that have a pedestrian component, such as bus trips and trips made by those parking off-campus. The total number of new project-generated walk trips is projected to be 593 trips in the AM and PM peak periods. Persons en route to and from bus stops would add approximately 583 pedestrian trips to area sidewalks and crosswalks during the AM and PM peak periods. Persons en route to and from on-street parking spaces as well as the Cleveland Place parking lot opposite campus would add approximately 51 and 106 pedestrian trips, respectively. Total pedestrian trips to from the Project Site are estimated at approximately 1,337 pedestrian trips to area sidewalks and crosswalks during the AM and PM peak periods (see Table 6). Figure 4 shows the quarter-mile radius around the site where pedestrian walk will be analyzed. According to the *CEQR Technical Manual*, if a proposed project would result in more than 200 pedestrian trips at any pedestrian element, additional detailed analysis may be needed. Therefore, the following pedestrian elements have been identified for detailed analysis:

1. North and south Fingerboard Road sidewalks west of Columbia Avenue
2. North sidewalk of Cleveland Place east of Fingerboard Road
3. Southeast corner at Fingerboard Road and Hylan Boulevard
4. Columbia Avenue south crosswalk and southeast and southwest corners at Fingerboard Road
5. East Columbia Avenue sidewalk south of Fingerboard Road
6. South Chicago Avenue sidewalk east of Columbia Avenue
7. South sidewalk of Cleveland Place east of Landis Avenue
8. East sidewalk of Cleveland Place south of Garson Avenue
9. East Landis Avenue sidewalk south of Cleveland Place
10. North Landis Avenue sidewalk west of Major Avenue/Hastings Street

Table 6: Summary of Pedestrian Trip Generation

	Students	Parents	Staff	Total
Bus	496	61	26	583
Walk-Only	374	204	15	593
Parking (Cleveland Place Lot)	0	0	106	106
Parking (On-Street)	21	0	35	56
Total	891	264	182	**1,337**

According the *CEQR Technical Manual* any uncontrolled crossing where under the With-Action condition an increment of 20 or more students are assigned during the highest crossing hour should be included in the detailed safety and traffic operational analyses including the signal warrant analysis. Therefore, a warrant study will be performed for the uncontrolled crossings at the intersections of Columbia Avenue at Chicago Avenue, Landis Avenue at Chicago Avenue, McClean Avenue at Hastings Street, Major Avenue at Hastings Street, Fingerboard Road at Cleveland Place, and Cleveland Place at Garson Avenue/St. John Villa campus parking lot.

Safety

According to *CEQR Technical Manual* guidelines, high-crash locations with trips assigned to them within 0.25 miles of the project site and high-crash locations within the traffic study area intersections determined by the Level 1 and 2 screening assessment should be identified as part of the TDF memorandum. A high crash location is defined as a Vision Zero priority intersection, or a location with five or more pedestrian/bicyclist injury crashes in any consecutive 12 months of the most recent 3-year period for which data is available. In addition, any location along a Vision Zero priority corridor with three or more pedestrian/bicyclist injury crashes in any consecutive 12 months of the most recent 3-year period for which data is available should be identified as a high crash location.

Within the study area, Hylan Boulevard, Narrows Road North, Narrows Road South, McClean Avenue, and Bay Street are considered Vision Zero Priority Corridors. Additionally, the intersections of Fingerboard Road at Narrows Road South and Lily Pond Avenue at McClean Avenue are considered Vision Zero Priority Intersections.

Crash data obtained from NYCDOT for the period between January 1, 2017 and December 31, 2019 indicates that the intersections of Fingerboard Road at Narrows Road South and Lily Pond Avenue at McClean Avenue would be considered high-crash intersections, with both experiencing three pedestrian-injury crashes in 2019 (see Tables 7 and 8).

Table 7: 2017-2019 Crash Summary

Intersection		Vision Zero Corridor	Total	Injury Crashes, 2017-2019				Fatalities
				Motor Vehicle	Pedestrian	Bicycle	Total	
Fingerboard Road	Hylan Boulevard	Y	2	1	1	0	2	0
	Hillbrook Drive	N	1	1	0	0	1	0
	Cleveland Place	N	2	2	0	0	2	0
	Narrows Road South	Y	12	8	4	0	12	0
	Tompkins Avenue	N	4	3	1	0	4	0
	Bay Street	Y	7	7	0	0	6	1
School Road	Bay Street	Y	1	1	0	0	1	0
Hylan Boulevard	Linwood Avenue	Y	1	1	0	0	1	0
	West Fingerboard Road	Y	7	7	0	0	7	0
	Narrows Road North	Y	29	29	0	0	29	0
	Narrows Road South	Y	43	40	2	1	43	0
Lincoln Avenue	Tompkins Avenue	N	5	4	1	0	5	0
Narrows Road South	Lily Pond Avenue	Y	3	3	0	0	3	0
MacFarland Avenue	Sand Lane	N	1	1	0	0	1	0
McClean Avenue	Linwood Avenue	Y	6	5	1	0	6	0
	Sand Lane	Y	7	5	2	0	7	0
	Wallace Avenue	Y	5	5	0	0	5	0
	Jackson Avenue	Y	1	1	0	0	1	0
	Hastings Street	Y	2	2	0	0	2	0
	Pebble Lane	Y	1	1	0	0	1	0
	Ocean Avenue	Y	2	2	0	0	2	0
	Lily Pond Avenue	Y	11	7	4	0	11	0

Table 8: 2017-2019 Detailed Crash Summary by Year

Intersection		Vision Zero Corridor	Total Crashes			Injury Crashes												Fatalities		
						Motor Vehicle			Pedestrian			Bicycle			Total					
			2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
Fingerboard Road	Hylan Boulevard	Y	0	0	2	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0
	Hillbrook Drive	N	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
	Cleveland Place	N	1	1	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0
	Narrows Road South	Y	3	4	5	3	3	2	0	1	3	0	0	0	3	4	5	0	0	0
	Tompkins Avenue	N	2	2	0	2	1	0	0	1	0	0	0	0	2	2	0	0	0	0
	Bay Street	Y	5	2	0	5	2	0	0	0	0	0	0	0	4	2	0	1	0	0
School Road	Bay Street	Y	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Hylan Boulevard	Linwood Avenue	Y	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	West Fingerboard Road	Y	4	3	0	4	3	0	0	0	0	0	0	0	4	3	0	0	0	0
	Narrows Road North	Y	3	13	13	3	13	13	0	0	0	0	0	0	3	13	13	0	0	0
	Narrows Road South	Y	14	13	16	14	12	14	0	1	1	0	0	1	14	13	16	0	0	0
Lincoln Avenue	Tompkins Avenue	N	3	2	0	2	2	0	1	0	0	0	0	0	3	2	0	0	0	0
Narrows Road South	Lily Pond Avenue	Y	1	0	2	1	0	2	0	0	0	0	0	0	1	0	2	0	0	0
MacFarland Avenue	Sand Lane	N	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
McClean Avenue	Linwood Avenue	Y	0	2	4	0	1	4	0	1	0	0	0	0	0	2	4	0	0	0
	Sand Lane	Y	4	0	3	4	0	1	0	0	2	0	0	0	4	0	3	0	0	0
	Wallace Avenue	Y	4	1	0	4	1	0	0	0	0	0	0	0	4	1	0	0	0	0
	Jackson Avenue	Y	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
	Hastings Street	Y	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0
	Pebble Lane	Y	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Ocean Avenue	Y	0	1	1	0	1	1	0	0	0	0	0	0	0	1	1	0	0	0
	Lily Pond Avenue	Y	5	3	3	4	3	0	1	0	3	0	0	0	5	3	3	0	0	0

On-Street Parking Data Summary

DATE: **Thursday, October 19, 2023**
TIME: **6AM - 9AM**

Fingerboard Road

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Hylan Boulevard	Grasmere Drive	NP Anytime	0	0	NS Anytime	0	0
Grasmere Drive	Columbia Avenue	NP Anytime	0	0	NS Anytime	0	0
Columbia Avenue	Hillbrook Drive	NS Anytime	0	0	-	7	7
Hillbrook Drive	Cleveland Place	NS Anytime	0	0	NS Anytime	0	0
Cleveland Place	Narrow Road South	NS Anytime	0	0	NS Anytime	0	0
Narrow Road South	Narrow Road North	NS Anytime	0	0	NS Anytime	0	0
Narrow Road North	Lincoln Place	NS Anytime	0	0	NS Anytime	0	0
Lincoln Place	Harvey Street	NS Anytime	0	0	NS Anytime	0	0

Chicago Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Columbia Avenue	-	4	3	-	9	9
Columbia Avenue	Landis Avenue	-	18	9	-	19	15
Landis Avenue	Cleveland Place	-	6	6	-	4	4

Knauth Place

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Landis Avenue	Dead End	-	8	2	-	8	1

Pickersgill Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Landis Avenue	-	7	2	-	8	4

Major Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	20	17	-	20	17
Hastings Street	Pebble Lane	-	6	3	-	6	5
Pebble Lane	Florida Avenue	-	0	0	-	3	3
Florida Avenue	Lily Pond Avenue	-	13	12	-	10	9

SJV Redevelopment
Parking Regulations and Capacity

Date: 10/19/23
Day: Thursday
Time: 6 AM - 9 AM

MacFarland Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	15	14	-	18	13

Columbia Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Fingerboard Road	Chicago Avenue	-	8	8	NP Reg (Mon-Fri 7AM-7PM)	6	6
Chicago Avenue	Dead End	NS School Days 7AM-4PM	9	9	-	7	7

Landis Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Knauth Place	-	15	0	-	17	0
Knauth Place	Pickersgill Avenue	-	10	2	-	5	1
Pickersgill Avenue	Hastings Street	-	7	2	-	8	1

Cleveland Place

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Garson Avenue	-	4	4	-	4	4
Garson Avenue	Turn	-	9	9	-	12	12
Turn	Fingerboard Road	-	9	9	-	8	8

Hastings Street

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Narrows Road South	Landis/Major Avenue	-	18	15	-	16	15
Landis/Major Avenue	MacFarland Avenue	-	7	2	-	6	1
MacFarland Avenue	McClean Avenue	-	8	7	-	8	5

Florida Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Major Avenue	McClean Avenue	-	12	9	-	14	13

Narrows Road South							
Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Grasmere Dr	Fingerboard Road	NS Mon-Fri 6AM-9AM	9	0	-	0	0
Fingerboard Road	Hastings Street	-	41	39	-	0	0
Hastings Street	Savo Lane	-	3	3	-	0	0
Savo Lane	Lily Pond Avenue	-	3	3	-	0	0
			269	189		223	160
		Legal On-Street Spaces (No Reg)		492			
		Observed On-Street (No Reg)		349			

DATE: **Thursday, October 19, 2023**
TIME: **12PM - 2PM**

Fingerboard Road

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Hylan Boulevard	Grasmere Drive	NP Anytime	0	0	NS Anytime	0	0
Grasmere Drive	Columbia Avenue	NP Anytime	0	0	NS Anytime	0	0
Columbia Avenue	Hillbrook Drive	NS Anytime	0	0	-	7	7
Hillbrook Drive	Cleveland Place	NS Anytime	0	0	NS Anytime	0	0
Cleveland Place	Narrow Road South	NS Anytime	0	0	NS Anytime	0	0
Narrow Road South	Narrow Road North	NS Anytime	0	0	NS Anytime	0	0
Narrow Road North	Lincoln Place	NS Anytime	0	0	NS Anytime	0	0
Lincoln Place	Harvey Street	NS Anytime	0	0	NS Anytime	0	0

Chicago Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Columbia Avenue	-	4	3	-	9	9
Columbia Avenue	Landis Avenue	-	18	9	-	19	15
Landis Avenue	Cleveland Place	-	6	6	-	4	4

Knauth Place							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Landis Avenue	Dead End	-	8	2	-	8	1

Pickersgill Avenue							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Landis Avenue	-	7	2	-	8	4

Major Avenue							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	20	17	-	20	17
Hastings Street	Pebble Lane	-	6	3	-	6	5
Pebble Lane	Florida Avenue	-	0	0	-	3	3
Florida Avenue	Lily Pond Avenue	-	13	12	-	10	9

MacFarland Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	15	14	-	18	13

Columbia Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Fingerboard Road	Chicago Avenue	-	8	8	NP Reg (Mon-Fri 7AM-7PM)	6	6
Chicago Avenue	Dead End	NS School Days 7AM-4PM	9	9	-	7	7

Landis Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Knauth Place	-	15	0	-	17	0
Knauth Place	Pickersgill Avenue	-	10	2	-	5	1
Pickersgill Avenue	Hastings Street	-	7	2	-	8	1

Cleveland Place

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Garson Avenue	-	4	4	-	4	4
Garson Avenue	Turn	-	9	9	-	12	12
Turn	Fingerboard Road	-	9	9	-	8	8

Hastings Street

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Narrows Road South	Landis/Major Avenue	-	18	15	-	16	15
Landis/Major Avenue	MacFarland Avenue	-	7	2	-	6	1
MacFarland Avenue	McClean Avenue	-	8	7	-	8	5

Florida Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Major Avenue	McClean Avenue	-	12	9	-	14	13

Narrows Road South							
Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Grasmere Dr	Fingerboard Road	NS Mon-Fri 6AM-9AM	9	9	-	0	0
Fingerboard Road	Hastings Street	-	41	39	-	0	0
Hastings Street	Savo Lane	-	3	3	-	0	0
Savo Lane	Lily Pond Avenue	-	3	3	-	0	0
			269	198		223	160
		Legal On-Street Spaces (No Reg)		492			
		Observed On-Street (No Reg)		358			

DATE: **Saturday, February 17, 2024**
TIME: **12PM - 5PM**

Fingerboard Road

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Hylan Boulevard	Grasmere Drive	NP Anytime	0	0	NS Anytime	0	0
Grasmere Drive	Columbia Avenue	NP Anytime	0	0	NS Anytime	0	0
Columbia Avenue	Hillbrook Drive	NS Anytime	0	0	-	7	3
Hillbrook Drive	Cleveland Place	NS Anytime	0	0	NS Anytime	0	0
Cleveland Place	Narrow Road South	NS Anytime	0	0	NS Anytime	0	0
Narrow Road South	Narrow Road North	NS Anytime	0	0	NS Anytime	0	0
Narrow Road North	Lincoln Place	NS Anytime	0	0	NS Anytime	0	0
Lincoln Place	Harvey Street	NS Anytime	0	0	NS Anytime	0	0

Chicago Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Columbia Avenue	-	4	2	-	9	2
Columbia Avenue	Landis Avenue	-	18	1	-	19	2
Landis Avenue	Cleveland Place	-	6	0	-	4	0

Knauth Place							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Landis Avenue	Dead End	-	8	3	-	8	3

Pickersgill Avenue							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Dead End	Landis Avenue	-	7	3	-	8	4

Major Avenue							
Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	20	7	-	20	4
Hastings Street	Pebble Lane	-	6	3	-	6	2
Pebble Lane	Florida Avenue	-	0	1	-	3	3
Florida Avenue	Lily Pond Avenue	-	13	7	-	10	6

MacFarland Avenue

Between		North Side			South Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Wallace Avenue	Hastings Street	-	15	10	-	18	11

Columbia Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Fingerboard Road	Chicago Avenue	-	8	1	NP Reg (Mon-Fri 7AM-7PM)	6	5
Chicago Avenue	Dead End	NS School Days 7AM-4PM	9	0	-	7	3

Landis Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Knauth Place	-	15	0	-	17	1
Knauth Place	Pickersgill Avenue	-	10	0	-	5	1
Pickersgill Avenue	Hastings Street	-	7	1	-	8	1

Cleveland Place

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Chicago Avenue	Garson Avenue	-	4	0	-	4	0
Garson Avenue	Turn	-	9	2	-	12	2
Turn	Fingerboard Road	-	9	8	-	8	5

Hastings Street

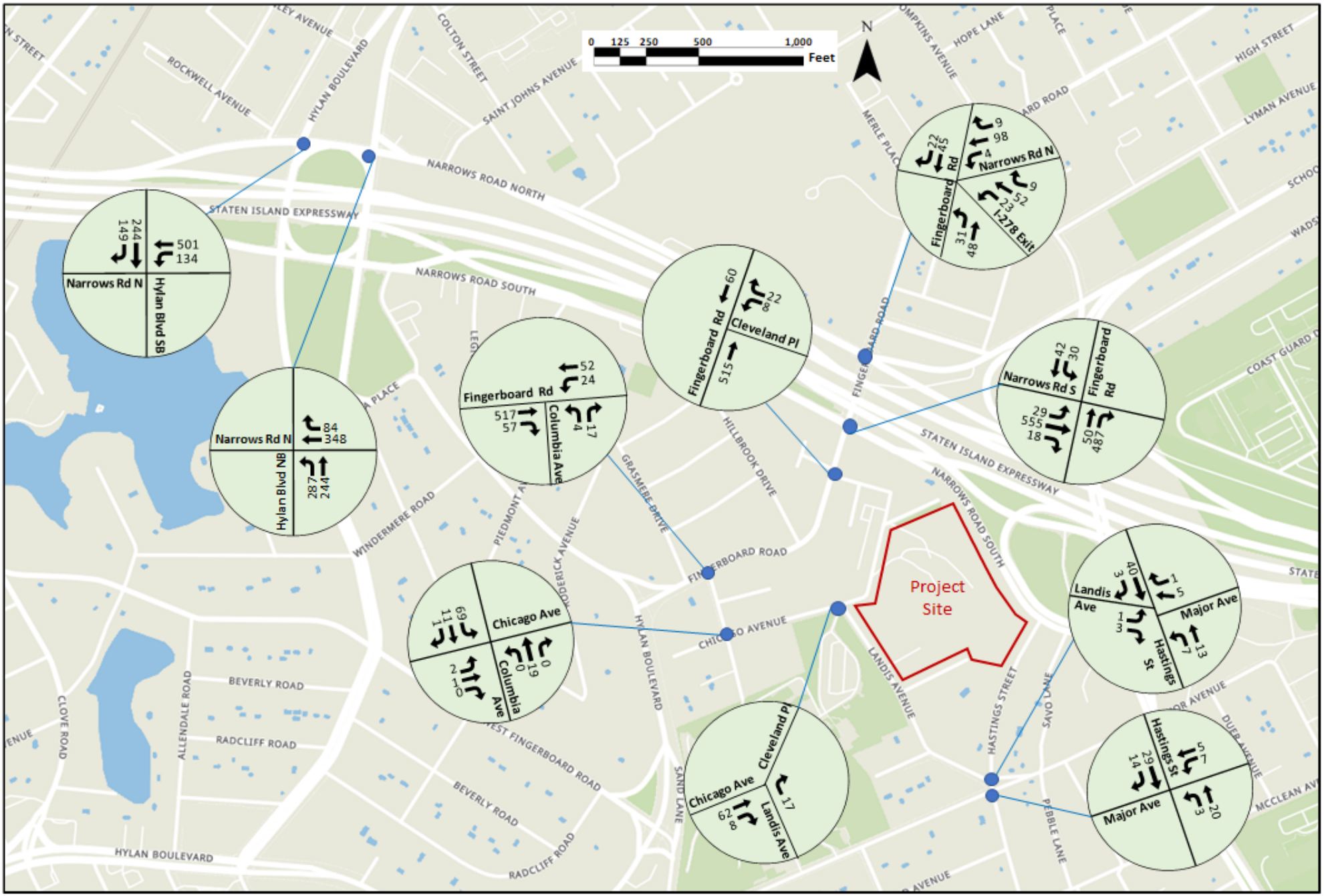
Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Narrows Road South	Landis/Major Avenue	-	18	8	-	16	3
Landis/Major Avenue	MacFarland Avenue	-	7	1	-	6	1
MacFarland Avenue	McClean Avenue	-	8	8	-	8	4

Florida Avenue

Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Major Avenue	McClean Avenue	-	12	11	-	14	14

Narrows Road South							
Between		East Side			West Side		
			Available Spaces	Observed Parking		Available Spaces	Observed Parking
From	To	Regulation(s)	w/o Reg	w/o Reg	Regulation(s)	w/o Reg	w/o Reg
Grasmere Dr	Fingerboard Road	NS Mon-Fri 6AM-9AM	9	8	-	0	0
Fingerboard Road	Hastings Street	-	41	23	-	0	0
Hastings Street	Savo Lane	-	3	0	-	0	0
Savo Lane	Lily Pond Avenue	-	3	1	-	0	0
			269	109		223	80
		Legal On-Street Spaces (No Reg)	492				
		Observed On-Street (No Reg)	189				

2025 (Q4) Construction Traffic Volume Figures

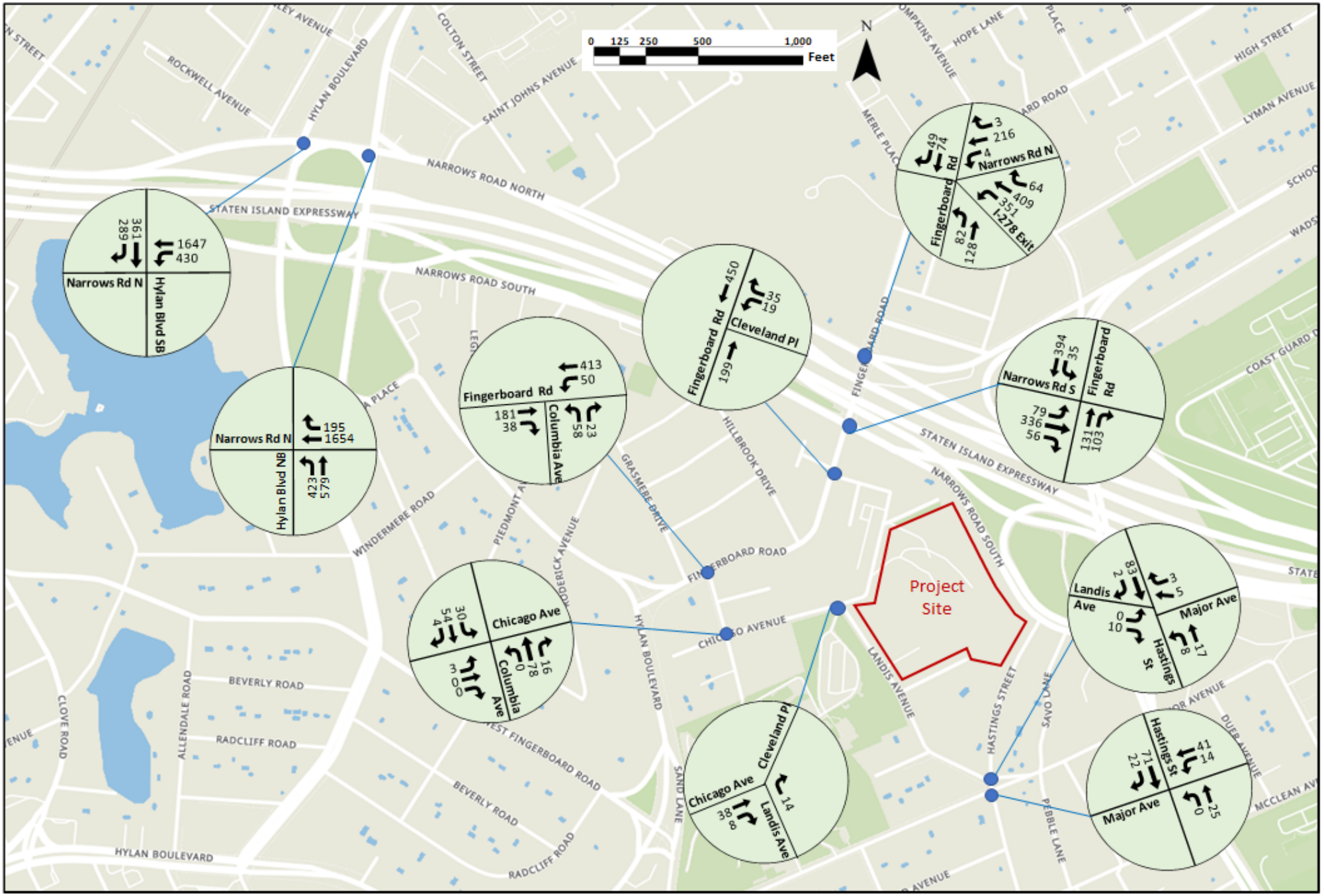


Source: STV Incorporated, 2024/MapTiler

Figure 1

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

EXISTING TRAFFIC VOLUMES
CONSTRUCTION AM PEAK HOUR

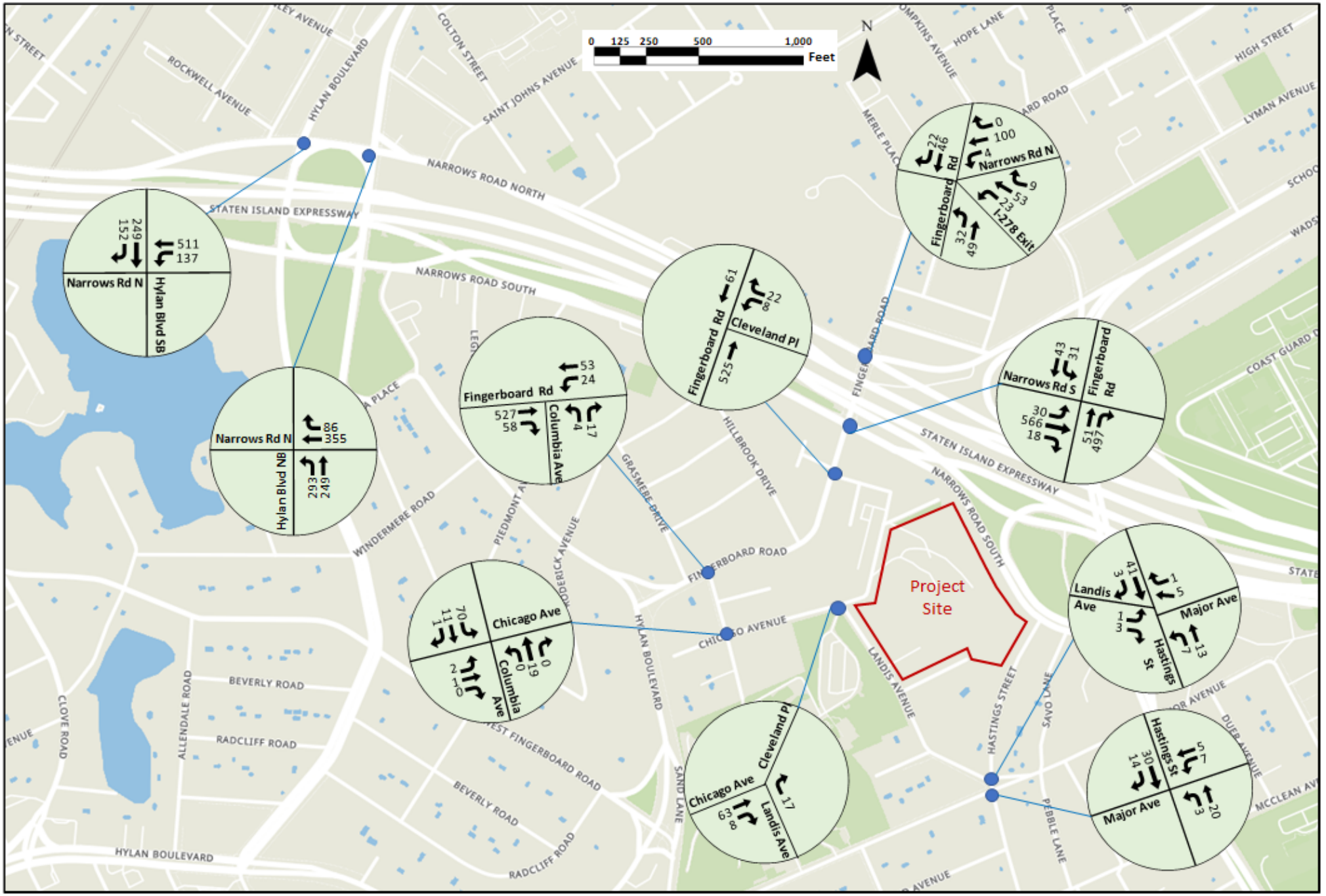


Source: STV Incorporated, 2024/MapTiler

Figure 2

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

EXISTING TRAFFIC VOLUMES
CONSTRUCTION PM PEAK HOUR

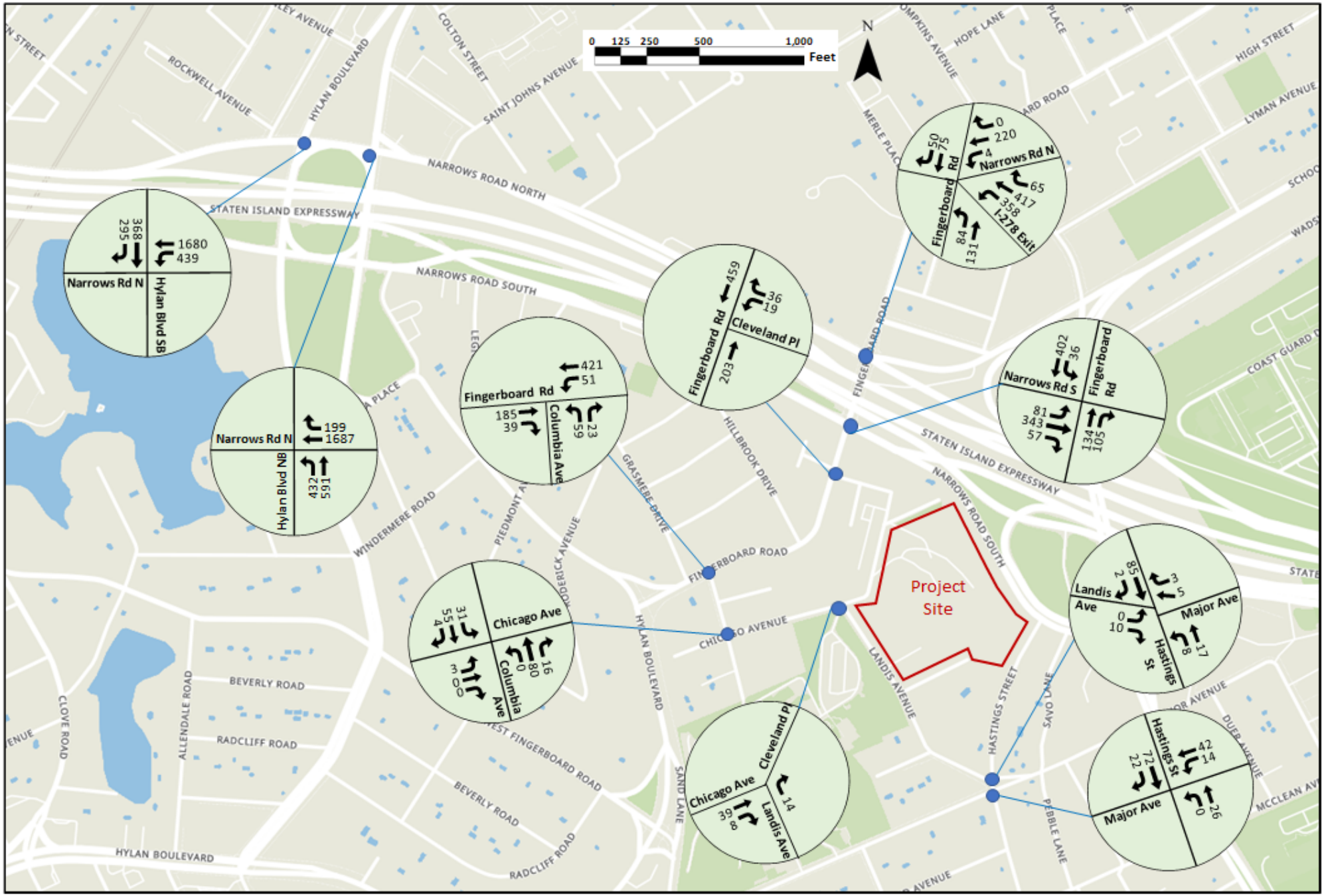


Source: STV Incorporated, 2024/MapTiler

Figure 3

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2025 NO-ACTION TRAFFIC VOLUMES
CONSTRUCTION AM PEAK HOUR



Source: STV Incorporated, 2024/MapTiler

Figure 4

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

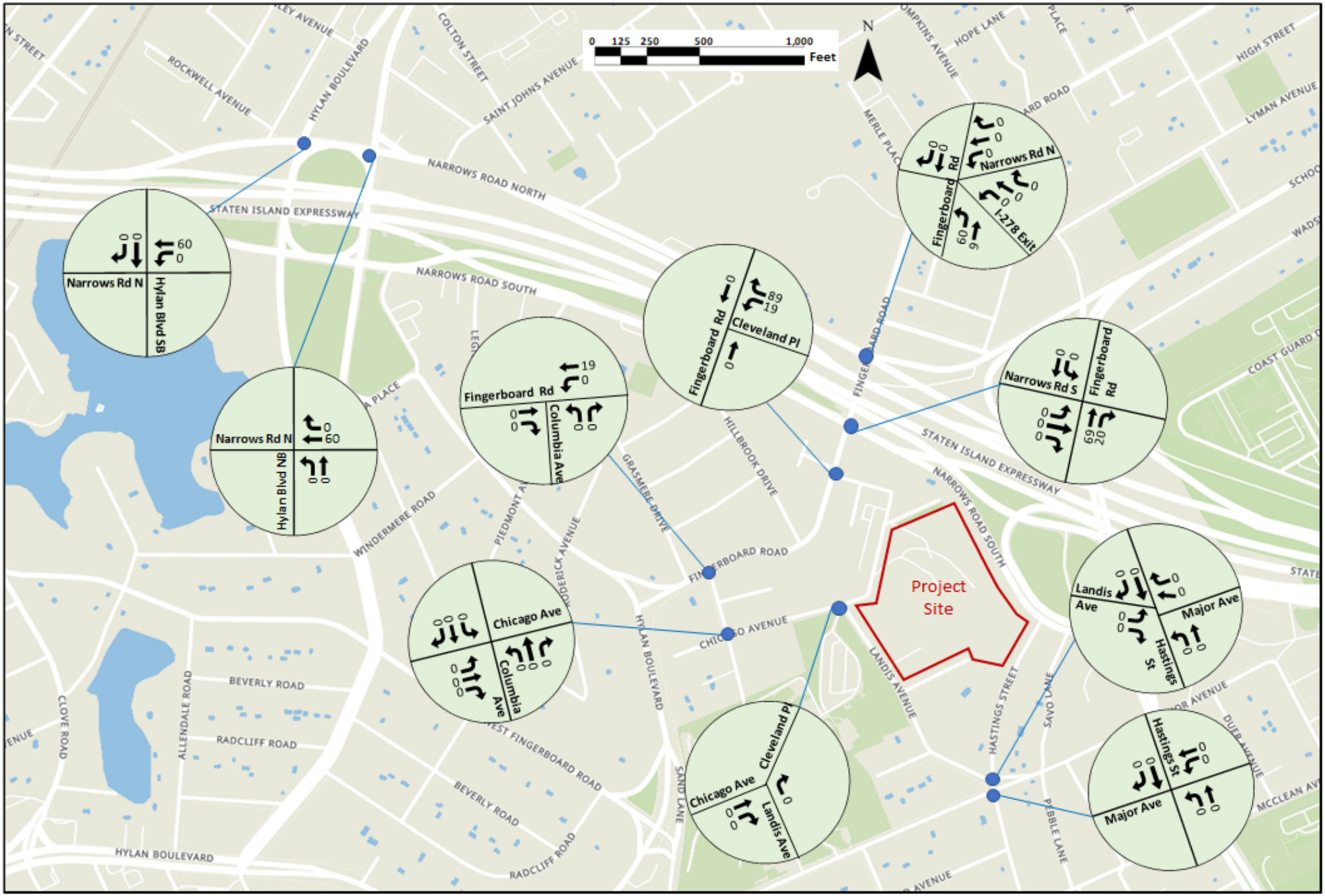
2025 NO-ACTION TRAFFIC VOLUMES
CONSTRUCTION PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 5

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2025 WITH-ACTION TRAFFIC VOLUME INCREMENTS CONSTRUCTION AM PEAK HOUR



Source: STV Incorporated, 2024/MapTiler

Figure 6

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

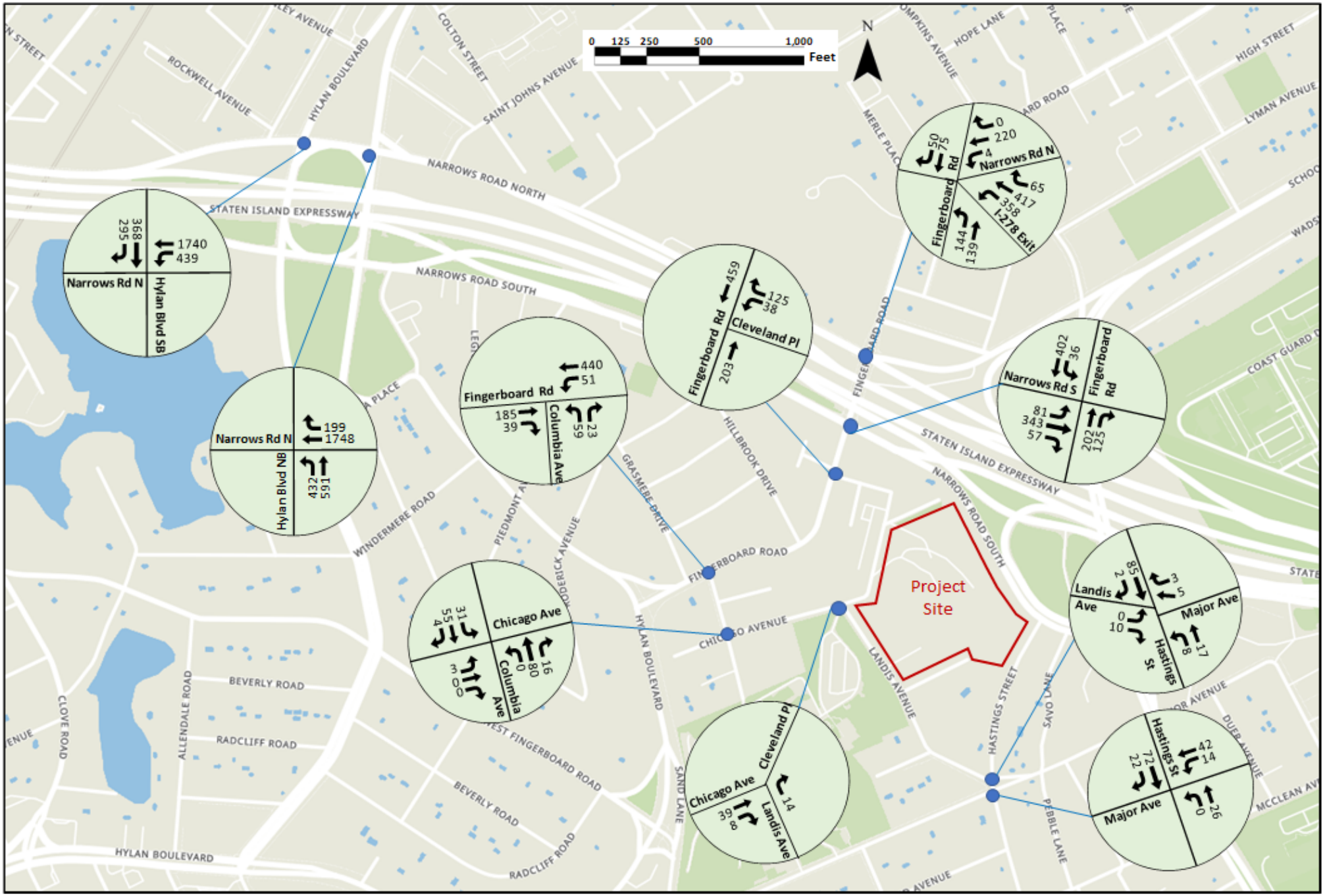
2025 WITH-ACTION TRAFFIC VOLUME INCREMENTS
CONSTRUCTION PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 7

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2025 WITH-ACTION TRAFFIC VOLUMES
CONSTRUCTION AM PEAK HOUR



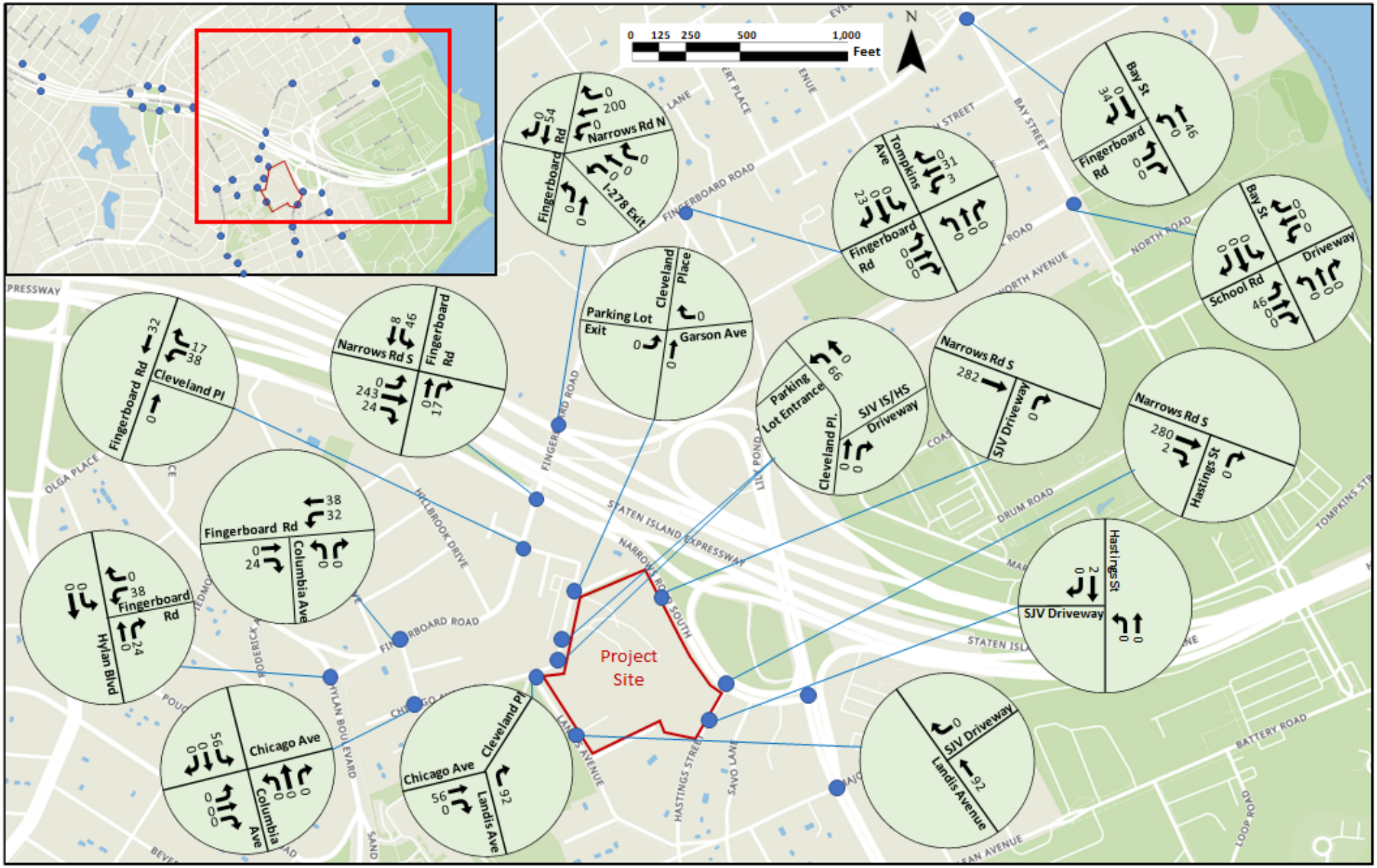
Source: STV Incorporated, 2024/MapTiler

Figure 8

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2025 WITH-ACTION TRAFFIC VOLUMES
CONSTRUCTION PM PEAK HOUR

2030 (Q1) Cumulative Construction Operational Traffic Volume Figures

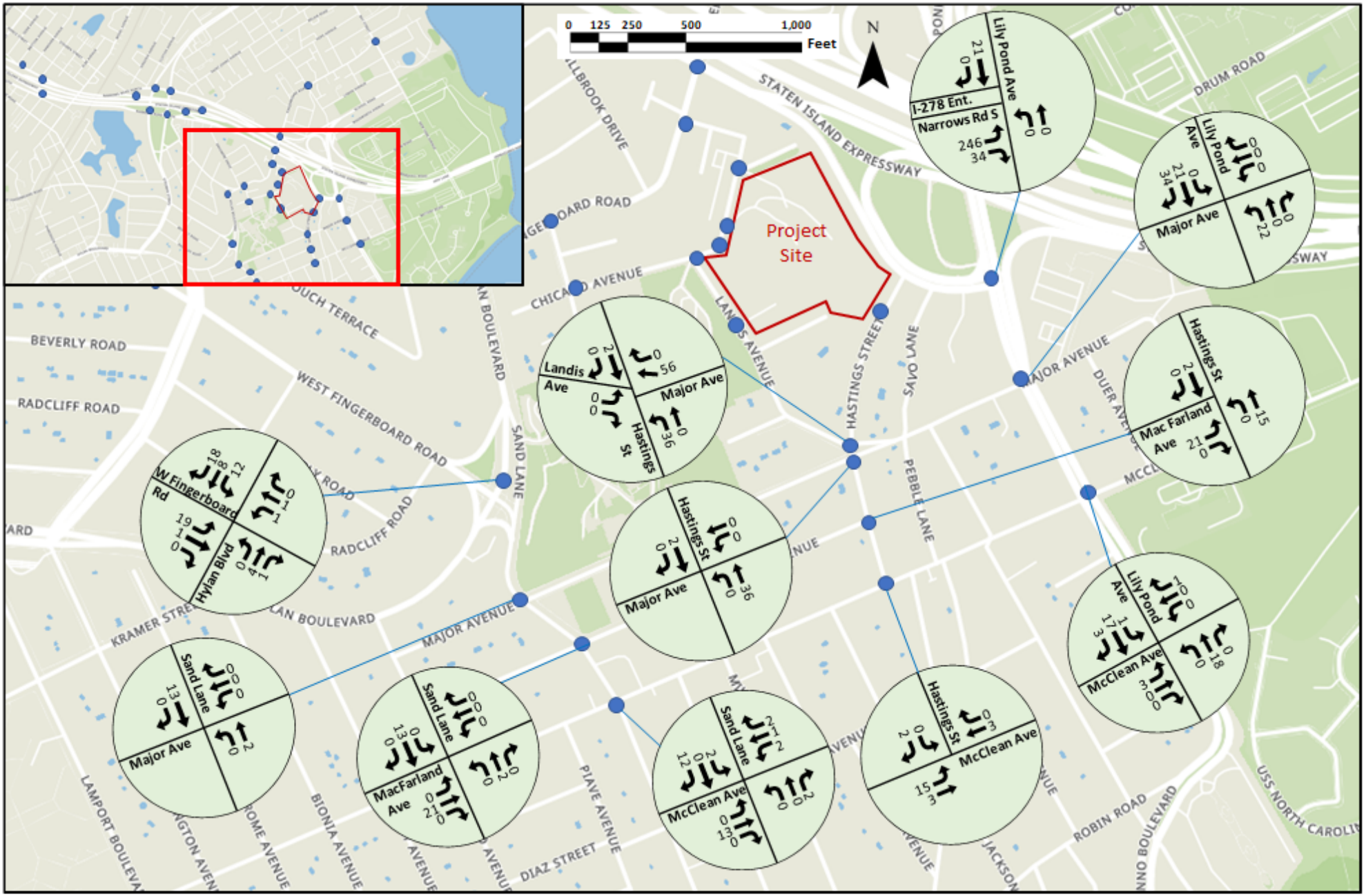


Source: STV Incorporated, 2024/MapTiler

Figure 1A

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS-WEEKDAY AM PEAK HOUR

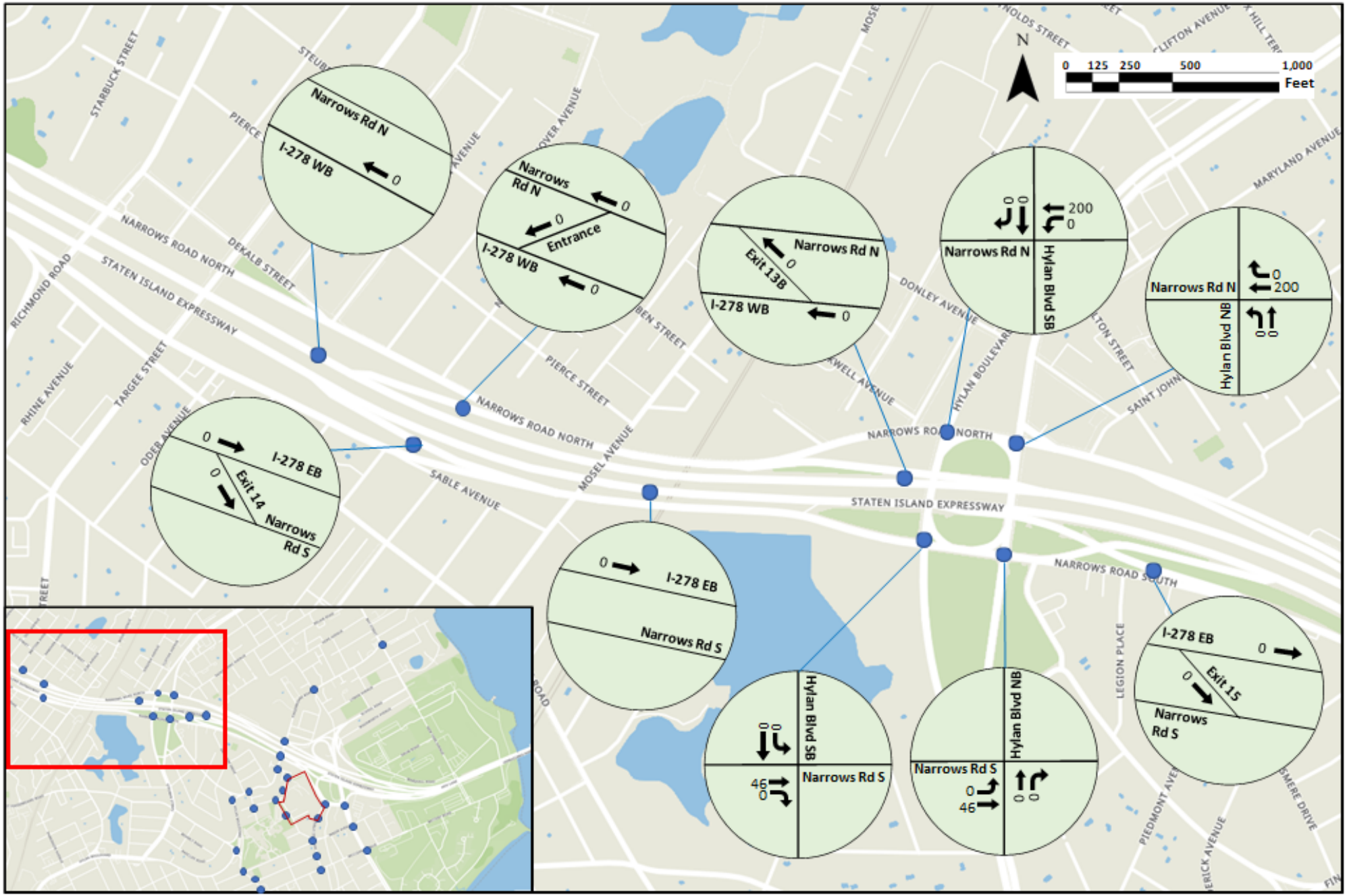


Source: STV Incorporated, 2024/MapTiler

Figure 1B

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS - WEEKDAY AM PEAK HOUR

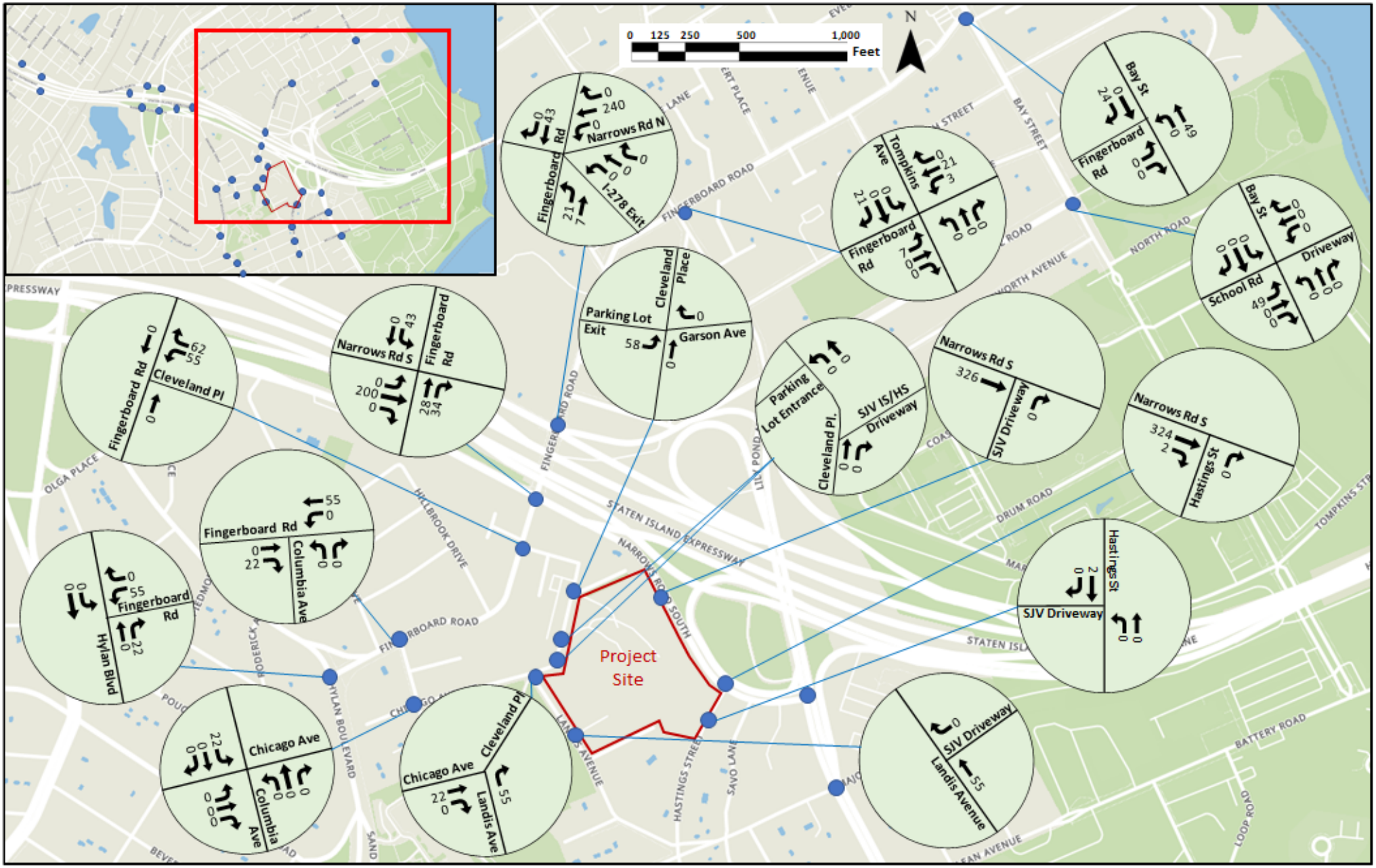


Source: STV Incorporated, 2024/MapTiler

Figure 1C

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS - WEEKDAY AM PEAK HOUR

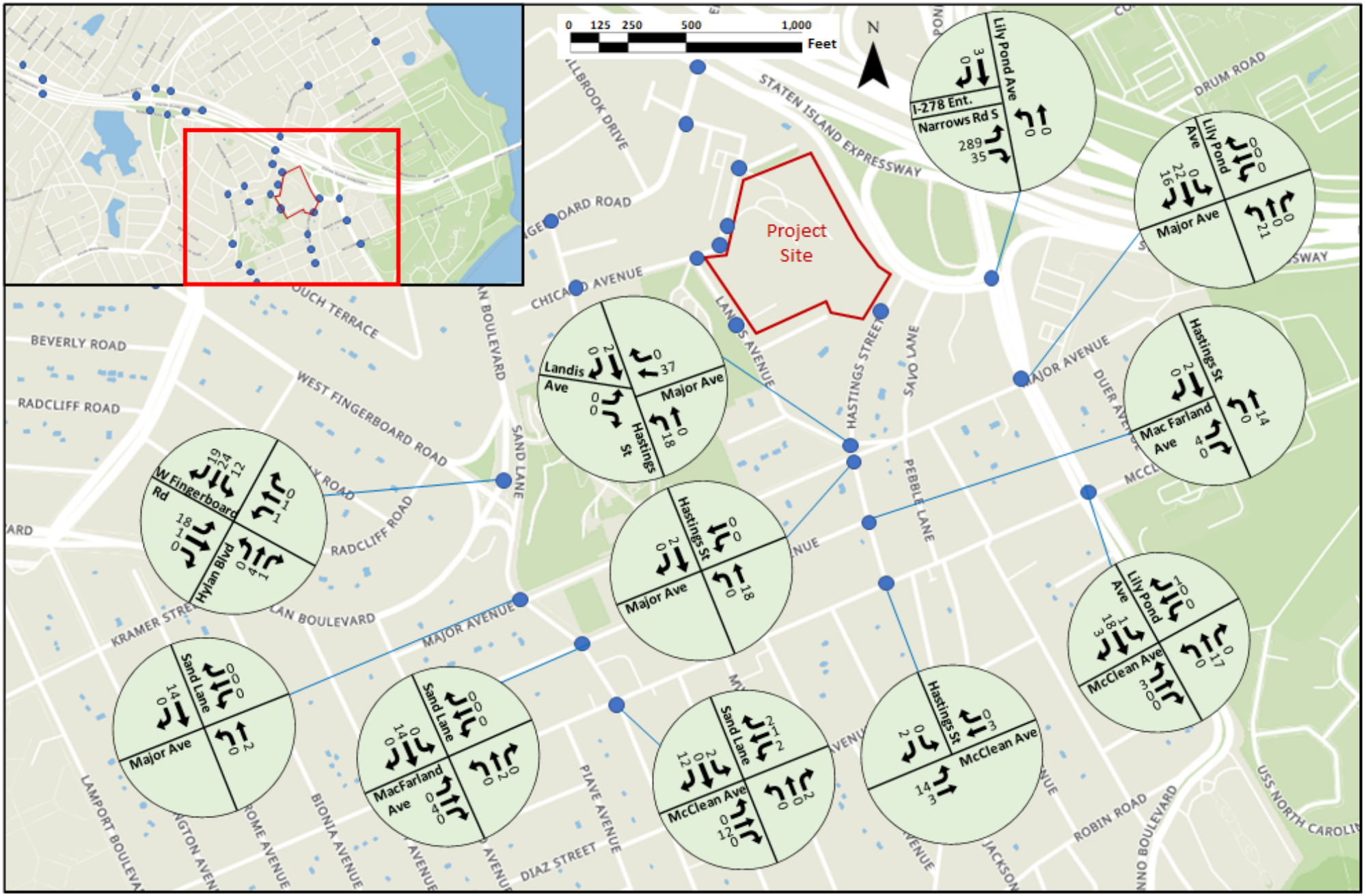


Source: STV Incorporated, 2024/MapTiler

Figure 2A

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS - WEEKDAY PM PEAK HOUR

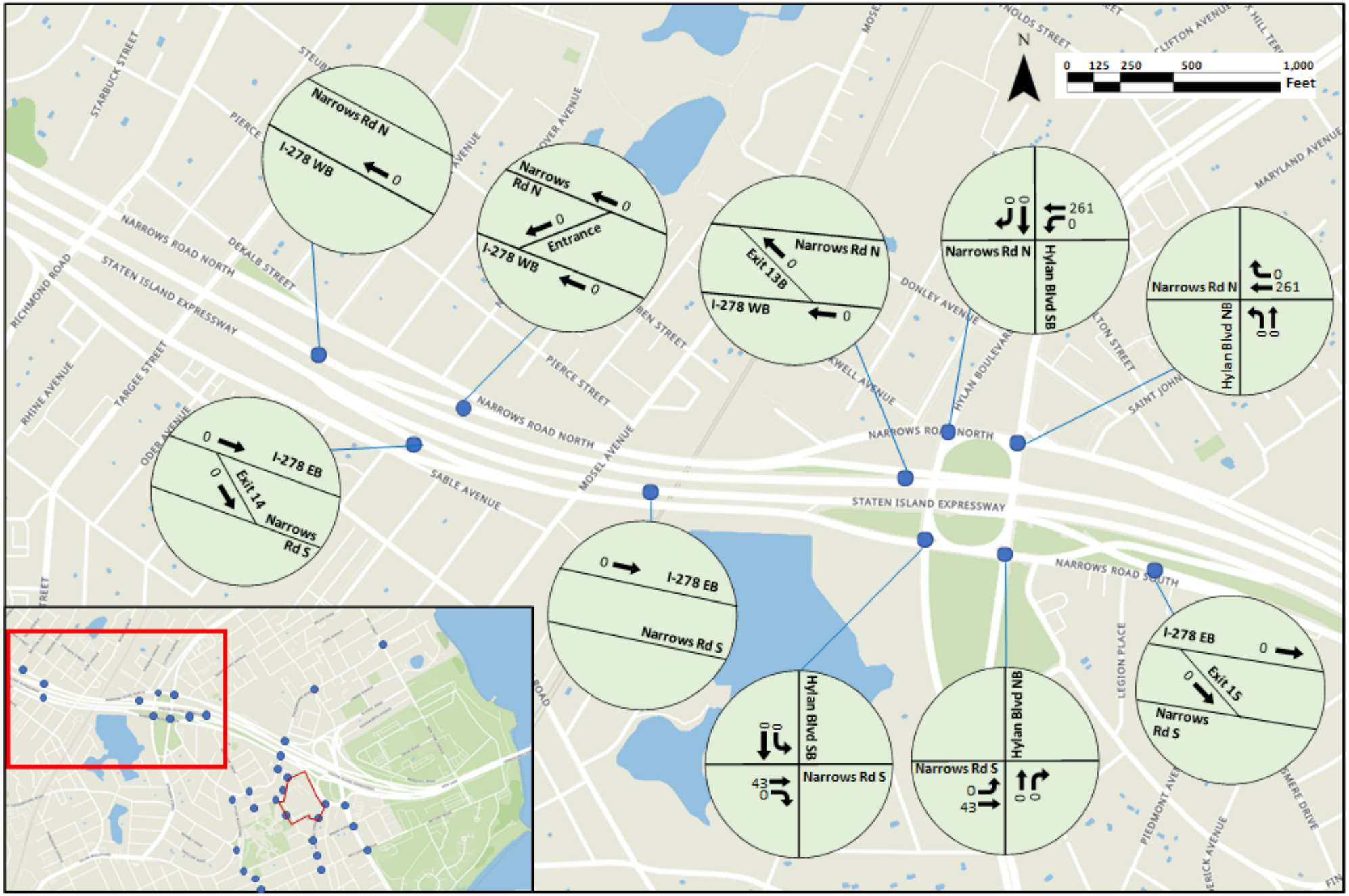


Source: STV Incorporated, 2024/MapTiler

Figure 2B

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS - WEEKDAY PM PEAK HOUR

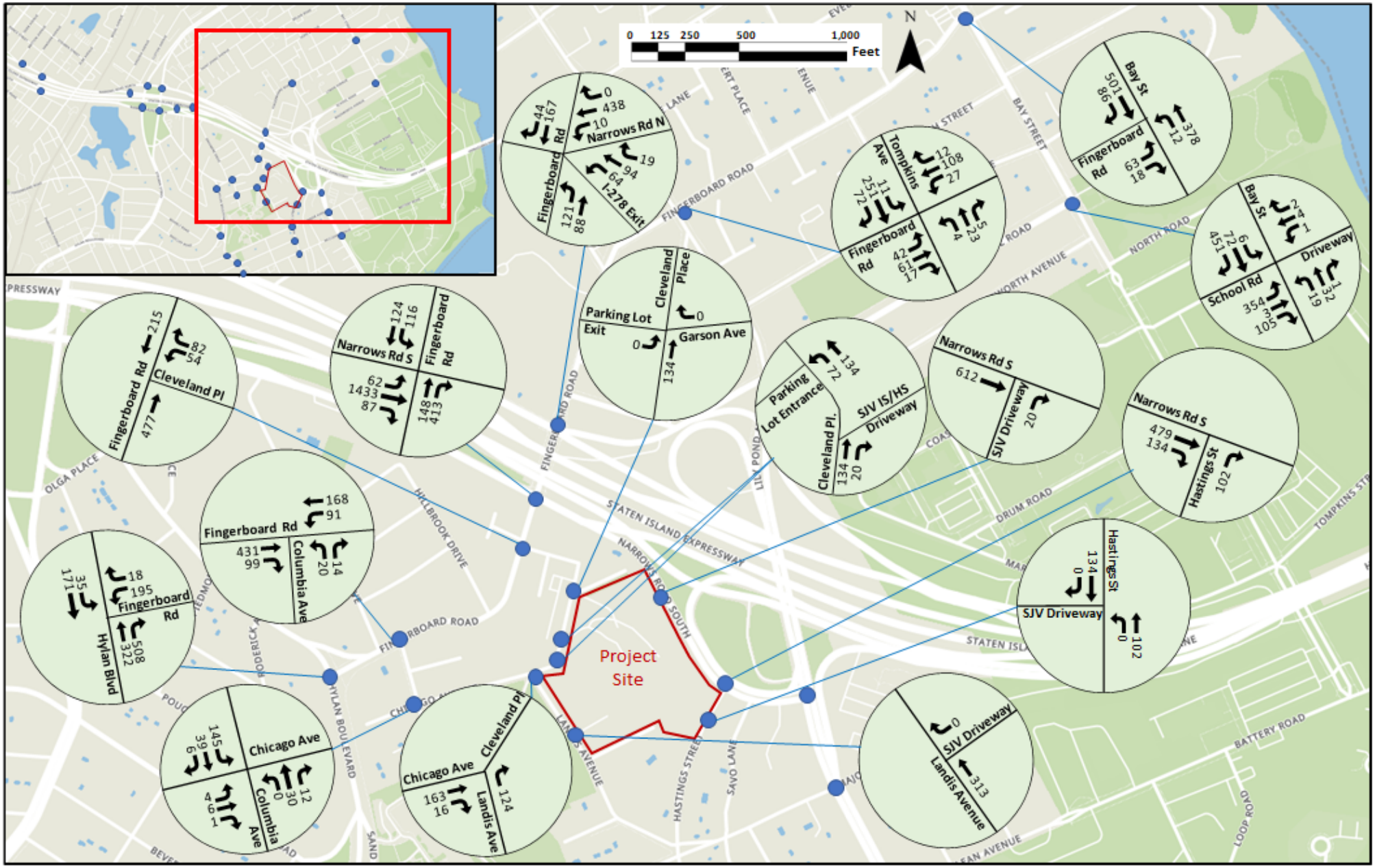


Source: STV Incorporated, 2024/MapTiler

Figure 2C

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUME INCREMENTS - WEEKDAY PM PEAK HOUR

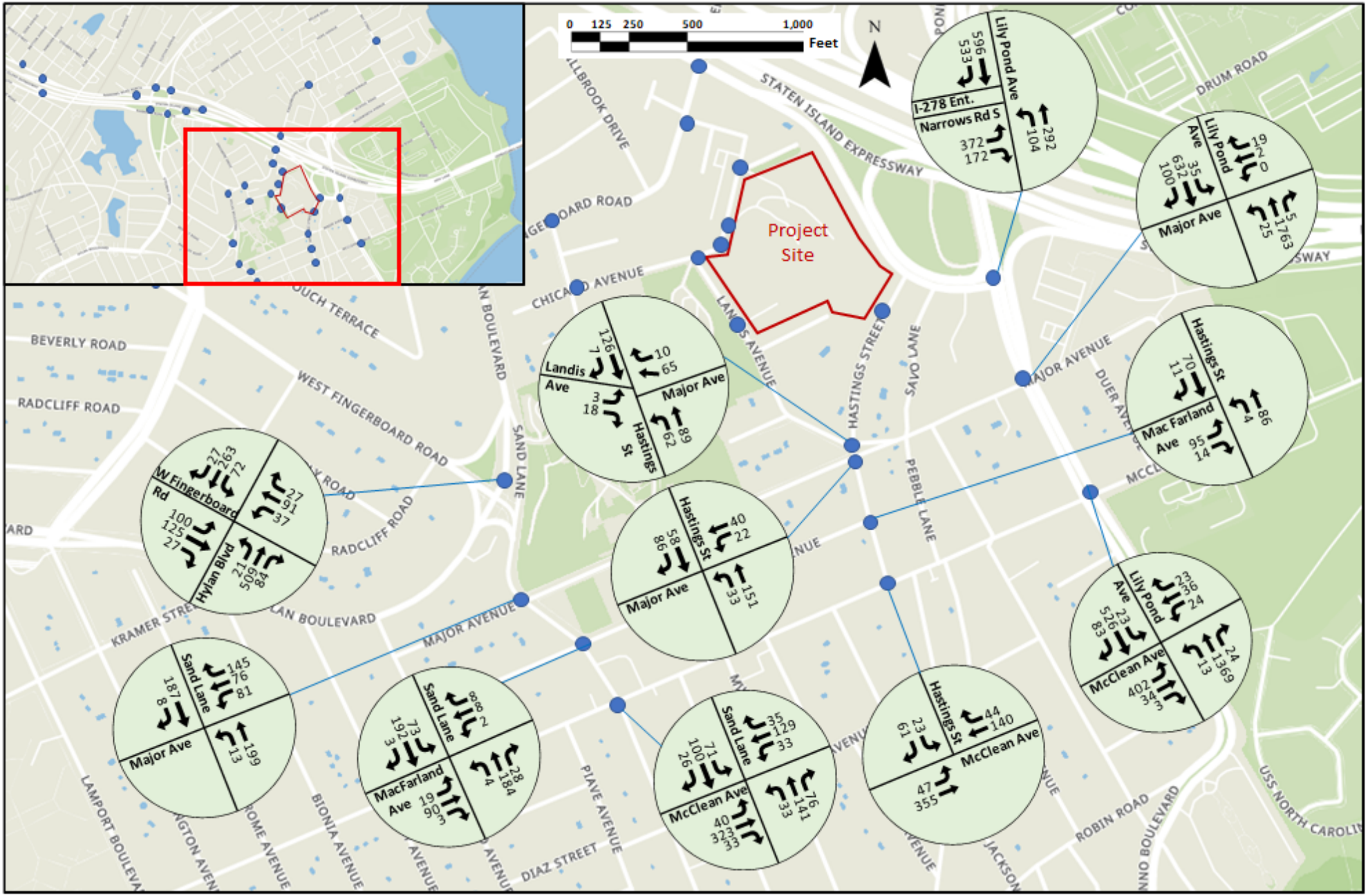


Source: STV Incorporated, 2024/MapTiler

Figure 3A

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY AM PEAK HOUR

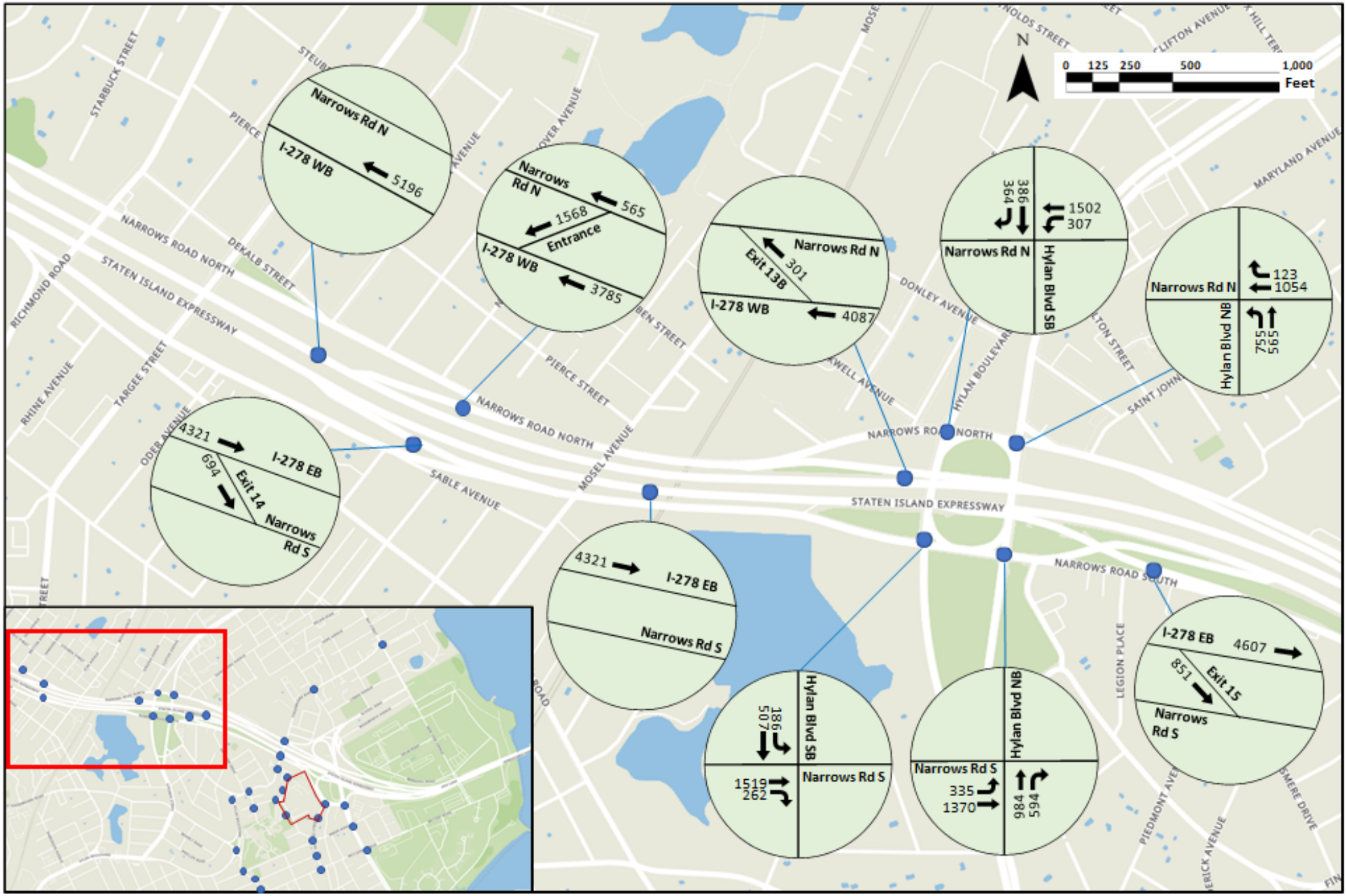


Source: STV Incorporated, 2024/MapTiler

Figure 3B

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY AM PEAK HOUR

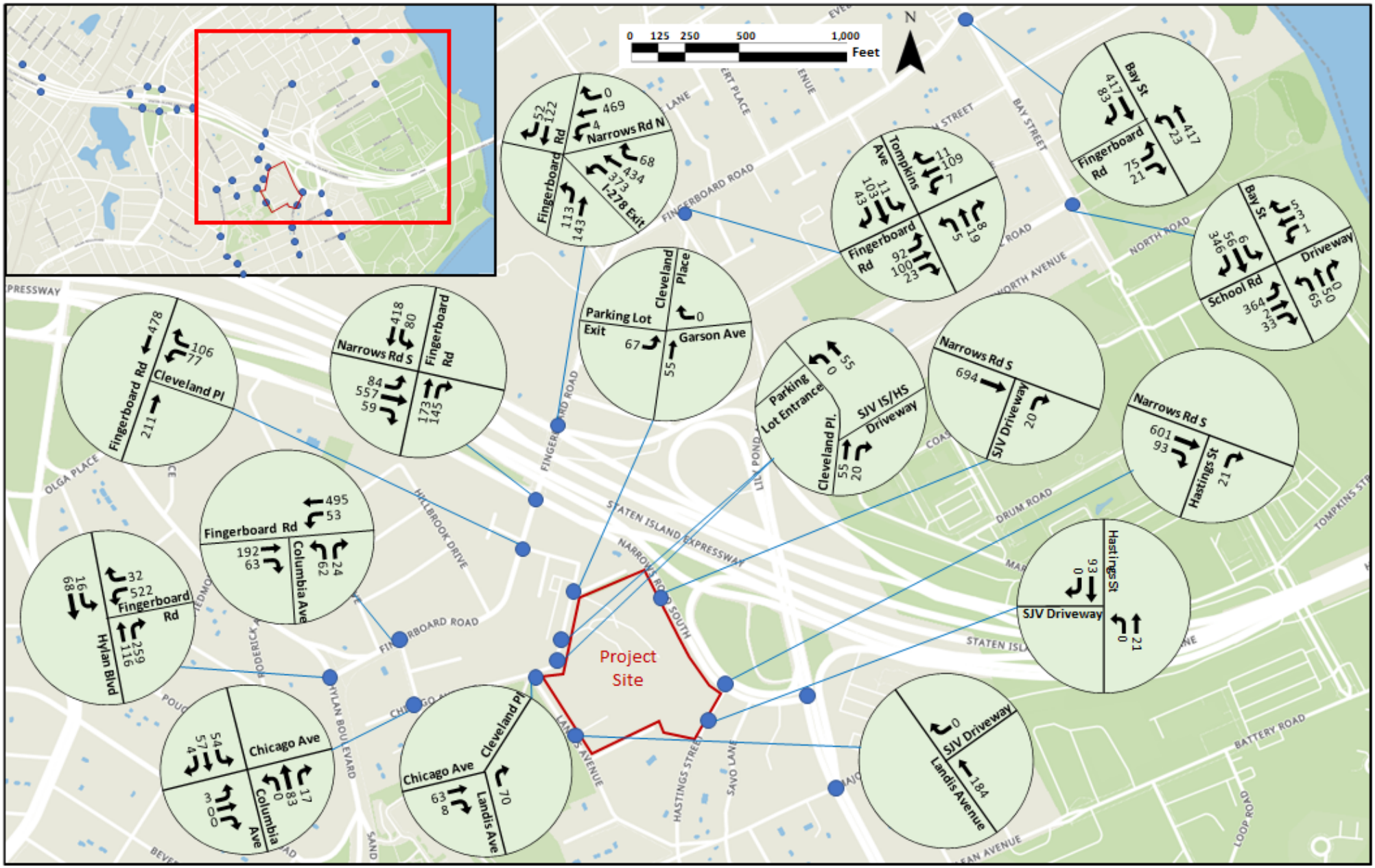


Source: STV Incorporated, 2024/MapTiler

Figure 3C

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY AM PEAK HOUR

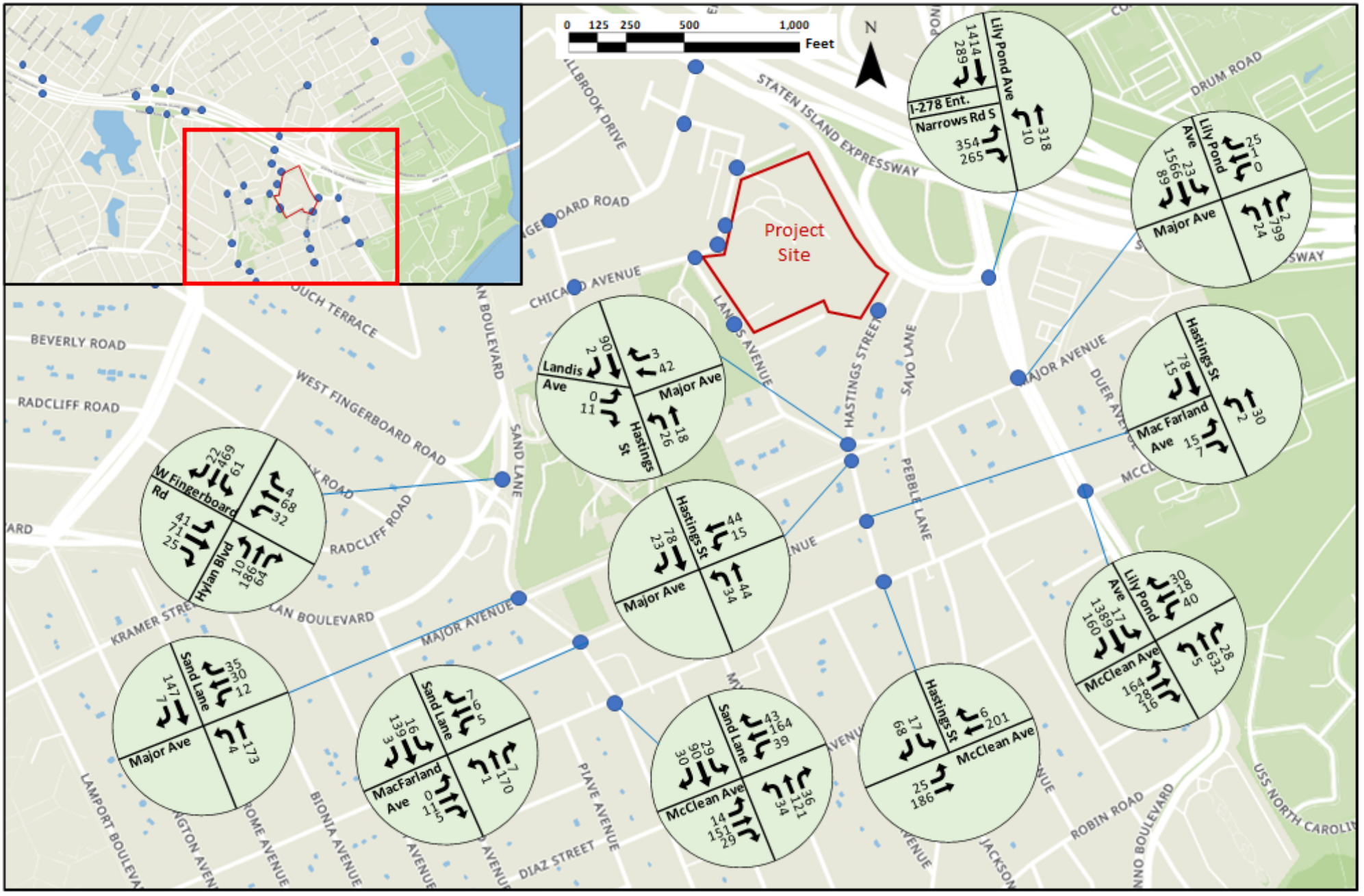


Source: STV Incorporated, 2024/MapTiler

Figure 4A

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY PM PEAK HOUR

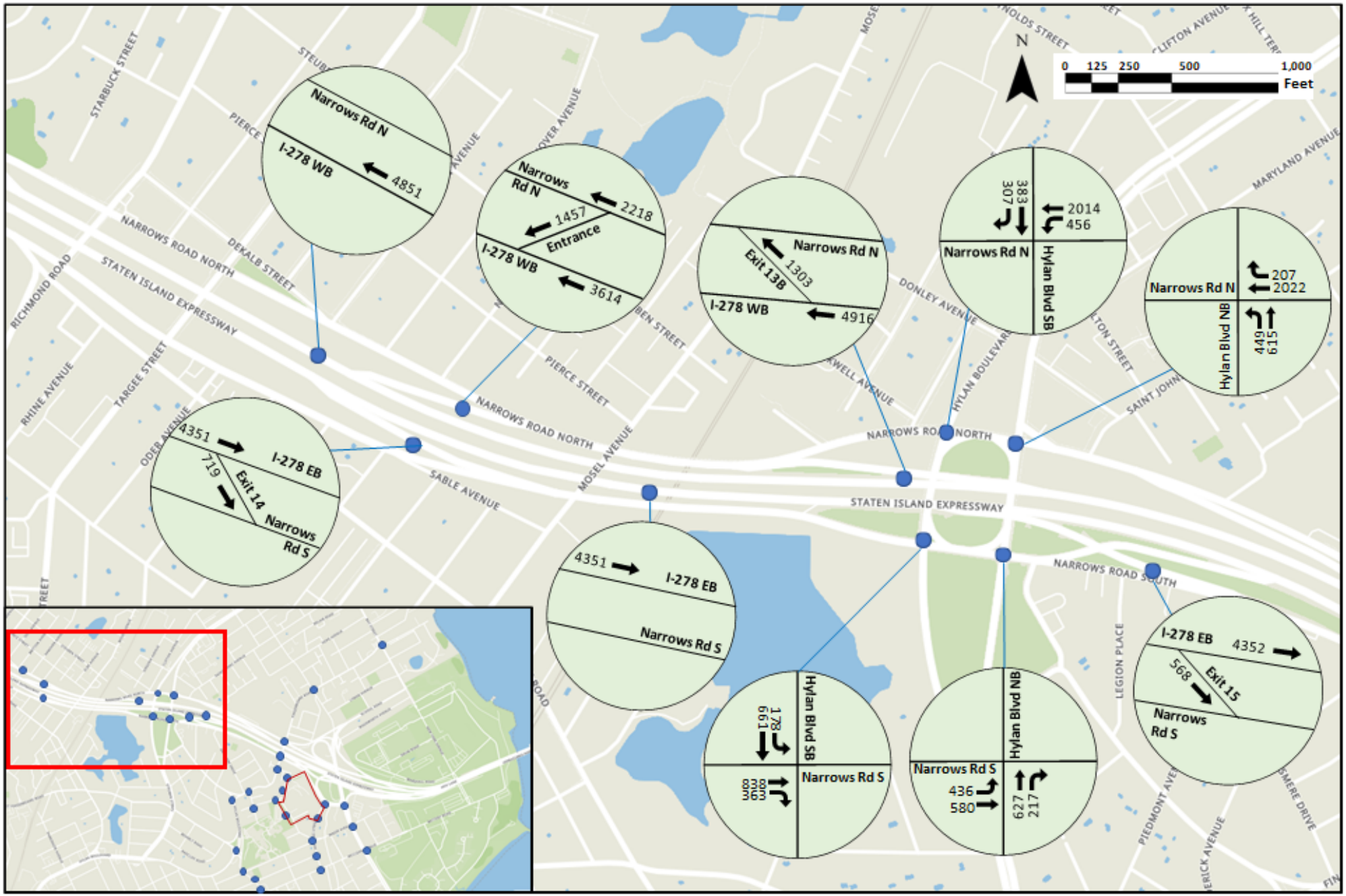


Source: STV Incorporated, 2024/MapTiler

Figure 4B

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY PM PEAK HOUR



Source: STV Incorporated, 2024/MapTiler

Figure 4C

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

2030 (Q1) WITH-ACTION CONSTRUCTION OPERATIONAL TRAFFIC VOLUMES - WEEKDAY PM PEAK HOUR

Operational Condition
Pedestrian Volume Figures

Source: STV Incorporated, 2024/MapTiler

Figure 1

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

EXISTING PEDESTRIAN VOLUMES
AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 2

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

EXISTING PEDESTRIAN VOLUMES
PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 3

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

NO-ACTION PEDESTRIAN VOLUMES
AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 4

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

NO-ACTION PEDESTRIAN VOLUMES
PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 5

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUME INCREMENTS
AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 6

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUME INCREMENTS
PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 7

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUMES
AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 8

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUMES
PM PEAK HOUR

2030 (Q1) Cumulative Construction Operational Pedestrian Volume Figures

Source: STV Incorporated, 2024/MapTiler

Figure 1

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUME INCREMENTS
CONSTRUCTION OPERATIONAL AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 2

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUME INCREMENTS
CONSTRUCTION OPERATIONAL PM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 3

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUMES
CONSTRUCTION OPERATIONAL AM PEAK HOUR

Source: STV Incorporated, 2024/MapTiler

Figure 4

Proposed Redevelopment of the former St. John Villa Campus
57 Cleveland Place, Staten Island

WITH-ACTION PEDESTRIAN VOLUMES
CONSTRUCTION OPERATIONAL PM PEAK HOUR

Intersection Level of Service Tables
2025 (Q4) Construction Analysis

Construction Existing Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.51	4.7	A	0.21	6.9	A
	WB	LT	0.10	4.2	A	0.50	7.5	A
Columbia Avenue	NB	LR	0.08	38.8	D	0.32	42.9	D
Overall Intersection		-		**5.8**	A		**11.2**	**B**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.39	23.2	C	0.70	45.7	D
Fingerboard Road	NB	TR	1.04	68.2	E	0.31	9.7	A
	SB	L	0.24	23.5	C	0.07	3.8	A
		T	0.08	19.2	B	0.48	6.9	A
Overall Intersection		-		**42.1**	**D**		**22.9**	**C**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	0.25	44.6	D	0.61	56.8	E
I-278 W Exit Ramp	NWB	LTR	0.00	24.5	C	0.00	18.4	B
Fingerboard Road	NB	L	0.09	32.2	C	0.57	51.0	D
		T	0.13	32.3	C	0.54	45.5	D
	SB	TR	0.16	28.7	C	0.52	50.5	D
Overall Intersection		-		**33.7**	**C**		**31.6**	**C**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.24	17.3	B	0.74	17.5	B
Hylan Boulevard East	NB	T	0.22	9.0	A	0.60	20.8	C
Overall Intersection		-		**14.3**	B		**18.3**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.26	11.1	B	0.62	4.7	A
Hylan Boulevard West	SB	TR	0.26	23.3	C	0.60	38.6	D
Overall Intersection		-		**16.4**	B		**14.6**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.08	12.9	B	0.12	12.2	B
Fingerboard Road	NB	T	0.35	0.0	A	0.13	0.0	A
	SB	T	0.04	0.0	A	0.30	0.0	A
Overall Intersection		**-**		**0.7**	**A**		**1.0**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.01	7.1	A	0.01	6.6	A
Major Avenue	WB	LTR	0.01	7.0	A	0.01	7.0	A
Hastings Street	NB	LTR	0.03	7.2	A	0.04	7.7	A
	SB	LT	0.06	7.3	A	0.12	7.5	A
Overall Intersection		**-**		**7.2**	**A**		**7.4**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.02	7.7	A	0.08	7.7	A
Hastings Street	NB	LT	0.03	7.1	A	0.04	7.7	A
	SB	TR	0.06	7.2	A	0.13	7.5	A
Overall Intersection		**-**		**7.3**	**A**		**7.6**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.05	0.0	A	0.03	0.0	A
Landis Avenue	NB	R	0.02	8.8	A	0.02	8.7	A
Overall Intersection		**-**		**1.7**	**A**		**2.1**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.00	10.2	B	0.01	10.5	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.05	6.3	A	0.03	2.7	A
Overall Intersection		**-**		**5.2**	**A**		**1.5**	**A**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	T	0.08	0.0	A	0.35	0.0	A
Hylan Boulevard East	NB	L	0.36	10.9	B	0.73	23.1	C
Overall Intersection		**-**		**5.1**	**A**		**5.1**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	L	0.18	10.1	B	0.56	14.6	B
Hylan Boulevard West	SB	T	0.06	0.0	A	0.08	0.0	A
Overall Intersection		**-**		**3.5**	**A**		**7.7**	**A**

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2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the lane

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

Construction No-Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.52	3.5	A	0.22	6.9	A
	WB	LT	0.10	3.8	A	0.51	5.0	A
Columbia Avenue	NB	LR	0.08	38.8	D	0.32	43.0	D
Overall Intersection		-		**4.7**	A		**9.6**	**A**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.39	23.3	C	0.72	46.2	D
Fingerboard Road	NB	TR	1.06	76.0	E	0.32	9.7	A
	SB	L	0.27	19.5	B	0.07	8.2	A
		T	0.08	13.7	B	0.48	10.6	B
Overall Intersection		-		**45.2**	**D**		**24.6**	**C**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	0.35	43.1	D	0.82	68.7	E
I-278 W Exit Ramp	NWB	LTR	0.10	25.8	C	0.00	24.3	C
Fingerboard Road	NB	L	0.10	35.3	D	0.60	52.9	D
		T	0.14	35.7	D	0.55	46.1	D
	SB	TR	0.17	31.0	C	0.53	51.1	D
Overall Intersection		-		**34.5**	**C**		**37.1**	**D**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.25	17.4	B	0.75	17.9	B
Hylan Boulevard East	NB	T	0.22	9.3	A	0.61	21.0	C
Overall Intersection		-		**14.4**	**B**		**18.6**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.26	11.1	B	0.63	4.8	A
Hylan Boulevard West	SB	TR	0.27	23.4	C	0.85	38.9	D
Overall Intersection		-		**16.5**	**B**		**14.7**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.08	13.0	B	0.12	12.3	B
Fingerboard Road	NB	T	0.35	0.0	A	0.14	0.0	A
	SB	T	0.04	0.0	A	0.31	0.0	A
Overall Intersection		-		**0.7**	**A**		**1.0**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.01	7.1	A	0.01	6.7	A
Major Avenue	WB	LTR	0.01	7.0	A	0.01	7.0	A
Hastings Street	NB	LTR	0.03	7.2	A	0.04	7.7	A
	SB	LT	0.06	7.3	A	0.12	7.5	A
Overall Intersection		-		**7.2**	**A**		**7.5**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.02	7.7	A	0.08	7.7	A
Hastings Street	NB	LT	0.03	7.2	A	0.04	7.7	A
	SB	TR	0.06	7.2	A	0.13	7.6	A
Overall Intersection		-		**7.3**	**A**		**7.6**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.05	0.0	A	0.03	0.0	A
Landis Avenue	NB	R	0.02	8.8	A	0.02	8.7	A
Overall Intersection		-		**1.7**	**A**		**2.1**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.00	10.3	B	0.01	10.6	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.06	6.4	A	0.03	2.8	A
Overall Intersection		-		**5.3**	**A**		**1.5**	**A**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	T	0.08	0.0	A	0.36	0.0	A
Hylan Boulevard East	NB	L	0.37	10.9	B	0.76	25.2	D
Overall Intersection		-		**5.1**	**A**		**5.6**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	L	0.18	10.2	B	0.57	14.9	B
Hylan Boulevard West	SB	T	0.06	0.0	A	0.08	0.0	A
Overall Intersection		**-**		**3.6**	**A**		**7.9**	**A**

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4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the lane group is

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

Construction With-Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.52	4.6	A	0.22	6.9	A
	WB	LT	0.27	8.1	A	0.53	5.3	A
Columbia Avenue	NB	LR	0.09	38.8	D	0.32	43.0	D
Overall Intersection		-		**6.3**	A		**9.8**	**A**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.45	24.1	C	0.72	46.2	D
Fingerboard Road	NB	TR	1.06	76.6	E	0.43	12.0	B
	SB	L	0.30	22.9	C	0.09	8.3	A
		T	0.08	15.6	B	0.48	10.6	B
Overall Intersection		-		**44.6**	**D**		**24.1**	**C**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	0.36	43.4	D	0.82	68.7	E
I-278 W Exit Ramp	NWB	LTR	0.00	26.0	C	0.00	24.2	C
Fingerboard Road	NB	L	0.10	35.0	C	1.02	117.5	F
		T	0.14	35.3	D	0.59	50.8	D
	SB	TR	0.17	31.1	C	0.53	51.1	D
Overall Intersection		-		**34.4**	**C**		**44.7**	**D**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.25	17.4	B	0.78	18.6	B
Hylan Boulevard East	NB	T	0.22	9.3	A	0.61	21.0	C
Overall Intersection		-		**14.4**	**B**		**19.2**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.27	11.0	B	0.66	4.8	A
Hylan Boulevard West	SB	TR	0.27	23.4	C	0.85	38.9	D
Overall Intersection		-		**16.4**	**B**		**14.5**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.08	13.4	B	0.32	13.6	B
Fingerboard Road	NB	T	0.35	0.0	A	0.14	0.0	A
	SB	T	0.08	0.0	A	0.31	0.0	A
Overall Intersection		-		**0.6**	**A**		**2.8**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.01	7.2	A	0.01	6.7	A
Major Avenue	WB	LTR	0.05	7.3	A	0.01	7.0	A
Hastings Street	NB	LTR	0.05	7.4	A	0.04	7.7	A
	SB	LT	0.07	7.4	A	0.12	7.5	A
Overall Intersection		-		**7.4**	**A**		**7.5**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.02	7.8	A	0.08	7.7	A
Hastings Street	NB	LT	0.06	7.3	A	0.04	7.7	A
	SB	TR	0.06	7.3	A	0.13	7.6	A
Overall Intersection		-		**7.3**	**A**		**7.6**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.10	0.0	A	0.03	0.0	A
Landis Avenue	NB	R	0.09	9.5	A	0.02	8.7	A
Overall Intersection		-		**3.1**	**A**		**2.1**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.01	11.9	B	0.01	10.6	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.10	7.0	A	0.03	2.8	A
Overall Intersection		-		**6.2**	**A**		**1.5**	**A**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	T	0.08	0.0	A	0.37	0.0	A
Hylan Boulevard East	NB	L	0.37	11.0	B	0.79	27.5	D
Overall Intersection		-		**5.1**	**A**		**5.9**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	L	0.18	10.2	B	0.57	14.9	B
Hylan Boulevard West	SB	T	0.06	0.0	A	0.08	0.0	A
Overall Intersection		**-**		**3.6**	**A**		**7.9**	**A**

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4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

INTERSECTION & APPROACH		Construction No-Action - AM				Construction With-Action - AM				Construction No-Action - PM				Construction With-Action - PM			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
Signalized																	
Fingerboard Road and Columbia Avenue																	
Fingerboard Road	EB	TR	0.52	3.5	A	TR	0.52	4.6	A	TR	0.22	6.9	A	TR	0.22	6.9	A
	WB	LT	0.10	3.8	A	LT	0.27	8.1	A	LT	0.51	5.0	A	LT	0.53	5.3	A
Columbia Avenue	NB	LR	0.08	38.8	D	LR	0.09	38.8	D	LR	0.32	43.0	D	LR	0.32	43.0	D
Overall Intersection		-		**4.7**	**A**	-		**6.3**	**A**	-		**9.6**	**A**	-		**9.8**	**A**
Fingerboard Road and Narrows Road South																	
Narrows Road South	EB	LTR	0.39	23.3	C	LTR	0.45	24.1	C	LTR	0.72	46.2	D	LTR	0.72	46.2	D
Fingerboard Road	NB	TR	1.06	76.0	E	TR	1.06	76.6	E	TR	0.32	9.7	A	TR	0.43	12.0	B
	SB	L	0.27	19.5	B	L	0.30	22.9	C	L	0.07	8.2	A	L	0.09	8.3	A
		T	0.08	13.7	B	T	0.08	15.6	B	T	0.48	10.6	B	T	0.48	10.6	B
Overall Intersection		-		**45.2**	**D**	-		**44.6**	**D**	-		**24.6**	**C**	-		**24.1**	**C**
Fingerboard Road and Narrows Road North																	
Narrows Road North	WB	LTR	0.35	43.1	D	LTR	0.36	43.4	D	LTR	0.82	68.7	E	LTR	0.82	68.7	E
I-278 W Exit Ramp	NWB	LTR	0.10	25.8	C	LTR	0.00	26.0	C	LTR	0.00	24.3	C	LTR	0.00	24.2	C
Fingerboard Road	NB	L	0.10	35.3	D	L	0.10	35.0	C	L	0.60	52.9	D	L	1.02	117.5	F
		T	0.14	35.7	D	T	0.14	35.3	D	T	0.55	46.1	D	T	0.59	50.8	D
	SB	TR	0.17	31.0	C	TR	0.17	31.1	C	TR	0.53	51.1	D	TR	0.53	51.1	D
Overall Intersection		-		**34.5**	**C**	-		**34.4**	**C**	-		**37.1**	**D**	-		**44.7**	**D**
Narrows Road North and Hylan Boulevard E																	
Narrows Road North	WB	TR	0.25	17.4	B	TR	0.25	17.4	B	TR	0.75	17.9	B	TR	0.78	18.6	B
Hylan Boulevard East	NB	T	0.22	9.3	A	T	0.22	9.3	A	T	0.61	21.0	C	T	0.61	21.0	C
Overall Intersection		-		14.4	B	-		14.4	B	-		18.6	B	-		19.2	B
Narrows Road North and Hylan Boulevard W																	
Narrows Road North	WB	T	0.26	11.1	B	T	0.27	11.0	B	T	0.63	4.8	A	T	0.66	4.8	A
Hylan Boulevard West	SB	TR	0.27	23.4	C	TR	0.27	23.4	C	TR	0.85	38.9	D	TR	0.85	38.9	D
Overall Intersection		-		16.5	B	-		16.4	B	-		14.7	B	-		14.5	B
Unsignalized																	
Fingerboard Road and Cleveland Place																	
Cleveland Place	WB	LR	0.08	13.0	B	LR	0.08	13.4	B	LR	0.12	12.3	B	LR	0.32	13.6	B
Fingerboard Road	NB	T	0.35	0.0	A	T	0.35	0.0	A	T	0.14	0.0	A	T	0.14	0.0	A
	SB	T	0.04	0.0	A	T	0.08	0.0	A	T	0.31	0.0	A	T	0.31	0.0	A
Overall Intersection		-		**0.7**	**A**	-		**0.6**	**A**	-		**1.0**	**A**	-		**2.8**	**A**
Hastings Street and Landis/Major Avenue																	
Landis Avenue	EB	LTR	0.01	7.1	A	LTR	0.01	7.2	A	LTR	0.01	6.7	A	LTR	0.01	6.7	A
Major Avenue	WB	LTR	0.01	7.0	A	LTR	0.05	7.3	A	LTR	0.01	7.0	A	LTR	0.01	7.0	A
Hastings Street	NB	LTR	0.03	7.2	A	LTR	0.05	7.4	A	LTR	0.04	7.7	A	LTR	0.04	7.7	A
	SB	LT	0.06	7.3	A	LT	0.07	7.4	A	LT	0.12	7.5	A	LT	0.12	7.5	A
Overall Intersection		-		**7.2**	**A**	-		**7.4**	**A**	-		**7.5**	**A**	-		**7.5**	**A**
Hastings Street and Major Avenue																	
Major Avenue	WB	LT	0.02	7.7	A	LT	0.02	7.8	A	LT	0.08	7.7	A	LT	0.08	7.7	A
Hastings Street	NB	LT	0.03	7.2	A	LT	0.06	7.3	A	LT	0.04	7.7	A	LT	0.04	7.7	A
	SB	TR	0.06	7.2	A	TR	0.06	7.3	A	TR	0.13	7.6	A	TR	0.13	7.6	A
Overall Intersection		-		**7.3**	**A**	-		**7.3**	**A**	-		**7.6**	**A**	-		**7.6**	**A**
Landis Avenue and Chicago Avenue																	
Chicago Avenue	EB	LR	0.05	0.0	A	LR	0.10	0.0	A	LR	0.03	0.0	A	LR	0.03	0.0	A
Landis Avenue	NB	R	0.02	8.8	A	R	0.09	9.5	A	R	0.02	8.7	A	R	0.02	8.7	A
Overall Intersection		-		**1.7**	**A**	-		**3.1**	**A**	-		**2.1**	**A**	-		**2.1**	**A**
Columbia Avenue and Chicago Avenue																	
Chicago Avenue	EB	LTR	0.00	10.3	B	LTR	0.01	11.9	B	LTR	0.01	10.6	B	LTR	0.01	10.6	B
Columbia Avenue	NB	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A
	SB	LTR	0.06	6.4	A	LTR	0.10	7.0	A	LTR	0.03	2.8	A	LTR	0.03	2.8	A
Overall Intersection		-		**5.3**	**A**	-		**6.2**	**A**	-		**1.5**	**A**	-		**1.5**	**A**
Narrows Road North and Hylan Boulevard E																	
Narrows Road North	WB	T	0.08	0.0	A	T	0.08	0.0	A	T	0.36	0.0	A	T	0.37	0.0	A
Hylan Boulevard East	NB	L	0.37	10.9	B	L	0.37	11.0	B	L	0.76	25.2	D	L	0.79	27.5	D
Overall Intersection		-		**5.1**	**A**	-		**5.1**	**A**	-		**5.6**	**A**	-		**5.9**	**A**
Narrows Road North and Hylan Boulevard W																	
Narrows Road North	WB	L	0.18	10.2	B	L	0.18	10.2	B	L	0.57	14.9	B	L	0.57	14.9	B
Hylan Boulevard West	SB	T	0.06	0.0	A	T	0.06	0.0	A	T	0.08	0.0	A	T	0.08	0.0	A
Overall Intersection		-		**3.6**	**A**	-		**3.6**	**A**	-		**7.9**	**A**	-		**7.9**	**A**

Construction Mitigated With-Action Conditions

INTERSECTION & APPROACH		Mvt.	w/ Mitigations - AM		
			V/C	Control Delay	LOS
Signalized					
Fingerboard Road and Columbia Avenue					
Fingerboard Road	EB	TR	0.52	4.6	A
	WB	LT	0.27	6.9	A
Columbia Avenue	NB	LR	0.09	38.8	D
Overall Intersection		-		**6.1**	**A**
Fingerboard Road and Narrows Road South					
Narrows Road South	EB	LTR	0.48	27.2	C
Fingerboard Road	NB	TR	0.98	50.0	D
	SB	L	0.23	16.8	B
		T	0.08	13.1	B
Overall Intersection		-		**35.5**	**D**
Fingerboard Road and Narrows Road North					
Narrows Road North	WB	LTR	0.36	43.4	D
I-278 W Exit Ramp	NWB	LTR	0.00	26.0	C
Fingerboard Road	NB	L	0.10	35.1	D
		T	0.14	35.4	D
	SB	TR	0.17	31.1	C
Overall Intersection		-		**34.5**	**C**
Narrows Road North and Hylan Boulevard E					
Narrows Road North	WB	TR	0.25	17.4	B
Hylan Boulevard East	NB	T	0.22	9.3	A
Overall Intersection		-		**14.4**	**B**
Narrows Road North and Hylan Boulevard W					
Narrows Road North	WB	T	0.27	11.0	B
Hylan Boulevard West	SB	TR	0.27	23.4	C
Overall Intersection		-		**16.4**	**B**

INTERSECTION & APPROACH		Mvt.	w/ Mitigations - AM		
			V/C	Control Delay	LOS
Unsignalized					
Fingerboard Road and Cleveland Place					
Cleveland Place	WB	LR	0.08	13.4	B
Fingerboard Road	NB	T	0.35	0.0	A
	SB	T	0.08	0.0	A
Overall Intersection		-		**0.6**	**A**
Hastings Street and Landis/Major Avenue					
Landis Avenue	EB	LTR	0.01	7.2	A
Major Avenue	WB	LTR	0.05	7.3	A
Hastings Street	NB	LTR	0.05	7.4	A
	SB	LT	0.07	7.4	A
Overall Intersection		-		**7.4**	**A**
Hastings Street and Major Avenue					
Major Avenue	WB	LT	0.02	7.8	A
Hastings Street	NB	LT	0.06	7.3	A
	SB	TR	0.06	7.3	A
Overall Intersection		-		**7.3**	**A**
Landis Avenue and Chicago Avenue					
Chicago Avenue	EB	LR	0.10	0.0	A
Landis Avenue	NB	R	0.09	9.5	A
Overall Intersection		-		**3.1**	**A**
Columbia Avenue and Chicago Avenue					
Chicago Avenue	EB	LTR	0.01	11.9	B
Columbia Avenue	NB	LTR	0.00	0.0	A
	SB	LTR	0.10	7.0	A
Overall Intersection		-		**6.2**	**A**
Narrows Road North and Hylan Boulevard E					
Narrows Road North	WB	T	0.08	0.0	A
Hylan Boulevard East	NB	L	0.37	11.0	B
Overall Intersection		-		**5.1**	**A**

INTERSECTION & APPROACH		Mvt.	w/ Mitigations - AM		
			V/C	Control Delay	LOS
Narrows Road North and Hylan Boulevard W					
Narrows Road North	WB	L	0.18	10.2	B
Hylan Boulevard West	SB	T	0.06	0.0	A
Overall Intersection		**-**		**3.6**	**A**

1 "Mvt." refers to the specific intersection approach lane(s) and how the lane(s) operate and/or specific pavement striping. TR is a combined through- right turn lane(s), R or L refers to exclusive right- or left-turn movement lane(s), and LTR is a mixed lane(s) that allows for all movement types.

2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an excess of demand over capacity.

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000

Intersection Level of Service Tables
2030 (Q1) Cumulative Construction
Operational Analysis

Construction-Operation Existing Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Hylan Boulevard								
Fingerboard Road	WB	L	0.15	8.0	A	0.43	7.3	A
		R	0.02	7.1	A	0.03	5.0	A
Hylan Boulevard	NB	T	0.69	37.2	D	0.26	30.5	C
		R	0.37	1.7	A	0.19	0.8	A
	SB	LT	0.35	33.5	C	0.12	30.1	C
Overall Intersection		-		**18.0**	**B**		**10.5**	**B**
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.40	7.0	A	0.21	6.9	A
	WB	LT	0.24	3.8	A	0.50	7.6	A
Columbia Avenue	NB	LR	0.13	39.5	D	0.32	42.9	D
Overall Intersection		-		**7.8**	A		**11.2**	**B**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.71	29.4	C	0.70	45.7	D
Fingerboard Road	NB	TR	0.89	39.5	D	0.31	9.6	A
	SB	L	0.53	36.1	D	0.07	3.8	A
		T	0.20	20.7	C	0.47	7.0	A
Overall Intersection		-		**31.7**	**C**		**23.0**	**C**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	0.51	49.0	D	0.60	56.2	E
I-278 W Exit Ramp	NWB	LTR	0.19	25.8	C	0.58	18.1	B
Fingerboard Road	NB	L	0.39	30.6	C	0.57	50.9	D
		T	0.19	28.6	C	0.54	45.5	D
	SB	TR	0.32	31.4	C	0.51	50.5	D
Overall Intersection		-		**34.9**	**C**		**31.3**	**C**
Fingerboard Road and Tompkins Avenue								
Fingerboard Road	EB	LTR	0.23	18.2	B	0.41	20.9	C
	WB	LTR	0.25	18.5	B	0.20	17.8	B
Tompkins Avenue	NB	LTR	0.05	16.7	B	0.06	16.7	B
	SB	LTR	0.50	22.9	C	0.22	18.5	B
Overall Intersection		-		**20.7**	**C**		**19.2**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Fingerboard Road and Bay Street								
Fingerboard Road	EB	LR	0.20	34.4	C	0.23	34.8	C
Bay Street	NB	LT	0.36	14.2	B	0.43	15.4	B
	SB	TR	0.57	18.1	B	0.52	17.0	B
Overall Intersection		-		**18.2**	**B**		**18.3**	**B**
Hylan Boulevard and W Fingerboard Road								
W Fingerboard Road	EB	LTR	0.87	70.6	E	0.36	41.2	D
Sand Lane	WB	LT	0.49	44.3	D	0.31	40.2	D
Hylan Boulevard	NB	L	0.04	8.8	A	0.02	8.6	A
		TR	0.30	10.7	B	0.12	9.3	A
	SB	L	0.17	8.6	A	0.09	5.4	A
		T	0.14	8.2	A	0.21	5.8	A
		R	0.04	7.7	A	0.05	5.2	A
Overall Intersection		-		**24.4**	**C**		**14.7**	**B**
Sand Lane and Major Avenue								
Major Avenue	WB	LTR	0.84	39.2	D	0.21	19.0	B
Sand Lane	NB	LT	0.35	9.6	A	0.32	7.4	A
	SB	TR	0.34	13.3	B	0.23	12.1	B
Overall Intersection		-		**23.8**	**C**		**11.3**	**B**
Sand Lane and MacFarland Avenue								
MacFarland Avenue	EB	LTR	0.16	11.5	B	0.02	10.4	B
	WB	LTR	0.04	10.5	B	0.03	10.4	B
Sand Lane	NB	LTR	0.36	10.0	A	0.33	9.1	A
	SB	LTR	0.51	8.4	A	0.25	6.0	A
Overall Intersection		-		**9.6**	**A**		**7.9**	**A**
Sand Lane and McClean Avenue								
McClean Avenue	EB	LTR	0.86	34.7	C	0.39	16.3	B
	WB	LTR	0.40	16.3	B	0.47	17.3	B
Sand Lane	NB	LTR	0.67	24.5	C	0.50	19.3	B
	SB	LTR	0.55	13.5	B	0.34	10.6	B
Overall Intersection		-		**24.8**	**C**		**16.4**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Lily Pond Avenue and Narrows Road South								
Narrows Road South	EB	L	0.28	28.5	C	0.27	31.9	C
		R	0.29	29.9	C	0.37	34.7	C
Lily Pond Avenue	NB	L	0.33	5.8	A	0.08	8.7	A
		T	0.15	4.6	A	0.16	4.4	A
	SB	T	0.42	15.6	B	0.74	20.3	C
		R	0.56	6.9	A	0.28	2.9	A
Overall Intersection		-		**12.8**	**B**		**17.3**	**B**
Lily Pond Avenue and McClean Avenue								
McClean Avenue	EB	L	1.00	71.2	E			
		TR/ LTR	0.09	21.0	C	0.97	96.6	F
	WB	LTR	0.22	22.8	C	0.36	42.0	D
Lily Pond Avenue	NB	L	0.06	13.1	B	0.09	11.4	B
		T	0.99	44.1	D	0.34	11.2	B
		R	0.04	12.7	B	0.04	8.7	A
	SB	LTR	0.62	30.3	C	0.91	16.4	B
Overall Intersection		-		**43.5**	**D**		**23.0**	**C**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.51	21.0	C	0.73	17.2	B
Hylan Boulevard East	NB	T	0.45	13.0	B	0.60	20.9	C
Overall Intersection		-		**18.0**	**B**		**18.0**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.60	13.0	B	0.62	4.7	A
Hylan Boulevard West	SB	TR	0.48	26.6	C	0.60	38.6	D
Overall Intersection		-		**18.1**	**B**		**14.6**	**B**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	0.97	49.7	D	0.51	21.3	C
		R	0.43	23.9	C	0.49	22.1	C
Hylan Boulevard West	SB	T	0.25	8.6	A	0.36	12.7	B
Overall Intersection		-		**37.0**	**D**		**18.3**	**B**
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	T	0.70	23.3	C	0.37	11.4	B
Hylan Boulevard East	NB	T/TR	1.01	61.5	E	0.58	32.8	C
		R	0.95	60.1	E			
Overall Intersection		-		**44.2**	**D**		**24.4**	**C**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
School Road and Bay Street								
School Road	EB	L	0.79	49.9	D	0.57	30.3	C
		TR	0.24	29.3	C	0.06	20.5	C
Park Driveway	WB	LTR	0.01	26.2	C	0.01	20.0	B
Bay Street	NB	LTR	0.07	14.7	B	0.20	21.8	C
	SB	LT	0.36	17.7	B	0.32	22.6	C
		R	0.35	16.5	B	0.30	21.3	C
Overall Intersection		**-**		**28.3**	**C**		**24.7**	**C**
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.19	14.1	B	0.12	12.2	B
Fingerboard Road	NB	T	0.32	0.0	A	0.13	0.0	A
	SB	T	0.12	0.0	A	0.30	0.0	A
Overall Intersection		**-**		**1.6**	**A**		**1.0**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.03	7.3	A	0.01	6.6	A
Major Avenue	WB	LTR	0.03	7.7	A	0.01	7.0	A
Hastings Street	NB	LTR	0.16	8.0	A	0.04	7.7	A
	SB	LT	0.18	8.1	A	0.12	7.5	A
Overall Intersection		**-**		**8.0**	**A**		**7.4**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.10	8.3	A	0.08	7.7	A
Hastings Street	NB	LT	0.20	8.4	A	0.04	7.7	A
	SB	TR	0.18	7.8	A	0.13	7.5	A
Overall Intersection		**-**		**8.2**	**A**		**7.6**	**A**
Hastings Street and MacFarland Avenue								
MacFarland Avenue	EB	LR	0.13	10.1	B	0.02	9.3	A
Hastings Street	NB	LT	0.00	0.5	A	0.00	0.7	A
	SB	TR	0.05	0.0	A	0.06	0.0	A
Overall Intersection		**-**		**3.8**	**A**		**1.4**	**A**
Hastings Street and McClean Avenue								
McClean Avenue	EB	LT	0.03	1.0	A	0.01	0.6	A
	WB	TR	0.12	0.0	A	0.12	0.0	A
Hastings Street	SB	LR	0.16	12.0	B	0.14	11.0	B
Overall Intersection		**-**		**2.1**	**A**		**2.3**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Lily Pond Avenue and Major Avenue								
Major Avenue	WB	LTR	0.07	16.4	C	0.06	12.4	B
Lily Pond Avenue	NB	LTR	0.00	0.1	A	0.01	0.1	A
	SB	LTR	0.09	1.4	A	0.03	0.4	A
Overall Intersection		-		**0.6**	**A**		**0.5**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.08	0.0	A	0.03	0.0	A
Landis Avenue	NB	R	0.04	9.1	A	0.02	8.7	A
Overall Intersection		-		**1.8**	**A**		**2.1**	**A**
Hastings Street and Narrows Road South								
Narrows Road S	EB	T	0.09	0.0	A	0.12	0.0	A
Hastings Street	NB	R	0.15	10.4	B	0.03	10.1	B
Overall Intersection		-		**2.5**	**A**		**0.6**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.02	11.3	B	0.01	10.5	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.06	5.0	A	0.03	2.7	A
Overall Intersection		-		**4.3**	**A**		**1.5**	**A**
Narrows Road N and Hylan Boulevard E								
Narrows Road N	WB	T	0.18	0.0	A	0.35	0.0	A
Hylan Boulevard E	NB	L	0.92	37.0	E	0.73	22.5	C
Overall Intersection		-		**17.2**	**C**		**5.0**	**A**
Narrows Road N and Hylan Boulevard W								
Narrows Road N	WB	L	0.43	12.8	B	0.56	14.6	B
Hylan Boulevard W	SB	T	0.09	0.0	A	0.08	0.0	A
Overall Intersection		-		**5.6**	**A**		**7.7**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road S and Hylan Boulevard W								
Narrows Road S	EB	T	0.28	0.0	A	0.24	0.0	A
Hylan Boulevard W	SB	L	0.36	14.6	B	0.25	10.7	B
Overall Intersection		**-**		**1.8**	**A**		**2.1**	**A**
Narrows Road S and Hylan Boulevard E								
Narrows Road S	EB	L	0.66	22.4	C	0.51	13.6	B
Hylan Boulevard E	NB	T	0.31	0.0	A	0.19	0.0	A
Overall Intersection		**-**		**5.9**	**A**		**5.4**	**A**

1 "Mvt." refers to the specific intersection approach lane(s) and how the lane(s) operate and/or specific pavement striping. TR is a combined through- right turn lane(s), R or L refers to exclusive right- or left-turn

2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

Construction-Operation No-Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Hylan Boulevard								
Fingerboard Road	WB	L	0.16	7.7	A	0.45	7.3	A
		R	0.02	6.8	A	0.04	4.9	A
Hylan Boulevard	NB	T	0.74	38.7	D	0.28	30.6	C
		R	0.36	1.9	A	0.20	0.8	A
	SB	LT	0.38	34.2	C	0.12	30.2	C
Overall Intersection		-		**18.5**	**B**		**10.6**	**B**
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.42	5.7	A	0.22	6.9	A
	WB	LT	0.26	3.6	A	0.53	5.2	A
Columbia Avenue	NB	LR	0.14	39.7	D	0.34	43.3	D
Overall Intersection		-		**6.9**	A		**9.9**	**A**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.75	30.6	C	0.74	47.4	D
Fingerboard Road	NB	TR	0.95	48.7	D	0.33	9.8	A
	SB	L	0.69	47.1	D	0.08	8.2	A
		T	0.21	15.2	B	0.50	10.7	B
Overall Intersection		-		**35.1**	**D**		**25.1**	**C**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	0.82	64.8	E	0.81	67.4	E
I-278 W Exit Ramp	NWB	LTR	0.22	27.4	C	0.00	24.7	C
Fingerboard Road	NB	L	0.47	35.7	D	0.63	55.8	E
		T	0.22	32.7	C	0.57	47.2	D
	SB	TR	0.37	34.4	C	0.55	51.8	D
Overall Intersection		-		**41.8**	**D**		**37.5**	**D**
Fingerboard Road and Tompkins Avenue								
Fingerboard Road	EB	LTR	0.25	18.4	B	0.43	21.4	C
	WB	LTR	0.26	18.7	B	0.22	18.0	B
Tompkins Avenue	NB	LTR	0.05	16.7	B	0.06	16.7	B
	SB	LTR	0.54	23.5	C	0.23	18.6	B
Overall Intersection		-		**21.1**	**C**		**19.6**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Fingerboard Road and Bay Street								
Fingerboard Road	EB	LR	0.22	34.6	C	0.25	35.0	C
Bay Street	NB	LT	0.38	14.5	B	0.46	15.8	B
	SB	TR	0.61	18.9	B	0.55	17.6	B
Overall Intersection		-		**18.9**	**B**		**18.8**	**B**
Hylan Boulevard and W Fingerboard Road								
W Fingerboard Road	EB	LTR	0.94	84.4	F	0.38	41.6	D
Sand Lane	WB	LT	0.52	45.5	D	0.34	40.7	D
Hylan Boulevard	NB	L	0.04	8.8	A	0.03	8.7	A
		TR	0.31	10.9	B	0.13	9.3	A
	SB	L	0.19	8.6	A	0.09	5.4	A
		T	0.15	8.1	A	0.22	5.8	A
		R	0.04	7.4	A	0.06	5.1	A
Overall Intersection		-		**27.0**	**C**		**14.8**	**B**
Sand Lane and Major Avenue								
Major Avenue	WB	LTR	0.66	23.2	C	0.19	16.4	B
Sand Lane	NB	LT	0.40	12.8	B	0.34	7.8	A
	SB	TR	0.39	15.4	B	0.25	12.3	B
Overall Intersection		-		**18.2**	**B**		**11.1**	**B**
Sand Lane and MacFarland Avenue								
MacFarland Avenue	EB	LTR	0.17	11.6	B	0.02	10.4	B
	WB	LTR	0.04	10.5	B	0.03	10.4	B
Sand Lane	NB	LTR	0.38	10.0	A	0.35	9.1	A
	SB	LTR	0.55	9.4	A	0.27	6.2	A
Overall Intersection		-		**10.0**	**A**		**8.0**	**A**
Sand Lane and McClean Avenue								
McClean Avenue	EB	LTR	0.92	41.7	D	0.42	16.9	B
	WB	LTR	0.43	16.8	B	0.50	17.8	B
Sand Lane	NB	LTR	0.71	26.6	C	0.53	20.1	C
	SB	LTR	0.59	15.5	B	0.36	11.2	B
Overall Intersection		-		**28.5**	**C**		**17.0**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Lily Pond Avenue and Narrows Road South								
Narrows Road South	EB	L	0.30	28.7	C	0.29	33.1	C
		R	0.31	30.2	C	0.40	36.3	D
Lily Pond Avenue	NB	L	0.36	4.9	A	0.11	10.0	A
		T	0.16	4.2	A	0.17	4.4	A
	SB	T	0.44	15.9	B	0.78	21.9	C
		R	0.55	7.3	A	0.30	3.0	A
Overall Intersection		-		**12.9**	**B**		**18.5**	**B**
Lily Pond Avenue and McClean Avenue								
McClean Avenue	EB	L	1.07	92.3	F			
		TR/ LTR	0.09	21.0	C	1.04	115.6	F
	WB	LTR	0.23	22.9	C	0.38	42.5	D
Lily Pond Avenue	NB	L	0.07	13.3	B	0.11	13.4	B
		T	1.05	61.4	E	0.36	11.4	B
		R	0.05	12.7	B	0.04	8.8	A
	SB	LTR	0.70	28.8	C	0.96	22.5	C
Overall Intersection		-		**55.6**	**E**		**28.6**	**C**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.54	21.5	C	0.77	18.5	B
Hylan Boulevard East	NB	T	0.47	13.6	B	0.63	21.4	C
Overall Intersection		-		**18.5**	**B**		**19.1**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.63	13.3	B	0.66	4.9	A
Hylan Boulevard West	SB	TR	0.51	27.1	C	0.89	39.5	D
Overall Intersection		-		**18.5**	**B**		**15.0**	**B**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	1.03	64.8	E	0.55	21.9	C
		R	0.45	24.4	C	0.52	22.7	C
Hylan Boulevard West	SB	T	0.27	8.6	A	0.38	12.8	B
Overall Intersection		-		**46.8**	**D**		**18.7**	**B**
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	T	0.74	24.6	C	0.39	11.5	B
Hylan Boulevard East	NB	T/TR	1.07	80.6	F	0.62	33.5	C
		R	1.01	75.1	E			
Overall Intersection		-		**54.6**	**D**		**24.9**	**C**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
School Road and Bay Street								
School Road	EB	L	0.84	54.8	D	0.60	31.5	C
		TR	0.25	29.6	C	0.06	20.6	C
Park Driveway	WB	LTR	0.01	26.2	C	0.01	20.0	B
Bay Street	NB	LTR	0.08	14.8	B	0.22	22.1	C
	SB	LT	0.33	18.0	B	0.33	22.9	C
		R	0.23	16.7	B	0.31	21.4	C
Overall Intersection		-		**29.9**	**C**		**25.2**	**C**
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.21	14.8	B	0.13	12.6	B
Fingerboard Road	NB	T	0.34	0.0	A	0.14	0.0	A
	SB	T	0.13	0.0	A	0.32	0.0	A
Overall Intersection		-		**1.7**	**A**		**1.0**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.03	7.3	A	0.01	6.7	A
Major Avenue	WB	LTR	0.03	7.7	A	0.01	7.0	A
Hastings Street	NB	LTR	0.17	8.1	A	0.04	7.7	A
	SB	LT	0.19	8.1	A	0.12	7.6	A
Overall Intersection		-		**8.1**	**A**		**7.5**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.10	8.4	A	0.09	7.7	A
Hastings Street	NB	LT	0.22	8.6	A	0.04	7.7	A
	SB	TR	0.19	7.9	A	0.13	7.6	A
Overall Intersection		-		**8.3**	**A**		**7.7**	**A**
Hastings Street and MacFarland Avenue								
MacFarland Avenue	EB	LR	0.14	10.3	B	0.03	9.4	A
Hastings Street	NB	LT	0.00	0.5	A	0.00	0.7	A
	SB	TR	0.06	0.0	A	0.07	0.0	A
Overall Intersection		-		**3.9**	**A**		**1.5**	**A**
Hastings Street and McClean Avenue								
McClean Avenue	EB	LT	0.03	1.0	A	0.01	0.6	A
	WB	TR	0.13	0.0	A	0.13	0.0	A
Hastings Street	SB	LR	0.17	12.4	B	0.15	11.3	B
Overall Intersection		-		**2.2**	**A**		**2.3**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Lily Pond Avenue and Major Avenue								
Major Avenue	WB	LTR	0.09	18.1	C	0.07	12.9	B
Lily Pond Avenue	NB	LTR	0.00	0.1	A	0.01	0.1	A
	SB	LTR	0.11	1.8	A	0.04	0.5	A
Overall Intersection		-		**0.7**	**A**		**0.5**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.09	0.0	A	0.03	0.0	A
Landis Avenue	NB	R	0.04	9.2	A	0.02	8.7	A
Overall Intersection		-		**1.8**	**A**		**2.1**	**A**
Hastings Street and Narrows Road South								
Narrows Road S	EB	T	0.10	0.0	A	0.13	0.0	A
Hastings Street	NB	R	0.16	10.6	B	0.04	10.2	B
Overall Intersection		-		**2.5**	**A**		**0.6**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.02	11.5	B	0.01	10.7	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.07	5.1	A	0.03	2.8	A
Overall Intersection		-		**4.3**	**A**		**1.5**	**A**
Narrows Road N and Hylan Boulevard E								
Narrows Road N	WB	T	0.19	0.0	A	0.37	0.0	A
Hylan Boulevard E	NB	L	1.00	52.4	F	0.81	29.8	D
Overall Intersection		-		**24.3**	**C**		**6.6**	**A**
Narrows Road N and Hylan Boulevard W								
Narrows Road N	WB	L	0.46	13.4	B	0.60	15.6	C
Hylan Boulevard W	SB	T	0.09	0.0	A	0.09	0.0	A
Overall Intersection		-		**5.9**	**A**		**8.3**	**A**
Narrows Road S and Hylan Boulevard W								
Narrows Road S	EB	T	0.30	0.0	A	0.26	0.0	A
Hylan Boulevard W	SB	L	0.40	15.6	C	0.27	10.9	B
Overall Intersection		-		**2.0**	**A**		**2.2**	**A**
Narrows Road S and Hylan Boulevard E								
Narrows Road S	EB	L	0.70	24.6	C	0.55	14.4	B
Hylan Boulevard E	NB	T	0.33	0.0	A	0.20	0.0	A
Overall Intersection		-		**6.5**	**A**		**5.7**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Hylan Boulevard and Sand Lane								
Sand Lane	WB	LTR	0.41	13.4	B	0.23	11.0	B
Hylan Boulevard	NB	T	0.21	0.0	A	0.07	0.0	A
	SB	T	0.12	0.0	A	0.19	0.0	A
Overall Intersection		**-**		**2.8**	**A**		**1.8**	**A**

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2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

Construction-Operation With-Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Hylan Boulevard								
Fingerboard Road	WB	L	0.20	8.3	A	0.51	6.9	A
		R	0.02	6.7	A	0.04	4.5	A
Hylan Boulevard	NB	T	0.74	39.0	D	0.28	31.8	C
		R	0.44	3.0	A	0.21	0.9	A
	SB	LT	0.39	34.4	C	0.13	30.2	C
Overall Intersection		-		**18.5**	**B**		**10.1**	**B**
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.47	8.2	A	0.26	6.9	A
	WB	LT	0.43	5.6	A	0.59	7.3	A
Columbia Avenue	NB	LR	0.18	40.8	D	0.41	45.8	D
Overall Intersection		-		**8.8**	A		**11.0**	**B**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.91	38.8	D	1.05	92.7	F
Fingerboard Road	NB	TR	0.99	55.5	E	0.42	12.2	B
	SB	L	1.28	195.5	F	0.19	9.8	A
		T	0.23	12.1	B	0.50	11.9	B
Overall Intersection		-		**49.5**	**D**		**47.8**	**D**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	1.48	280.5	F	1.65	355.8	F
I-278 W Exit Ramp	NWB	LTR	0.00	27.4	C	0.68	24.7	C
Fingerboard Road	NB	L	0.57	36.7	D	1.24	203.3	F
		T	0.22	32.2	C	0.60	53.1	D
	SB	TR	0.49	37.1	D	0.77	64.4	E
Overall Intersection		-		**134.7**	**F**		**124.1**	**F**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Fingerboard Road and Tompkins Avenue								
Fingerboard Road	EB	LTR	0.25	18.5	B	0.46	21.8	C
	WB	LTR	0.34	19.8	B	0.27	18.7	B
Tompkins Avenue	NB	LTR	0.06	16.7	B	0.06	16.7	B
	SB	LTR	0.58	24.7	C	0.28	19.3	B
Overall Intersection		-		**22.0**	**C**		**20.0**	**B**
Fingerboard Road and Bay Street								
Fingerboard Road	EB	LR	0.22	34.6	C	0.25	35.0	C
Bay Street	NB	LT	0.43	15.3	B	0.52	16.9	B
	SB	TR	0.66	20.4	C	0.59	18.5	B
Overall Intersection		-		**19.8**	**B**		**19.5**	**B**
Hylan Boulevard and W Fingerboard Road								
W Fingerboard Road	EB	LTR	1.06	114.5	F	0.47	43.8	D
Sand Lane	WB	LT	0.53	45.9	D	0.35	40.9	D
Hylan Boulevard	NB	L	0.04	8.8	A	0.03	8.7	A
		TR	0.32	10.9	B	0.13	9.3	A
	SB	L	0.23	10.5	B	0.12	4.9	A
		T	0.15	9.4	A	0.24	5.2	A
		R	0.06	8.8	A	0.08	4.7	A
Overall Intersection		-		**33.2**	**C**		**14.9**	**B**
Sand Lane and Major Avenue								
Major Avenue	WB	LTR	0.69	24.4	C	0.20	16.5	B
Sand Lane	NB	LT	0.40	12.8	B	0.35	7.8	A
	SB	TR	0.42	15.8	B	0.27	12.5	B
Overall Intersection		-		**18.7**	**B**		**11.2**	**B**
Sand Lane and MacFarland Avenue								
MacFarland Avenue	EB	LTR	0.21	11.9	B	0.03	10.4	B
	WB	LTR	0.04	10.5	B	0.03	10.4	B
Sand Lane	NB	LTR	0.38	10.1	B	0.35	9.2	A
	SB	LTR	0.58	9.5	A	0.29	6.3	A
Overall Intersection		-		**10.2**	**B**		**8.1**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Sand Lane and McClean Avenue								
McClean Avenue	EB	LTR	0.95	46.7	D	0.45	17.3	B
	WB	LTR	0.45	17.2	B	0.52	18.2	B
Sand Lane	NB	LTR	0.72	27.4	C	0.54	20.2	C
	SB	LTR	0.65	18.0	B	0.41	12.9	B
Overall Intersection		-		**31.0**	**C**		**17.5**	**B**
Lily Pond Avenue and Narrows Road South								
Narrows Road South	EB	L	0.62	33.9	C	0.64	44.7	D
		R	0.57	36.8	D	0.64	49.5	D
Lily Pond Avenue	NB	L	0.37	5.5	A	0.11	10.0	A
		T	0.16	4.5	A	0.17	4.4	A
	SB	T	0.46	16.2	B	0.78	22.0	C
		R	0.60	7.3	A	0.28	3.0	A
Overall Intersection		-		**16.9**	**B**		**23.2**	**C**
Lily Pond Avenue and McClean Avenue								
McClean Avenue	EB	L	1.11	104.1	F			
		TR/ LTR	0.09	21.0	C	1.09	131.3	F
	WB	LTR	0.24	23.0	C	0.39	42.8	D
Lily Pond Avenue	NB	L	0.08	13.4	B	0.12	14.0	B
		T	1.07	66.4	E	0.37	11.5	B
		R	0.05	12.7	B	0.04	8.8	A
	SB	LTR	0.74	32.4	C	0.98	26.6	C
Overall Intersection		-		**60.8**	**E**		**32.5**	**C**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.64	23.7	C	0.87	22.8	C
Hylan Boulevard East	NB	T	0.47	13.6	B	0.63	21.4	C
Overall Intersection		-		**20.3**	**C**		**22.5**	**C**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.73	13.6	B	0.76	5.5	A
Hylan Boulevard West	SB	TR	0.51	27.1	C	0.89	39.5	D
Overall Intersection		-		**18.2**	**B**		**14.4**	**B**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	1.07	75.4	E	0.57	22.5	C
		R	0.45	24.4	C	0.52	22.7	C
Hylan Boulevard West	SB	T	0.27	8.6	A	0.38	12.8	B
Overall Intersection		-		**54.0**	**D**		**19.1**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	T	0.76	25.2	C	0.42	11.6	B
Hylan Boulevard East	NB	T/TR	1.07	80.6	F	0.62	33.5	C
		R	1.01	75.1	E			
Overall Intersection		-		**54.5**	**D**		**24.5**	**C**
School Road and Bay Street								
School Road	EB	L	0.97	76.1	E	0.69	35.3	D
		TR	0.25	29.6	C	0.06	20.6	C
Park Driveway	WB	LTR	0.01	26.2	C	0.01	20.0	B
Bay Street	NB	LTR	0.08	14.8	B	0.22	22.1	C
	SB	LT	0.39	18.0	B	0.27	22.9	C
		R	0.36	16.7	B	0.17	21.4	C
Overall Intersection		-		**38.0**	**D**		**26.9**	**C**
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.46	22.6	C	0.53	22.2	C
Fingerboard Road	NB	T	0.34	0.0	A	0.14	0.0	A
	SB	T	0.16	0.0	A	0.32	0.0	A
Overall Intersection		-		**3.8**	**A**		**4.9**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.03	7.6	A	0.01	6.8	A
Major Avenue	WB	LTR	0.12	8.4	A	0.07	7.5	A
Hastings Street	NB	LTR	0.24	8.9	A	0.07	7.8	A
	SB	LT	0.20	8.6	A	0.13	7.7	A
Overall Intersection		-		**8.6**	**A**		**7.7**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.11	8.5	A	0.09	7.8	A
Hastings Street	NB	LT	0.27	9.0	A	0.07	7.9	A
	SB	TR	0.20	8.0	A	0.14	7.6	A
Overall Intersection		-		**8.6**	**A**		**7.7**	**A**
Hastings Street and MacFarland Avenue								
MacFarland Avenue	EB	LR	0.18	10.7	B	0.03	9.5	A
Hastings Street	NB	LT	0.00	0.4	A	0.00	0.4	A
	SB	TR	0.06	0.0	A	0.07	0.0	A
Overall Intersection		-		**4.3**	**A**		**1.5**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Hastings Street and McClean Avenue								
McClean Avenue	EB	LT	0.05	1.4	A	0.02	1.2	A
	WB	TR	0.13	0.0	A	0.13	0.0	A
Hastings Street	SB	LR	0.20	13.6	B	0.17	11.8	B
Overall Intersection		-		**2.6**	**A**		**2.7**	**A**
Lily Pond Avenue and Major Avenue								
Major Avenue	WB	LTR	0.12	23.0	C	0.08	14.7	B
Lily Pond Avenue	NB	LTR	0.04	0.6	A	0.08	1.4	A
	SB	LTR	0.11	1.7	A	0.04	0.5	A
Overall Intersection		-		**1.1**	**A**		**0.9**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.13	0.0	A	0.05	0.0	A
Landis Avenue	NB	R	0.71	54.6	F	0.48	41.6	E
Overall Intersection		-		**22.3**	**C**		**20.8**	**C**
Hastings Street and Narrows Road South								
Narrows Road S	EB	T	0.23	0.0	A	0.29	0.0	A
Hastings Street	NB	R	0.21	12.7	B	0.03	10.0	A
Overall Intersection		-		**1.8**	**A**		**0.3**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.05	19.7	C	0.01	12.7	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.17	7.4	A	0.07	4.6	A
Overall Intersection		-		**6.7**	**A**		**2.6**	**A**
Hastings Street and Campus Driveway (PS bus entrance)								
Hastings Street	NB	LT	0.00	0.0	A	0.00	0.0	A
	SB	TR	0.10	0.0	A	0.07	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**
Landis Avenue and Campus Driveway (PS bus exit)								
Landis Avenue	NB	T	0.09	0.0	A	0.05	0.0	A
	SB	T	0.01	0.0	A	0.00	0.0	A
SJV Driveway	WB	LR	0.00	0.0	A	0.00	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Cleveland Place and Campus Driveway (IS/HS bus entrance)								
Cleveland Place	NB	TR	0.19	0.0	A	0.08	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**
Cleveland Place and Campus Parking Lot Entrance								
Cleveland Place	NB	LT	0.05	2.3	A	0.00	0.0	A
Overall Intersection		-		**2.3**	**A**		**0.0**	**A**
Cleveland Place and Campus Parking Lot Exit								
Cleveland Place	NB	LT	0.14	0.0	A	0.08	0.0	A
SJV Parking Lot	EB	L	0.00	0.0	A	0.32	28.2	D
SJV Driveway/Garson Avenue	WB	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection		-		**0.0**	**A**		**9.5**	**A**
Narrows Road South and Campus Driveway (IS/HS bus exit)								
Narrows Road South	SB	T	0.21	0.0	A	0.24	0.0	A
SJV Driveway	EB	R	0.05	14.0	B	0.03	10.3	B
Overall Intersection		-		**0.4**	**A**		**0.3**	**A**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	T	0.23	0.0	A	0.43	0.0	A
Hylan Boulevard East	NB	L	1.07	74.3	F	0.97	58.0	F
Overall Intersection		-		**30.6**	**D**		**11.5**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	L	0.46	13.4	B	0.60	15.6	C
Hylan Boulevard West	SB	T	0.09	0.0	A	0.09	0.0	A
Overall Intersection		-		**5.9**	**A**		**8.3**	**A**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	0.31	0.0	A	0.27	0.0	A
Hylan Boulevard West	SB	L	0.40	15.6	C	0.27	11.1	B
Overall Intersection		-		**1.9**	**A**		**2.1**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	L	0.70	24.6	C	0.55	14.4	B
Hylan Boulevard East	NB	T	0.33	0.0	A	0.20	0.0	A
Overall Intersection		**-**		**6.5**	**A**		**5.7**	**A**
Sand Lane and Hylan Boulevard								
Sand Lane	WB	LTR	0.42	13.9	B	0.23	11.2	B
Hylan Boulevard	NB	T	0.21	0.0	A	0.08	0.0	A
	SB	T	0.13	0.0	A	0.21	0.0	A
Overall Intersection		**-**		**2.8**	**A**		**1.7**	**A**

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4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

INTERSECTION & APPROACH		No Action - AM				With Action - AM				No Action - PM				With Action - PM			
		Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS	Mvt.	V/C	Control Delay	LOS
Signalized																	
Fingerboard Road and Hylan Boulevard																	
Fingerboard Road	WB	L	0.16	7.7	A	L	0.20	8.3	A	L	0.45	7.3	A	L	0.51	6.9	A
		R	0.02	6.8	A	R	0.02	6.7	A	R	0.04	4.9	A	R	0.04	4.5	A
Hylan Boulevard	NB	T	0.74	38.7	D	T	0.74	39.0	D	T	0.28	30.6	C	T	0.28	31.8	C
		R	0.36	1.9	A	R	0.44	3.0	A	R	0.20	0.8	A	R	0.21	0.9	A
	SB	LT	0.38	34.2	C	LT	0.39	34.4	C	LT	0.12	30.2	C	LT	0.13	30.2	C
Overall Intersection		-		**18.5**	**B**	-		**18.5**	**B**	-		**10.6**	**B**	-		**10.1**	**B**
Fingerboard Road and Columbia Avenue																	
Fingerboard Road	EB	TR	0.42	5.7	A	TR	0.47	8.2	A	TR	0.22	6.9	A	TR	0.26	6.9	A
	WB	LT	0.26	3.6	A	LT	0.43	5.6	A	LT	0.53	5.2	A	LT	0.59	7.3	A
Columbia Avenue	NB	LR	0.14	39.7	D	LR	0.18	40.8	D	LR	0.34	43.3	D	LR	0.41	45.8	D
Overall Intersection		-		**6.9**	**A**	-		**8.8**	**A**	-		**9.9**	**A**	-		**11.0**	**B**
Fingerboard Road and Narrows Road South																	
Narrows Road South	EB	LTR	0.75	30.6	C	LTR	0.91	38.8	D	LTR	0.74	47.4	D	LTR	1.05	92.7	F
Fingerboard Road	NB	TR	0.95	48.7	D	TR	0.99	55.5	E	TR	0.33	9.8	A	TR	0.42	12.2	B
	SB	L	0.69	47.1	D	L	1.28	195.5	F	L	0.08	8.2	A	L	0.19	9.8	A
		T	0.21	15.2	B	T	0.23	12.1	B	T	0.50	10.7	B	T	0.50	11.9	B
Overall Intersection		-		**35.1**	**D**	-		**49.5**	**D**	-		**25.1**	**C**	-		**47.8**	**D**
Fingerboard Road and Narrows Road North																	
Narrows Road North	WB	LTR	0.82	64.8	E	LTR	1.48	280.5	F	LTR	0.81	67.4	E	LTR	1.65	355.8	F
I-278 W Exit Ramp	NWB	LTR	0.22	27.4	C	LTR	0.00	27.4	C	LTR	0.00	24.7	C	LTR	0.68	24.7	C
Fingerboard Road	NB	L	0.47	35.7	D	L	0.57	36.7	D	L	0.63	55.8	E	L	1.24	203.3	F
		T	0.22	32.7	C	T	0.22	32.2	C	T	0.57	47.2	D	T	0.60	53.1	D
	SB	TR	0.37	34.4	C	TR	0.49	37.1	D	TR	0.55	51.8	D	TR	0.77	64.4	E
Overall Intersection		-		**41.8**	**D**	-		**134.7**	**F**	-		**37.5**	**D**	-		**124.1**	**F**
Fingerboard Road and Tompkins Avenue																	
Fingerboard Road	EB	LTR	0.25	18.4	B	LTR	0.25	18.5	B	LTR	0.43	21.4	C	LTR	0.46	21.8	C
	WB	LTR	0.26	18.7	B	LTR	0.34	19.8	B	LTR	0.22	18.0	B	LTR	0.27	18.7	B
Tompkins Avenue	NB	LTR	0.05	16.7	B	LTR	0.06	16.7	B	LTR	0.06	16.7	B	LTR	0.06	16.7	B
	SB	LTR	0.54	23.5	C	LTR	0.58	24.7	C	LTR	0.23	18.6	B	LTR	0.28	19.3	B
Overall Intersection		-		**21.1**	**C**	-		**22.0**	**C**	-		**19.6**	**B**	-		**20.0**	**B**
Fingerboard Road and Bay Street																	
Fingerboard Road	EB	LR	0.22	34.6	C	LR	0.22	34.6	C	LR	0.25	35.0	C	LR	0.25	35.0	C
Bay Street	NB	LT	0.38	14.5	B	LT	0.43	15.3	B	LT	0.46	15.8	B	LT	0.52	16.9	B
	SB	TR	0.61	18.9	B	TR	0.66	20.4	C	TR	0.55	17.6	B	TR	0.59	18.5	B
Overall Intersection		-		**18.9**	**B**	-		**19.8**	**B**	-		**18.8**	**B**	-		**19.5**	**B**
Hylan Boulevard and W Fingerboard Road																	
W Fingerboard Road	EB	LTR	0.94	84.4	F	LTR	1.06	114.5	F	LTR	0.38	41.6	D	LTR	0.47	43.8	D
Sand Lane	WB	LT	0.52	45.5	D	LT	0.53	45.9	D	LT	0.34	40.7	D	LT	0.35	40.9	D
Hylan Boulevard	NB	L	0.04	8.8	A	L	0.04	8.8	A	L	0.03	8.7	A	L	0.03	8.7	A
		TR	0.31	10.9	B	TR	0.32	10.9	B	TR	0.13	9.3	A	TR	0.13	9.3	A
	SB	L	0.19	8.6	A	L	0.23	10.5	B	L	0.09	5.4	A	L	0.12	4.9	A
		T	0.15	8.1	A	T	0.15	9.4	A	T	0.22	5.8	A	T	0.24	5.2	A
		R	0.04	7.4	A	R	0.06	8.8	A	R	0.06	5.1	A	R	0.08	4.7	A
Overall Intersection		-		**27.0**	**C**	-		**33.2**	**C**	-		**14.8**	**B**	-		**14.9**	**B**
Sand Lane and Major Avenue																	
Major Avenue	WB	LTR	0.66	23.2	C	LTR	0.69	24.4	C	LTR	0.19	16.4	B	LTR	0.20	16.5	B
Sand Lane	NB	LT	0.40	12.8	B	LT	0.40	12.8	B	LT	0.34	7.8	A	LT	0.35	7.8	A
	SB	TR	0.39	15.4	B	TR	0.42	15.8	B	TR	0.25	12.3	B	TR	0.27	12.5	B
Overall Intersection		-		**18.2**	**B**	-		**18.7**	**B**	-		**11.1**	**B**	-		**11.2**	**B**
Sand Lane and MacFarland Avenue																	
MacFarland Avenue	EB	LTR	0.17	11.6	B	LTR	0.21	11.9	B	LTR	0.02	10.4	B	LTR	0.03	10.4	B
	WB	LTR	0.04	10.5	B	LTR	0.04	10.5	B	LTR	0.03	10.4	B	LTR	0.03	10.4	B
Sand Lane	NB	LTR	0.38	10.0	A	LTR	0.38	10.1	B	LTR	0.35	9.1	A	LTR	0.35	9.2	A
	SB	LTR	0.55	9.4	A	LTR	0.58	9.5	A	LTR	0.27	6.2	A	LTR	0.29	6.3	A
Overall Intersection		-		**10.0**	**A**	-		**10.2**	**B**	-		**8.0**	**A**	-		**8.1**	**A**

Sand Lane and McClean Avenue																	
McClean Avenue	EB	LTR	0.92	41.7	D	LTR	0.95	46.7	D	LTR	0.42	16.9	B	LTR	0.45	17.3	B
	WB	LTR	0.43	16.8	B	LTR	0.45	17.2	B	LTR	0.50	17.8	B	LTR	0.52	18.2	B
Sand Lane	NB	LTR	0.71	26.6	C	LTR	0.72	27.4	C	LTR	0.53	20.1	C	LTR	0.54	20.2	C
	SB	LTR	0.59	15.5	B	LTR	0.65	18.0	B	LTR	0.36	11.2	B	LTR	0.41	12.9	B
Overall Intersection		-		**28.5**	**C**	-		**31.0**	**C**	-		**17.0**	**B**	-		**17.5**	**B**
Lily Pond Avenue and Narrows Road South																	
Narrows Road South	EB	L	0.30	28.7	C	L	0.62	33.9	C	L	0.29	33.1	C	L	0.64	44.7	D
		R	0.31	30.2	C	R	0.57	36.8	D	R	0.40	36.3	D	R	0.64	49.5	D
Lily Pond Avenue	NB	L	0.36	4.9	A	L	0.37	5.5	A	L	0.11	10.0	A	L	0.11	10.0	A
		T	0.16	4.2	A	T	0.16	4.5	A	T	0.17	4.4	A	T	0.17	4.4	A
	SB	T	0.44	15.9	B	T	0.46	16.2	B	T	0.78	21.9	C	T	0.78	22.0	C
		R	0.55	7.3	A	R	0.60	7.3	A	R	0.30	3.0	A	R	0.28	3.0	A
Overall Intersection		-		**12.9**	**B**	-		**16.9**	**B**	-		**18.5**	**B**	-		**23.2**	**C**
Lily Pond Avenue and McClean Avenue																	
McClean Avenue	EB	L	1.07	92.3	F	L	1.11	104.1	F								
		TR	0.09	21.0	C	TR	0.09	21.0	C	LTR	1.04	115.6	F	LTR	1.09	131.3	F
	WB	LTR	0.23	22.9	C	LTR	0.24	23.0	C	LTR	0.38	42.5	D	LTR	0.39	42.8	D
Lily Pond Avenue	NB	L	0.07	13.3	B	L	0.08	13.4	B	L	0.11	13.4	B	L	0.12	14.0	B
		T	1.05	61.4	E	T	1.07	66.4	E	T	0.36	11.4	B	T	0.37	11.5	B
		R	0.05	12.7	B	R	0.05	12.7	B	R	0.04	8.8	A	R	0.04	8.8	A
	SB	LTR	0.70	28.8	C	LTR	0.74	32.4	C	LTR	0.96	22.5	C	LTR	0.98	26.6	C
Overall Intersection		-		**55.6**	**E**	-		**60.8**	**E**	-		**28.6**	**C**	-		**32.5**	**C**
Narrows Road North and Hylan Boulevard E																	
Narrows Road North	WB	TR	0.54	21.5	C	TR	0.64	23.7	C	TR	0.77	18.5	B	TR	0.87	22.8	C
Hylan Boulevard East	NB	T	0.47	13.6	B	T	0.47	13.6	B	T	0.63	21.4	C	T	0.63	21.4	C
Overall Intersection		-		**18.5**	**B**	-		**20.3**	**C**	-		**19.1**	**B**	-		**22.5**	**C**
Narrows Road North and Hylan Boulevard W																	
Narrows Road North	WB	T	0.63	13.3	B	T	0.73	13.6	B	T	0.66	4.9	A	T	0.76	5.5	A
Hylan Boulevard West	SB	TR	0.51	27.1	C	TR	0.51	27.1	C	TR	0.89	39.5	D	TR	0.89	39.5	D
Overall Intersection		-		**18.5**	**B**	-		**18.2**	**B**	-		**15.0**	**B**	-		**14.4**	**B**
Narrows Road South and Hylan Boulevard W																	
Narrows Road South	EB	**T**	1.03	64.8	E	**T**	1.07	75.4	E	T	0.55	21.9	C	T	0.57	22.5	C
		R	0.45	24.4	C	**R**	0.45	24.4	C	R	0.52	22.7	C	R	0.52	22.7	C
Hylan Boulevard West	SB	T	0.27	8.6	A	T	0.27	8.6	A	T	0.38	12.8	B	T	0.38	12.8	B
Overall Intersection		-		**46.8**	**D**	-		**54.0**	**D**	-		**18.7**	**B**	-		**19.1**	**B**
Narrows Road South and Hylan Boulevard E																	
Narrows Road South	EB	T	0.74	24.6	C	T	0.76	25.2	C	T	0.39	11.5	B	T	0.42	11.6	B
Hylan Boulevard East	NB	T	1.07	80.6	F	T	1.07	80.6	F	T	0.62	33.5	C	T	0.62	33.5	C
		R	1.01	75.1	E	R	1.01	75.1	E	R				R			
Overall Intersection		-		54.6	D	-		54.5	D	-		24.9	C	-		24.5	C
School Road and Bay Street																	
School Road	EB	L	0.84	54.8	D	L	0.97	76.1	E	L	0.60	31.5	C	L	0.69	35.3	D
		TR	0.25	29.6	C	TR	0.25	29.6	C	TR	0.06	20.6	C	TR	0.06	20.6	C
Park Driveway	WB	LTR	0.01	26.2	C	LTR	0.01	26.2	C	LTR	0.01	20.0	B	LTR	0.01	20.0	B
Bay Street	NB	LTR	0.08	14.8	B	LTR	0.08	14.8	B	LTR	0.22	22.1	C	LTR	0.22	22.1	C
	SB	LT	0.33	18.0	B	LT	0.39	18.0	B	LT	0.33	22.9	C	LT	0.27	22.9	C
		R	0.23	16.7	B	R	0.36	16.7	B	R	0.31	21.4	C	R	0.17	21.4	C
		-		29.9	C	-		38.0	D	-		25.2	C	-		26.9	C
<u>Unsignalized</u>																	
Fingerboard Road and Cleveland Place																	
Cleveland Place	WB	LR	0.21	14.8	B	LR	0.46	22.6	C	LR	0.13	12.6	B	LR	0.53	22.2	C
Fingerboard Road	NB	T	0.34	0.0	A	T	0.34	0.0	A	T	0.14	0.0	A	T	0.14	0.0	A
	SB	T	0.13	0.0	A	T	0.16	0.0	A	T	0.32	0.0	A	T	0.32	0.0	A
Overall Intersection		-		**1.7**	**A**	-		**3.8**	**A**	-		**1.0**	**A**	-		**4.9**	**A**
Hastings Street and Landis/Major Avenue																	
Landis Avenue	EB	LTR	0.03	7.3	A	LTR	0.03	7.6	A	LTR	0.01	6.7	A	LTR	0.01	6.8	A
Major Avenue	WB	LTR	0.03	7.7	A	LTR	0.12	8.4	A	LTR	0.01	7.0	A	LTR	0.07	7.5	A
Hastings Street	NB	LTR	0.17	8.1	A	LTR	0.24	8.9	A	LTR	0.04	7.7	A	LTR	0.07	7.8	A
	SB	LT	0.19	8.1	A	LT	0.20	8.6	A	LT	0.12	7.6	A	LT	0.13	7.7	A
Overall Intersection		-		**8.1**	**A**	-		**8.6**	**A**	-		**7.5**	**A**	-		**7.7**	**A**
Hastings Street and Major Avenue																	
Major Avenue	WB	LT	0.10	8.4	A	LT	0.11	8.5	A	LT	0.09	7.7	A	LT	0.09	7.8	A
Hastings Street	NB	LT	0.22	8.6	A	LT	0.27	9.0	A	LT	0.04	7.7	A	LT	0.07	7.9	A
	SB	TR	0.19	7.9	A	TR	0.20	8.0	A	TR	0.13	7.6	A	TR	0.14	7.6	A
Overall Intersection		-		**8.3**	**A**	-		**8.6**	**A**	-		**7.7**	**A**	-		**7.7**	**A**

Hastings Street and MacFarland Avenue																	
MacFarland Avenue	EB	LR	0.14	10.3	B	LR	0.18	10.7	B	LR	0.03	9.4	A	LR	0.03	9.5	A
Hastings Street	NB	LT	0.00	0.5	A	LT	0.00	0.4	A	LT	0.00	0.7	A	LT	0.00	0.4	A
	SB	TR	0.06	0.0	A	TR	0.06	0.0	A	TR	0.07	0.0	A	TR	0.07	0.0	A
Overall Intersection		**-**		**3.9**	**A**	**-**		**4.3**	**A**	**-**		**1.5**	**A**	**-**		**1.5**	**A**
Hastings Street and McClean Avenue																	
McClean Avenue	EB	LT	0.03	1.0	A	LT	0.05	1.4	A	LT	0.01	0.6	A	LT	0.02	1.2	A
	WB	TR	0.13	0.0	A	TR	0.13	0.0	A	TR	0.13	0.0	A	TR	0.13	0.0	A
Hastings Street	SB	LR	0.17	12.4	B	LR	0.20	13.6	B	LR	0.15	11.3	B	LR	0.17	11.8	B
Overall Intersection		**-**		**2.2**	**A**	**-**		**2.6**	**A**	**-**		**2.3**	**A**	**-**		**2.7**	**A**
Lily Pond Avenue and Major Avenue																	
Major Avenue	WB	LTR	0.09	18.1	C	LTR	0.12	23.0	C	LTR	0.07	12.9	B	LTR	0.08	14.7	B
Lily Pond Avenue	NB	LTR	0.00	0.1	A	LTR	0.04	0.6	A	LTR	0.01	0.1	A	LTR	0.08	1.4	A
	SB	LTR	0.11	1.8	A	LTR	0.11	1.7	A	LTR	0.04	0.5	A	LTR	0.04	0.5	A
Overall Intersection		**-**		**0.7**	**A**	**-**		**1.1**	**A**	**-**		**0.5**	**A**	**-**		**0.9**	**A**
Landis Avenue and Chicago Avenue																	
Chicago Avenue	EB	LR	0.09	0.0	A	LR	0.13	0.0	A	LR	0.03	0.0	A	LR	0.05	0.0	A
Landis Avenue	NB	R	0.04	9.2	A	R	0.71	54.6	F	R	0.02	8.7	A	R	0.48	41.6	E
Overall Intersection		**-**		**1.8**	**A**	**-**		**22.3**	**C**	**-**		**2.1**	**A**	**-**		**20.8**	**C**
Hastings Street and Narrows Road South																	
Narrows Road S	EB	T	0.10	0.0	A	T	0.23	0.0	A	T	0.13	0.0	A	T	0.29	0.0	A
Hastings Street	NB	R	0.16	10.6	B	R	0.21	12.7	B	R	0.04	10.2	B	R	0.03	10.0	A
Overall Intersection		**-**		**2.5**	**A**	**-**		**1.8**	**A**	**-**		**0.6**	**A**	**-**		**0.3**	**A**
Columbia Avenue and Chicago Avenue																	
Chicago Avenue	EB	LTR	0.02	11.5	B	LTR	0.05	19.7	C	LTR	0.01	10.7	B	LTR	0.01	12.7	B
Columbia Avenue	NB	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A
	SB	LTR	0.07	5.1	A	LTR	0.17	7.4	A	LTR	0.03	2.8	A	LTR	0.07	4.6	A
Overall Intersection		**-**		**4.3**	**A**	**-**		6.7	A	**-**		**1.5**	**A**	**-**		2.6	A
Hastings Street and Campus Driveway (PS bus entrance)																	
Hastings Street	NB	LT	-	-	-	LT	0.00	0.0	A	LT	-	-	-	LT	0.00	0.0	A
	SB	TR	-	-	-	TR	0.10	0.0	A	TR	-	-	-	TR	0.07	0.0	A
Overall Intersection		-		-	-	-		0.0	A	-		-	-	-		0.0	A
Landis Avenue and Campus Driveway (PS bus exit)																	
Landis Avenue	NB	T	-	-	-	T	0.09	0.0	A	T	-	-	-	T	0.05	0.0	A
	SB	T	-	-	-	T	0.01	0.0	A	T	-	-	-	T	0.00	0.0	A
SJV Driveway	WB	LR	-	-	-	LR	0.00	0.0	A	LR	-	-	-	LR	0.00	0.0	A
Overall Intersection		-		-	-	-		0.0	A	-		-	-	-		0.0	A
Cleveland Place and Campus Driveway (IS/HS bus entrance)																	
Cleveland Place	NB	TR	-	-	-	TR	0.19	0.0	A	TR	-	-	-	TR	0.08	0.0	A
Overall Intersection		-		-	-	-		0.0	A	-		-	-	-		0.0	A
Cleveland Place and Campus Parking Lot																	
Cleveland Place	NB	LT	-	-	-	LT	0.14	0.0	A	LT	-	-	-	LT	0.08	0.0	A
SJV Parking Lot	EB	L	-	-	-	L	0.00	0.0	A	L	-	-	-	L	0.32	28.2	D
SJV Driveway/Garson Avenue	WB	R	-	-	-	R	0.00	0.0	A	R	-	-	-	R	0.00	0.0	A
Overall Intersection		-		-	-	-		0.0	A	-		-	-	-		9.5	A
Narrows Road South and Campus Driveway (IS/HS bus exit)																	
Narrows Road South	SB	T	-	-	-	T	0.21	0.0	A	T	-	-	-	T	0.24	0.0	A
SJV Driveway	EB	R	-	-	-	R	0.05	14.0	B	R	-	-	-	R	0.03	10.3	B
Overall Intersection		-		-	-	-		0.4	A	-		-	-	-		0.3	A
Narrows Road North and Hylan Boulevard E																	
Narrows Road North	WB	T	0.19	0.0	A	T	0.23	0.0	A	T	0.37	0.0	A	T	0.43	0.0	A
Hylan Boulevard East	NB	L	1.00	52.4	F	L	1.07	74.3	F	L	0.81	29.8	D	L	0.97	58.0	F
Overall Intersection		**-**		24.3	C	**-**		30.6	D	**-**		6.6	A	**-**		11.5	B

Narrows Road North and Hylan Boulevard W																
Narrows Road North	WB	L	0.46	13.4	B	L	0.46	13.4	B	L	0.60	15.6	C	L	0.60	15.6	C
Hylan Boulevard West	SB	T	0.09	0.0	A	T	0.09	0.0	A	T	0.09	0.0	A	T	0.09	0.0	A
Overall Intersection		-		5.9	A	-		5.9	A	-		8.3	A	-		8.3	A
Narrows Road South and Hylan Boulevard W																
Narrows Road South	EB	T	0.30	0.0	A	T	0.31	0.0	A	T	0.26	0.0	A	T	0.27	0.0	A
Hylan Boulevard West	SB	L	0.40	15.6	C	L	0.40	15.6	C	L	0.27	10.9	B	L	0.27	11.1	B
Overall Intersection		-		2.0	A	-		1.9	A	-		2.2	A	-		2.1	A
Narrows Road South and Hylan Boulevard E																
Narrows Road South	EB	L	0.70	24.6	C	L	0.70	24.6	C	L	0.55	14.4	B	L	0.55	14.4	B
Hylan Boulevard East	NB	T	0.33	0.0	A	T	0.33	0.0	A	T	0.20	0.0	A	T	0.20	0.0	A
Overall Intersection		-		6.5	A	-		6.5	A	-		5.7	A	-		5.7	A
Hylan Boulevard and Sand Lane																
Sand Lane	WB	LTR	0.41	13.4	B	LTR	0.42	13.9	B	LTR	0.23	11.0	B	LTR	0.23	11.2	B
Hylan Boulevard	NB	T	0.21	0.0	A	T	0.21	0.0	A	T	0.07	0.0	A	T	0.08	0.0	A
	SB	T	0.12	0.0	A	T	0.13	0.0	A	T	0.19	0.0	A	T	0.21	0.0	A
Overall Intersection		-		**2.8**	**A**	-		**2.8**	**A**	-		**1.8**	**A**	-		**1.7**	**A**

Construction-Operation Mitigated With-Action Conditions

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Signalized								
Fingerboard Road and Hylan Boulevard								
Fingerboard Road	WB	L	0.22	10.5	B	0.51	6.9	A
		R	0.03	8.7	A	0.04	4.5	A
Hylan Boulevard	NB	T	0.65	31.5	C	0.28	31.8	C
		R	0.40	3.3	A	0.21	0.9	A
	SB	LT	0.32	29.7	C	0.13	30.2	C
Overall Intersection		-		**16.3**	**B**		**10.1**	**B**
Fingerboard Road and Columbia Avenue								
Fingerboard Road	EB	TR	0.47	8.5	A	0.26	6.9	A
	WB	LT	0.43	5.6	A	0.59	7.3	A
Columbia Avenue	NB	LR	0.18	40.8	D	0.41	45.8	D
Overall Intersection		-		**9.0**	A		**11.0**	**B**
Fingerboard Road and Narrows Road South								
Narrows Road South	EB	LTR	0.91	38.8	D	1.05	92.7	F
Fingerboard Road	NB	TR	0.99	56.9	E	0.43	12.3	B
	SB	L	1.28	195.5	F	0.19	9.8	A
		T	0.23	12.1	B	0.50	11.9	B
Overall Intersection		-		**49.8**	**D**		**47.8**	**D**
Fingerboard Road and Narrows Road North								
Narrows Road North	WB	LTR	1.48	280.5	F	1.65	355.8	F
I-278 W Exit Ramp	NWB	LTR	0.22	27.4	C	0.68	24.7	C
Fingerboard Road	NB	L	0.57	36.9	D	1.24	203.4	F
		T	0.22	32.2	C	0.60	53.1	D
	SB	TR	0.49	37.1	D	0.77	64.4	E
Overall Intersection		-		**134.7**	**F**		**124.1**	**F**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Fingerboard Road and Tompkins Avenue								
Fingerboard Road	EB	LTR	0.25	18.5	B	0.46	21.8	C
	WB	LTR	0.34	19.8	B	0.27	18.7	B
Tompkins Avenue	NB	LTR	0.05	16.7	B	0.06	16.7	B
	SB	LTR	0.58	24.7	C	0.28	19.3	B
Overall Intersection		-		**22.0**	**C**		**20.0**	**B**
Fingerboard Road and Bay Street								
Fingerboard Road	EB	LR	0.22	34.6	C	0.25	35.0	C
Bay Street	NB	LT	0.43	15.3	B	0.52	16.9	B
	SB	TR	0.66	20.4	C	0.59	18.5	B
Overall Intersection		-		**19.8**	**B**		**19.5**	**B**
Hylan Boulevard and W Fingerboard Road								
W Fingerboard Road	EB	LTR	0.94	79.2	E	0.47	43.8	D
Sand Lane	WB	LT	0.48	41.6	D	0.35	40.9	D
Hylan Boulevard	NB	L	0.04	10.0	A	0.03	8.7	A
		TR	0.33	12.4	B	0.13	9.3	A
	SB	L	0.24	11.0	B	0.12	4.9	A
		T	0.16	9.6	A	0.24	5.2	A
		R	0.07	8.9	A	0.08	4.7	A
Overall Intersection		-		**27.0**	**C**		**14.9**	**B**
Sand Lane and Major Avenue								
Major Avenue	WB	LTR	0.68	24.2	C	0.20	16.5	B
Sand Lane	NB	LT	0.40	12.8	B	0.35	7.8	A
	SB	TR	0.42	15.8	B	0.27	12.5	B
Overall Intersection		-		**18.6**	**B**		**11.2**	**B**
Sand Lane and MacFarland Avenue								
MacFarland Avenue	EB	LTR	0.21	11.9	B	0.03	10.4	B
	WB	LTR	0.04	10.5	B	0.03	10.4	B
Sand Lane	NB	LTR	0.38	10.1	B	0.35	9.2	A
	SB	LTR	0.58	9.5	A	0.29	6.3	A
Overall Intersection		-		**10.2**	**B**		**8.1**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Sand Lane and McClean Avenue								
McClean Avenue	EB	LTR	0.95	46.7	D	0.45	17.3	B
	WB	LTR	0.45	17.2	B	0.52	18.2	B
Sand Lane	NB	LTR	0.72	27.4	C	0.54	20.2	C
	SB	LTR	0.65	18.0	B	0.41	12.9	B
Overall Intersection		-		**31.0**	**C**		**17.5**	**B**
Lily Pond Avenue and Narrows Road South								
Narrows Road South	EB	L	0.62	33.9	C	0.64	44.6	D
		R	0.57	36.8	D	0.64	49.4	D
Lily Pond Avenue	NB	L	0.37	5.5	A	0.11	10.0	A
		T	0.16	4.5	A	0.17	4.4	A
	SB	T	0.46	16.2	B	0.78	22.0	C
		R	0.55	7.3	A	0.28	3.0	A
Overall Intersection		-		**16.9**	**B**		**23.2**	**C**
Lily Pond Avenue and McClean Avenue								
McClean Avenue	EB	L	1.14	118.9	F	0.00	0.0	A
		TR/ LTR	0.09	21.0	C	1.10	133.0	F
	WB	LTR	0.24	23.1	C	0.39	42.9	D
Lily Pond Avenue	NB	L	0.08	13.4	B	0.12	14.0	B
		T	1.07	66.4	E	0.37	11.5	B
		R	0.05	12.7	B	0.04	8.8	A
	SB	LTR	0.74	32.4	C	0.98	26.7	C
Overall Intersection		-		**63.2**	**E**		**32.7**	**C**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	TR	0.65	23.7	C	0.87	22.8	C
Hylan Boulevard East	NB	T	0.47	13.6	B	0.63	21.4	C
Overall Intersection		-		**20.3**	**C**		**22.5**	**C**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	T	0.73	13.6	B	0.76	5.5	A
Hylan Boulevard West	SB	TR	0.51	27.1	C	0.89	39.5	D
Overall Intersection		-		**18.2**	**B**		**14.4**	**B**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	1.05	68.3	E	0.57	22.5	C
		R	0.45	23.6	C	0.52	22.7	C
Hylan Boulevard West	SB	T	0.27	8.9	A	0.38	12.8	B
Overall Intersection		-		**49.3**	**D**		**19.1**	**B**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	T	0.76	24.6	C	0.42	11.6	B
Hylan Boulevard East	NB	T/TR	1.07	80.6	F	0.62	33.5	C
		R	1.01	75.1	E			
Overall Intersection		-		**54.2**	**D**		**24.5**	**C**
School Road and Bay Street								
School Road	EB	L	0.88	56.1	E	0.69	35.3	D
		TR	0.23	26.6	C	0.06	20.6	C
Park Driveway	WB	LTR	0.01	23.6	C	0.01	20.0	B
Bay Street	NB	LTR	0.08	16.9	B	0.22	22.1	C
	SB	LT	0.35	20.7	C	0.27	22.9	C
		R	0.23	18.8	B	0.17	21.4	C
Overall Intersection		-		**32.4**	**C**		**26.9**	**C**
Unsignalized								
Fingerboard Road and Cleveland Place								
Cleveland Place	WB	LR	0.45	22.1	C	0.52	21.8	C
Fingerboard Road	NB	T	0.34	0.0	A	0.14	0.0	A
	SB	T	0.16	0.0	A	0.32	0.0	A
Overall Intersection		-		**3.7**	**A**		**4.9**	**A**
Hastings Street and Landis/Major Avenue								
Landis Avenue	EB	LTR	0.03	7.6	A	0.01	6.8	A
Major Avenue	WB	LTR	0.12	8.4	A	0.07	7.5	A
Hastings Street	NB	LTR	0.24	8.9	A	0.07	7.8	A
	SB	LT	0.20	8.6	A	0.13	7.7	A
Overall Intersection		-		**8.6**	**A**		**7.7**	**A**
Hastings Street and Major Avenue								
Major Avenue	WB	LT	0.11	8.5	A	0.09	7.8	A
Hastings Street	NB	LT	0.27	9.0	A	0.07	7.9	A
	SB	TR	0.20	8.0	A	0.14	7.6	A
Overall Intersection		-		**8.6**	**A**		**7.7**	**A**
Hastings Street and MacFarland Avenue								
MacFarland Avenue	EB	LR	0.18	10.7	B	0.03	9.5	A
Hastings Street	NB	LT	0.00	0.4	A	0.00	0.4	A
	SB	TR	0.06	0.0	A	0.07	0.0	A
Overall Intersection		-		**4.3**	**A**		**1.5**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Hastings Street and McClean Avenue								
McClean Avenue	EB	LT	0.05	1.4	A	0.02	1.2	A
	WB	TR	0.13	0.0	A	0.13	0.0	A
Hastings Street	SB	LR	0.20	13.6	B	0.17	11.8	B
Overall Intersection		-		**2.6**	**A**		**2.7**	**A**
Lily Pond Avenue and Major Avenue								
Major Avenue	WB	LTR	0.12	23.0	C	0.08	14.7	B
Lily Pond Avenue	NB	LTR	0.04	0.6	A	0.08	1.4	A
	SB	LTR	0.11	1.7	A	0.04	0.5	A
Overall Intersection		-		**1.1**	**A**		**0.9**	**A**
Landis Avenue and Chicago Avenue								
Chicago Avenue	EB	LR	0.26	8.6	A	0.10	7.5	A
Landis Avenue	NB	R	0.16	7.6	A	0.09	7.0	A
Overall Intersection		-		**8.2**	**A**		**7.2**	**A**
Hastings Street and Narrows Road South								
Narrows Road S	EB	T	0.23	0.0	A	0.29	0.0	A
Hastings Street	NB	R	0.21	12.7	B	0.03	10.0	A
Overall Intersection		-		**1.8**	**A**		**0.3**	**A**
Columbia Avenue and Chicago Avenue								
Chicago Avenue	EB	LTR	0.05	19.7	C	0.01	12.7	B
Columbia Avenue	NB	LTR	0.00	0.0	A	0.00	0.0	A
	SB	LTR	0.17	7.4	A	0.07	4.6	A
Overall Intersection		-		**6.7**	**A**		**2.6**	**A**
Hastings Street and SJV Driveway (PS bus entrance)								
Hastings Street	NB	LT	0.00	0.0	A	0.00	0.0	A
	SB	TR	0.10	0.0	A	0.07	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**
Landis Avenue and SJV Driveway (PS bus exit)								
Landis Avenue	NB	T	0.09	0.0	A	0.05	0.0	A
	SB	T	0.01	0.0	A	0.00	0.0	A
SJV Driveway	WB	LR	0.00	0.0	A	0.00	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**

INTERSECTION & APPROACH		Mvt.	AM Peak Hour			PM Peak Hour		
			V/C	Control Delay	LOS	V/C	Control Delay	LOS
Cleveland Place and SJV Driveway (IS/HS bus entrance)								
Cleveland Place	NB	TR	0.19	0.0	A	0.08	0.0	A
Overall Intersection		-		**0.0**	**A**		**0.0**	**A**
Cleveland Place and Campus Parking Lot Entrance								
Cleveland Place	NB	LT	0.05	2.3	A	0.00	0.0	A
Overall Intersection		-		**2.3**	**A**		**0.0**	**A**
Cleveland Place and Campus Parking Lot Exit								
Cleveland Place	NB	TL	0.14	0.0	A	0.08	0.0	A
SJV Parking Lot	EB	L	0.00	0.0	A	0.32	28.2	D
SJV Driveway/Garson Avenue	WB	R	0.00	0.0	A	0.00	0.0	A
Overall Intersection		-		**0.0**	**A**		**9.5**	**A**
Narrows Road South and SJV Driveway (IS/HS bus exit)								
Cleveland Place	SB	T	0.21	0.0	A	0.24	0.0	A
SJV Parking Lot	EB	R	0.05	14.0	B	0.03	10.3	B
Overall Intersection		-		**0.4**	**A**		**0.3**	**A**
Narrows Road North and Hylan Boulevard E								
Narrows Road North	WB	T	0.23	0.0	A	0.43	0.0	A
Hylan Boulevard East	NB	L	1.07	74.3	F	0.97	58.0	F
Overall Intersection		**-**		**30.6**	**D**		**11.5**	**B**
Narrows Road North and Hylan Boulevard W								
Narrows Road North	WB	L	0.46	13.4	B	0.60	15.6	C
Hylan Boulevard West	SB	T	0.09	0.0	A	0.09	0.0	A
Overall Intersection		**-**		**5.9**	**A**		**8.3**	**A**
Narrows Road South and Hylan Boulevard W								
Narrows Road South	EB	T	0.31	0.0	A	0.27	0.0	A
Hylan Boulevard West	SB	L	0.40	15.9	C	0.27	11.1	B
Overall Intersection		**-**		**1.9**	**A**		**2.1**	**A**
Narrows Road South and Hylan Boulevard E								
Narrows Road South	EB	L	0.70	24.6	C	0.55	14.4	B
Hylan Boulevard East	NB	T	0.33	0.0	A	0.20	0.0	A
Overall Intersection		**-**		**6.5**	**A**		**5.7**	**A**

INTERSECTION & APPROACH	Mvt.	AM Peak Hour			PM Peak Hour		
		V/C	Control Delay	LOS	V/C	Control Delay	LOS

1 "Mvt." refers to the specific intersection approach lane(s) and how the lane(s) operate and/or specific pavement striping. TR is a combined through- right turn lane(s), R or L refers to exclusive right- or left-turn

2 V/C is the volume-to-capacity ratio for the Mvt. listed in the first column. Values above 1.0 indicate an excess

3 Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group listed in the Mvt. Column as noted in the 2000 HCM - TRB.

4 The delay calculations for signalized intersections represent the average control delay experienced by all vehicles that arrive in the analysis period, including delays incurred beyond the analysis period when the lane

5 LOS for unsignalized intersections is based upon total average delay per vehicle (sec/veh) for each lane group listed in the Mvt. column as noted in the 2000 HCM - TRB.

Pedestrian Level of Service Tables
2030 (Q1) Cumulative Construction
Operational Analysis

2023 Existing Pedestrian Conditions

Intersection and Element	AM Peak		PM Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Fingerboard Road and Columbia Avenue				
Southeast Corner	1,692	A	1,029	A
Southwest Corner	1,294	A	1,491	A
South Crosswalk	3,392	A	2,309	A
Fingerboard Road and Hylan Boulevard				
Southeast Corner	1,220	A	2,441	A
Fingerboard Road between Hylan Boulevard and Columbia Avenue				
South Sidewalk	1,800	A	1,980	A
Columbia Avenue between Fingerboard Road and Chicago Avenue				
East Sidewalk	5,483	A	4,320	A
Chicago Avenue between Columbia Avenue and Landis Avenue				
South Sidewalk	748	A	709	A
Cleveland Place east of Landis Avenue				
South Sidewalk	4,950	A	6,600	A
Cleveland Place between Garson Avenue and IS/HS Access Driveway				
East Sidewalk	3,465	A	4,620	A
Landis Avenue between Chicago Avenue and Knauth Place				
East Sidewalk	7,920	A	5,280	A
Landis Avenue between Pickersgill Avenue and Major Avenue				
North Sidewalk	6,600	A	9,900	A

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

2030 No Build Pedestrian Conditions - Construction Operational

Intersection and Element	AM Peak		PM Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Fingerboard Road and Columbia Avenue				
Southeast Corner	1,593	A	968	A
Southwest Corner	1,218	A	1,404	A
South Crosswalk	3,180	A	2,167	A
Fingerboard Road and Hylan Boulevard				
Southeast Corner	1,149	A	2,299	A
Fingerboard Road between Hylan Boulevard and Columbia Avenue				
South Sidewalk	1,696	A	1,865	A
Columbia Avenue between Fingerboard Road and Chicago Avenue				
East Sidewalk	5,165	A	4,070	A
Chicago Avenue between Columbia Avenue and Landis Avenue				
South Sidewalk	705	A	668	A
Cleveland Place east of Landis Avenue				
South Sidewalk	4,663	A	6,217	A
Cleveland Place between Garson Avenue and IS/HS Access Driveway				
East Sidewalk	3,264	A	4,352	A
Landis Avenue between Chicago Avenue and Knauth Place				
East Sidewalk	7,461	A	4,974	A
Landis Avenue between Pickersgill Avenue and Major Avenue				
North Sidewalk	6,217	A	9,326	A

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

2030 Build Pedestrian Conditions - Construction Operational

Intersection and Element	AM Peak		PM Peak	
	Average Space (sf/ped)	LOS	Average Space (sf/ped)	LOS
Fingerboard Road and Columbia Avenue				
Southeast Corner	38	C	31	C
Southwest Corner	47	B	56	B
South Crosswalk	39	C	49	B
Fingerboard Road and Hylan Boulevard				
Southeast Corner	73	A	63	A
Fingerboard Road between Hylan Boulevard and Columbia Avenue				
South Sidewalk	67	C	56	C
Columbia Avenue between Fingerboard Road and Chicago Avenue				
East Sidewalk	169	B	113	B
Chicago Avenue between Columbia Avenue and Landis Avenue				
South Sidewalk	53	C	63	C
Cleveland Place east of Landis Avenue				
South Sidewalk	94	B	72	C
Cleveland Place between Garson Avenue and IS/HS Access Driveway				
East Sidewalk	60	C	46	C
Landis Avenue between Chicago Avenue and Knauth Place				
East Sidewalk	217	B	172	B
Landis Avenue between Pickersgill Avenue and Major Avenue				
North Sidewalk	76	C	76	C

Note: Average Space is based on the assumption that pedestrians distribute themselves uniformly throughout the effective crosswalk and corner space. LOS designations are based on average pedestrian space expressed as square feet per pedestrian (sf/ped).

Appendix C:

Public Comments Received on the Targeted DEIS

From: Dominick Porrino
To: Sites
Subject: New schools coming to former St. John Villa prompt traffic, quality of life concerns
Date: Saturday, August 31, 2024 8:17:27 AM

NYC is always trying to prove they have the people's best interest in their minds, their redesign of neighborhoods. This influx of students and teachers will destroy our little slice of life quality. The amount of speed cameras, traffic lights etc. has Staten Island under the thumb of NYC.
What has the City/SCA development studies shown with all of us surrounding neighbors?
Use of this property should be for low volume 700-students as designed.
Putting 5lbs of s**T in a 2lb bag never works.
--
Dominick Porrino
22 Chicago Ave
Staten Island, NY 10305
917-359-7774-(M)
The future is where it's at.

From: Donna Forminio
To: Sites
Subject: Proposed Educational Complex on St. John Villa Site
Date: Saturday, August 31, 2024 7:29:57 PM

I am writing to express my extreme concern regarding the plans for the former SJVA campus. I live right outside the lower gate on Cleveland Place, and I cannot even comprehend how the amount of traffic expected will be able to be handled by the very small and narrow streets surrounding the campus.

How would this many school busses and other vehicles dropping off students will be able to turn off of Cleveland Place on to an even narrower Fingerboard Road, all while competing with commuter traffic heading toward the Verrazzano Bridge? Add this to the cars and busses associated with St. Joseph Hill right across the street from the proposed HS Building on Landis Avenue. And when there is an accident on the bridge or the approach, the traffic already backs up all the way down Cleveland Place and Fingerboard Road. It's incomprehensible that anyone could even consider putting this many students in an area that is totally without the infrastructure to support it.

The impact to the residents will be enormous. I was unable to leave my house between 7:30 and 8:30 AM and 1:30 to 2:30 PM when St. John's was still open, and their student body was one-third of what is being proposed here. Most of us will be prisoners of the amount of traffic this ill-conceived plan will bring to our small neighborhood. How will emergency vehicles be able to get through to the residents when necessary? It's bad enough now with the construction vehicles and large trucks going the wrong way on one-way streets. Not a safe situation.

As an alumna of SJVA I was very happy to hear that the property would continue to be a place of learning and would educate future generations of children. But the scope of the project is totally unsuitable for the surrounding area.

I hope you will take the environmental impact of this project into consideration and make some adjustments to the plans as proposed. It would be a nightmare for the residents.

Donna Forminio
25 Cleveland Place
Staten Island, NY 10305

From: Kenneth Raftery
To: Sites
Subject: St John Villa Campus
Date: Wednesday, September 4, 2024 6:07:53 AM

Hello,

I am a lifelong NYC resident and I am very interested in old historical buildings. The former convent building on the ST. John Villa campus absolutely should be preserved.

It honestly is a tricky situation. The convent is not a landmark. But honestly, it should not be the case that NYC only preserve landmarks and everything else is garbage. The chapel on the site is going to be preserved and that is not a landmark either.

Please note that the chapel is being saved because someone decided that it was "historic". Answer this simple question and I will drop this matter: why is the chapel historic but the convent isn't??

The convent was designed by James Renwick, Jr, a legendary architect. What other city in this WORLD would demolish a building designed by him??!!

I often ride my bike into Miller Field. There are two former airplane hangars in that location. They are not landmarks and they are in decrepit condition. Yet they are preserved as a nod to the history of the site.

The convent absolutely should get the same consideration.

The convent is a few feet away from the chapel so it would be very easy to keep it. The convent could remain where it is and an ample playground can still be constructed nearby.

I urge you to take action and save this building.

Thank you.

Kenneth Raftery

The transcript of the DEIS Public Hearing held on August 29, 2024 is available upon request from the New York City School Construction Authority.

New York City School Construction Authority
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