Full Environmental Assessment Form
Part 1 – Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonable available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No." If the answer to the initial question is "Yes," complete the sub-questions that follow. If the answer to the initial question is "No," proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the project sponsor to verify that the information contained in Part 1 is accurate and complete.

A. Project and Sponsor Information

<table>
<tr><td colspan="3">Name of Action or Project:
New High School 165-18 Hillside Avenue, Queens (497Q)</td></tr>
<tr><td colspan="3">Project Location (describe, and attach a general location map):
165-18 Hillside Avenue, Queens (Block 9816, Lots 39, 41, and 49) – Hillside Avenue between 165th Street and Merrick Boulevard</td></tr>
<tr><td colspan="3">Brief Description of Proposed Action (include purpose or need):
The New York City School Construction Authority (SCA) proposes to construct a new high school at 165-18 Hillside Avenue (497Q) in the Jamaica Hills neighborhood of Queens. The proposed project would involve the construction of an 801-seat high school in Community School District (CSD) Number 28, including 30 seats for students in a District 75 program, as well as 90 faculty and staff. The five-story school would occupy Block 9816, Lots 39, 41, and 49. The project site is currently occupied by a funeral parlor, an office building, and paved parking lot. With the proposed project, the existing unoccupied improvements on the project site would be demolished and replaced by a new, 119,000 gross-square foot, five-story school building. The maximum building height would be approximately 90 feet, including the rooftop bulkhead. The new school would include general education classrooms for grades 9 through 12, specialized instruction rooms, administrative space, as well as a cafeteria. An approximately 10,000-square-foot (sf) play yard would be located south of the school along 88th Avenue. As part of the project, 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way eastbound to one-way westbound for vehicular traffic.</td></tr>
<tr><td>Name of Applicant/Sponsor:
New York City School Construction Authority</td><td colspan="2">Telephone: 718.472.8000
E-Mail:</td></tr>
<tr><td colspan="3">Address:
30-30 Thomson Avenue</td></tr>
<tr><td>City/PO:
Long Island City</td><td>State:
NY</td><td>Zip Code:
11101</td></tr>
<tr><td>Project Contact (if not same as sponsor; give name and title/role):
Kelly Murphy, Director, Real Estate</td><td colspan="2">Telephone: 718.472.8307
E-Mail: kmurphy@nycsca.org</td></tr>
<tr><td colspan="3">Address:</td></tr>
<tr><td>City/PO:</td><td>State:</td><td>Zip Code:</td></tr>
<tr><td>Property Owner (if not same as sponsor):
New York City Department of Education</td><td colspan="2">Telephone:
E-Mail:</td></tr>
<tr><td colspan="3">Address:
52 Chambers Street</td></tr>
<tr><td>City/PO:
New York</td><td>State:
NY</td><td>Zip Code:
10007</td></tr>
</table>

B. Government Approvals

B. Government Approvals Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)			
Government Entity		**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Council, Town Board, or Village Board of Trustees	☐ Yes ☒ No		
b. City, Town or Village Planning Board or Commission	☐ Yes ☒No		
c. City Council, Town or Village Zoning Board of Appeals	☒Yes ☐ No	**City Council for site acquisition**	
d. Other local agencies	☒ Yes ☐ No	**Approval of a waiver from the Deputy Mayor for Economic Development to permit the project to proceed; NYCDOT approval for one-way direction change**	**TBD**
e. County agencies	☐ Yes ☒ No		
f. Regional agencies	☐ Yes ☒ No		
g. State agencies	☐ Yes ☒ No		
h. Federal agencies	☐ Yes ☒ No		

i. Coastal Resources

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐ Yes ☒ No

If Yes,

ii. If the project site located in a community with an approved Local Waterfront Revitalization Program? ☒ Yes ☐ No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐ Yes ☒ No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☒ Yes ☐ No

- **If Yes**, complete sections C, F and G.
- **If No**, proceed to question C.2 and complete all remaining sections and questions in Part 1.

C.2. Adopted land use plans.

a. Do any municipally adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐ Yes ☒ No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐ Yes ☐ No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐ Yes ☒ No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐ Yes ☒ No

If Yes, identify the plan(s):

_____

_____

_____

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance? ☒ Yes ☐ No

If Yes, what is the zoning classification(s) including any applicable overlay district?

C4-5X

b. Is the use permitted or allowed by a special or conditional use permit? ☒ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☒ No

If Yes,

i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? **Community School District (CSD) 28**

b. What police or other public protection forces serve the project site?

New York City 103rd Police Precinct

c. Which fire protection and emergency medical services serve the project site?

New York City Fire Department (FDNY) Engine L125

d. What parks serve the project site?

Captain Tilly Park, a public park, is located less than approximately ¼-mile from the site to the north.

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?

Institutional

b. a. Total acreage of the site of the proposed action? **±0.9** acres

b. Total acreage to be physically disturbed? **±0.9** acres

c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? **±0.9** acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☒ No

i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)?

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☒ No

If Yes,

i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

_____

ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No

iii. Number of lots proposed? _____

iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will proposed action be constructed in multiple phases? ☐ Yes ☒ No

i. If No, anticipated period of construction: **34** months

(Note: Most intense construction activities [i.e., demolition, excavation, foundation, and superstructure work] are expected to be less than 24 months)

ii. If Yes:

- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month ____year
- Anticipated completion date of final phase _____ month ____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

f. Does the project include new residential uses? ☐ Yes ☒ No

If Yes, show number of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☒ Yes ☐ No

If Yes,

i. Total number of structures **1**

ii. Dimensions (in feet) of largest proposed structure: **±90'** height; **±120'** width; and **±170'** length

iii. Approximate extent of building space to be heated or cooled: **119,000** gross square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☒ No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground Water ☐ Surface water streams ☐ Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading, or installation of utilities or foundations where all excavated materials will remain onsite) ☒ Yes ☐ No

If Yes:

i. What is the purpose of the excavation or dredging? **Excavation for grading and building foundations**

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): **TBD**
- Over what duration of time? ±**3 months**

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

Excavated Soil

iv. Will there be onsite dewatering or processing of excavated materials? ☒ Yes ☐ No

If yes, describe. **Minimal onsite dewatering during construction**

v. What is the total area to be dredged or excavated? **±0.9** acre

vi. What is the maximum area to be worked at any one time? **±0.9** acre

vii. What would be the maximum depth of excavation or dredging? **±15** feet

viii. Will the excavation require blasting? ☐ Yes ☒ No

ix. Summarize site reclamation goals and plan:

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐ Yes ☒ No

If Yes,

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

ii. Describe how the proposed action would affect that water body or wetland, e.g., excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☐ No

If Yes, describe:

iv. Will proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☐ No

If Yes:

- acres of aquatic vegetation proposed to be removed
- expected acreage of aquatic vegetation remaining after project completion
- purpose of proposed removal (e.g., beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☒ Yes ☐ No

If Yes:

i. Total anticipated water usage/demand per day: **28,240 gallons per day**[1]

ii. Will the proposed action obtain water from an existing public water supply? ☒ Yes ☐ No

If Yes:

- Name of district or service area: **NYC Municipal**
- Does the existing public water supply have capacity to serve the proposal? ☒ Yes ☐ No
- Is the project site in the existing district? ☒ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☒ No
- Do existing lines serve the project site? ☒ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☒ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No

If Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☒ Yes ☐ No

If Yes:

i. Total anticipated liquid waste generation per day: **8,010 gallons per day**[2]

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):

Sanitary wastewater

[1] 801 students x 10 gallons per day (gpd) = 8,010 + (0.17 x 119,000 gsf air conditioning) = 28,240 gallons.

[2] 801 students x 10 gpd = 8,010 gpd.

iii. Will the proposed action use any existing public wastewater treatment facilities? ☒ Yes ☐ No

If Yes:

- Name of wastewater treatment plant to be used: **Jamaica**
- Name of district: **Number 10**
- Does the existing wastewater treatment plant have capacity to serve the project? ☒ Yes ☐ No
- Is the project site in the existing district? ☒ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☒ No
- Do existing sewer lines serve the project site? ☒ Yes ☐ No
- Will line extension within an existing district be necessary to serve the project? ☐ Yes ☒ No

If yes:

Describe extensions or capacity expansions proposed to serve this project:

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☒ No

If Yes:

- Applicant/sponsor for new district:_____
- Date application submitted or anticipated:_____
- What is the receiving water for the wastewater discharge?_____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge, or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e., ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e., sheet flow) during construction or post construction? ☐ Yes ☒ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)
_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources

_____

_____

iii. Where will the stormwater runoff be directed (i.e., on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

- Will stormwater runoff flow to adjacent properties? ☐ Yes ☐ No

iv. Does proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☒ Yes ☐ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles) **N/A**

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers) **N/A**

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

Natural gas heating and hot water system

g. Will any air emission sources in D.2.f (above) require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V permit? ☐ Yes ☒ No

If Yes,

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____ Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____ Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____ Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____ Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____ Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____ Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐ Yes ☒ No

If Yes,

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring):

_____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐ Yes ☒ No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☒ Yes ☐ No

If Yes:

i. When is the peak traffic expected (check all that apply): ☒ Morning ☐ Evening ☐ Weekend
☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of semi-trailer truck trips/day: N/A

iii. Parking spaces: Existing Proposed Net increase/decrease N/A

iv. Does the proposed action include any shared use parking? ☐ Yes ☒ No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

Reverse direction of vehicular traffic on 88th Avenue

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☒ Yes ☐ No

vii. Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐ Yes ☒ No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☒ Yes ☐ No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? **N/A** ☐ Yes ☐ No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action:_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

_____

iii. Will the proposed action require a new, or an upgrade to, an existing substation? ☐ Yes ☐ No

l. Hours of operation. Answer all items which apply.

i. During Construction:
- Monday – Friday: **7:00 AM to 6:00 PM**
- Saturday: **Closed**
- Sunday: **Closed**
- Holidays: **Closed**

ii. During Operations: **School hours provided below**
- Monday – Friday: **8:00 AM to 3:30 PM**
- Saturday: **Closed**
- Sunday: **Closed**
- Holidays: **Closed**

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☒ Yes ☐ No

If Yes:

i. Provide details including sources, time of day and duration:

During construction between 7 AM and 6 PM on weekdays.

ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☒ No

Describe:

n. Will the proposed action have outdoor lighting? ☒ Yes ☐ No

If Yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

External lighting on building (location to be determined)

ii. Will proposed action remove existing natural barrier that could act as light barrier or screen? ☐ Yes ☒ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☒ No

If yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or any amount in underground storage)? ☐ Yes ☒ No

If Yes,

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally describe proposed storage facilities

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? **N/A** ☐ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? **N/A** ☐ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation: _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction:

_____

_____

- Operation:

_____

_____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction:

_____

_____

- Operation:

_____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☒ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☒ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility:

_____

_____

ii. Generally describe processes or activities involving hazardous waste or constituents:

_____

_____

iii. Specify amount to be handled or generated: ____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents:

_____

_____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility:

_____

_____

If No: Describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

_____

_____

E. Site and Setting of Proposed Action

E.1 Land uses on and surrounding the project site

a. Existing land uses.

i. Check all land uses that occur on, adjoining and near the project site.

☒ Urban ☐ Industrial ☒ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☒ Other (specify): Residential, Institutional

ii. If mix of uses, generally describe:

Residential, commercial, and transportation and utility

b. Land uses and covertypes on the project site.

Land use or covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	**0.9**	**0.7**	-0.**2**
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	**0**	**0.2**	**+0.2**
• Agricultural (includes active orchards, field, greenhouse, etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: _____			

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☒ No

i. If yes: explain:

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☒ Yes ☐ No

If Yes:

i. Identify Facilities:

Queens Satellite High School, Bright Beginnings Preschool, Jamaica SDA Elementary School, A New Dawn Elementary School – Preschool, Hillcrest High School, Public School 86 - Elementary school, Al Mamoor School

e. Does the project site contain an existing dam? ☐ Yes ☒ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☒ No

If Yes:

i. Has the facility been formally closed?

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities:

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store, and/or dispose of hazardous waste? ☐ Yes ☒No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☒ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☒ No

☐ Yes – Spills Incidents database Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☒ Yes ☐No

If yes, provide DEC ID number(s): **C241243**_____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

The site located at 90-02 168th Street is approximately 1,000 feet from the project site. The site has submitted an application for the Brownfield Cleanup Program.

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☒ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☒ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? **500 feet below grade**

b. Are there bedrock outcroppings on the project site? ☐ Yes ☒ No

If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

___ **Urban fill** _____	___ **100**____%
_____	_____%

d. What is the average depth to the water table on the project site? Average: **39 to 42 feet below grade**

e. Drainage status of project site soils:

☐ Well Drained: _____% of Site

☒ Moderately Well Drained: **100** % of Site

☐ Poorly Drained: _____% of Site

f. Approximate proportion of proposed action site with slopes: : ☒ 0-10%: **100** % of Site
☐ 10-15%: _____% of Site
☐ 15% or greater: _____% of Site

g. Are there any unique geologic features on the project site? ☐ Yes ☒ No

If Yes, describe:

_____

_____

h. Surface water features:

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐ Yes ☒ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐ Yes ☒ No

If Yes to either i or ii, continue. If No, skip to E.2.1.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐ Yes ☒ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information.

- Streams: Name _____ Classification_____
- Lakes or Ponds: Name _____ Classification_____
- Wetlands: Name _____ Approximate Size_____

  Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☒ No

If yes, name of impaired water body/bodies and basis for listing as impaired:

_____

_____

i. Is the project site in a designated Floodway? ☐ Yes ☒ No

j. Is the project site in the 100 year Floodplain? ☐ Yes ☒ No

k. Is the project site in the 500 year Floodplain? ☐ Yes ☒ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☒ Yes ☐ No

If Yes:

i. Name of aquifer: **Brooklyn-Queens Sole Source Aquifer**

m. Identify the predominant wildlife species that occupy or use the project site:

Likely typical urban species (e.g. Rock pigeon, European starling, common grackle, house sparrow, and mourning dove)

n. Does the project site contain a designated significant natural community? ☐ Yes ☒ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation):

_____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☒ No

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☒ No

q. Is the project site or adjoining area currently used for hunting, trapping, fishing, or shell fishing? ☐ Yes ☒ No

If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near the Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Marks Law, Article 25-AA, Sections 303 and 304? ☐ Yes ☒ No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☒ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s) _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☒ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state-listed Critical Environmental Area? ☐ Yes ☒ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? ☐ Yes ☒ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name:

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☒ Yes ☐ No

g. Have additional archaeological or historic site(s) or resourced been identified on the project site? ☐ Yes ☒ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☒ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource:

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666?	☐ Yes ☒ No
If Yes:	
i. Identify the name of the river and its designation: _____	
ii. Is the activity consistent with development restrictions contain in 6NYCRR Part 666?	☐ Yes ☐ No

F. Additional Information
Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification
I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name: Keri A. Cibelli Date: July 26, 2021

Signature _____ Title: Senior Technical Director

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer "**Yes"** to a numbered question, please complete all the questions that follow in that section.
- If you answer "**No"** to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box "Moderate to large impact may occur."
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the "whole action".
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land
Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1)
If "Yes", answer questions a - j. If "No", move on to Section 2.

☐ NO ☑ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☑	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☑	☐
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☑	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☑	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☑	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☑	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☑	☐
h. Other impacts: See Chapter 19, "Construction".		☑	☐

2. Impact on Geological Features

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - c. If "No", move on to Section 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____ _____	E2g	□	□
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	□	□
c. Other impacts: _____ _____		□	□

3. Impacts on Surface Water

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h) ☑ NO ☐ YES

If "Yes", answer questions a - l. If "No", move on to Section 4.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	□	□
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	□	□
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	□	□
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	□	□
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	□	□
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	□	□
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	□	□
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	□	□
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	□	□
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	□	□
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	□	□

l. Other impacts: _____ _____		□	□

4. Impact on groundwater

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)

☑ NO ☐ YES

If "Yes", answer questions a - h. If "No", move on to Section 5.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	□	□
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	□	□
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	□	□
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	□	□
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	□	□
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	□	□
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	□	□
h. Other impacts: _____ _____		□	□

5. Impact on Flooding

The proposed action may result in development on lands subject to flooding. (See Part 1. E.2)

☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", move on to Section 6.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	□	□
b. The proposed action may result in development within a 100 year floodplain.	E2j	□	□
c. The proposed action may result in development within a 500 year floodplain.	E2k	□	□
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	□	□
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	□	□
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	□	□

g. Other impacts: _____ _____		☐	☐

6. Impacts on Air

The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) ☑ NO ☐ YES

If "Yes", answer questions a - f. If "No", move on to Section 7.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:			
i. More than 1000 tons/year of carbon dioxide (CO_2)	D2g	☐	☐
ii. More than 3.5 tons/year of nitrous oxide (N_2O)	D2g	☐	☐
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐
iv. More than .045 tons/year of sulfur hexafluoride (SF_6)	D2g	☐	☐
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐
vi. 43 tons/year or more of methane	D2h	☐	☐
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	☐	☐
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐
f. Other impacts: _____ _____		☐	☐

7. Impact on Plants and Animals

The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) ☑ NO ☐ YES

If "Yes", answer questions a - j. If "No", move on to Section 8.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☐	☐
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☐	☐
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☐	☐
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☐	☐

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	□	□
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	□	□
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	□	□
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____ _____	E1b	□	□
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	□	□
j. Other impacts: _____ _____		□	□

8. Impact on Agricultural Resources

The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☑ NO ☐ YES

If "Yes", answer questions a - h. If "No", move on to Section 9.

	Relevant Part I Question(s)	**No, or small impact may occur**	**Moderate to large impact may occur**
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	□	□
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, Elb	□	□
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	□	□
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	□	□
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	El a, E1b	□	□
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	□	□
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	□	□
h. Other impacts: _____		□	□

9. Impact on Aesthetic Resources

The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.)

☑ NO ☐ YES

If "Yes", answer questions a - g. If "No", go to Section 10.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☐	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☐	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	 ☐ ☐	 ☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	 ☐ ☐	 ☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☐	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile ½ -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☐	☐
g. Other impacts: _____ _____		☐	☐

10. Impact on Historic and Archeological Resources

The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.)

☑ NO ☐ YES

If "Yes", answer questions a - e. If "No", go to Section 11.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☐	☐
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☐	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☐	☐

d. Other impacts: _____ _____		□	□
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	□	□
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	□	□
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	□	□

11. Impact on Open Space and Recreation

The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan.
(See Part 1. C.2.c, E.1.c., E.2.q.)
If "Yes", answer questions a - e. If "No", go to Section 12.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	□	□
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	□	□
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	□	□
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	□	□
e. Other impacts: _____ _____		□	□

12. Impact on Critical Environmental Areas

The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d)
If "Yes", answer questions a - c. If "No", go to Section 13.

☑ NO ☐ YES

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	□	□
c. Other impacts: _____ _____		□	□

13. Impact on Transportation

The proposed action may result in a change to existing transportation systems. ☐ NO ☑ YES
(See Part 1. D.2.j)
If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☐	☑
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☑	☐
c. The proposed action will degrade existing transit access.	D2j	☑	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☑	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☑	☐
f. Other impacts: See Chapter 9, "Transportation".		☐	☐

14. Impact on Energy

The proposed action may cause an increase in the use of any form of energy. ☐ NO ☑ YES
(See Part 1. D.2.k)
If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☑	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☑	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☑	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☑	☐
e. Other Impacts: See Chapter 11, "Air Quality".		☐	☐

15. Impact on Noise, Odor, and Light

The proposed action may result in an increase in noise, odors, or outdoor lighting. ☐ NO ☑ YES
(See Part 1. D.2.m., n., and o.)
If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☑	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☑	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☑	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☑	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☑	☐
f. Other impacts: See Chapter 10, "Noise".		☑	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.) ☑ NO ☐ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No,or small impact may cccur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	☐	☐
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	☐	☐
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	☐	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	☐	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	☐	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	☐	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	☐	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	☐	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	☐	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	☐	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	☐	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	☐	☐
m. Other impacts: _____			

17. Consistency with Community Plans

The proposed action is not consistent with adopted land use plans. ☑ NO ☐ YES
(See Part 1. C.1, C.2. and C.3.)
If "Yes", answer questions a - h. If "No", go to Section 18.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action's land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, Elb	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☐	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character

The proposed project is inconsistent with the existing community character. ☑ NO ☐ YES
(See Part 1. C.2, C.3, D.2, E.3)
If "Yes", answer questions a - g. If "No", proceed to Part 3.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☐	☐
g. Other impacts: _____ _____		☐	☐

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Agency Use Only [IfApplicable]

Project :

Date :

Full Environmental Assessment Form
Part 3 - Evaluation of the Magnitude and Importance of Project Impacts
and
Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:

To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

Significant adverse traffic impacts were identified at two intersections during the weekday AM peak hour and three intersections during the weekday PM peak hour. Improvement measures will be implemented to substantially mitigate these impacts, including standard traffic mitigation measures (signal timing changes). Please see below and Chapter 9, "Transportation" for additional information.

Traffic conditions were evaluated at five intersections for the weekday AM and PM school-related peak hours. In the 2026 future with the proposed project, significant adverse traffic impacts were identified at two intersections during the weekday AM peak hour and three intersections during the weekday PM peak hour. Potential improvement measures may be implemented to mitigate these impacts.

The affected intersections are Hillside Avenue and 165th Street (East) during the AM and PM peak hours, 89th Avenue and 165th Street during the PM peak hour, and Hillside Avenue and 166th Street/Merrick Boulevard during the AM and PM peak hours. With the implementation of standard traffic mitigation measures (signal timing changes), which are subject to review and approval by the New York City Department of Transportation (DOT), these significant adverse traffic impacts could be fully mitigated at Hillside Avenue and 166th Street/Merrick Boulevard during the AM peak hour and 89th Avenue and 165th Street during the PM peak hour only. The intersection of Hillside Avenue and 165th Street (East) could also be partially mitigated with signal timing changes during the AM and PM peak hours. The remaining significant adverse traffic impacts at Hillside Avenue and 165th Street (East) during the AM and PM peak hours and Hillside Avenue and 166th Street/Merrick Boulevard during the PM peak hour would remain unmitigated.

No other impacts were identified as moderate to large in the EAF Part 2.

Determination of Significance - Type 1 and Unlisted Actions

SEQR Status: ☐ Type 1 ☑ Unlisted

Identify portions of EAF completed for this Project: ☑ Part 1 ☑ Part 2 ☑ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information
Please see attached supplemental studies.

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the New York City School Construction Authority (NYCSCA) as lead agency that:

☐ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☑ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: New High School (H.S.) (497Q) at 165-18 Hillside Avenue, Queens (Block 9816, Lots 39, 41, and 49)

Name of Lead Agency: New York City School Construction Authority (NYCSCA)

Name of Responsible Officer in Lead Agency: Kelly Murphy

Title of Responsible Officer: Director, Real Estate Services

Signature of Responsible Officer in Lead Agency: Kelly Murphy Date: July 26, 2021

Signature of Preparer (if different from Responsible Officer) Kevin A. Cabelli Date: July 26, 2021

For Further Information:

Contact Person: Kelly Murphy

Address: 30-30 Thomson Avenue, First Floor, Long Island City, NY 11101

Telephone Number: 718-472-8308

E-mail: Kmurphy@nycsca.org

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)
Other involved agencies (if any)
Applicant (if any)
Environmental Notice Bulletin: http://www.dec.ny.gov/enb/enb.html

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A. INTRODUCTION

The New York City School Construction Authority (SCA) proposes to construct a new high school at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens. We understand that the proposed project would involve the construction of an 801-seat high school in Community School District (CSD) Number 28, including, including 30 seats for students in a District 75 (special education) program, as well as 90 faculty and staff. The five-story school would occupy Block 9816, Lots 39, 41, and 49. The project site is currently occupied by a former funeral parlor, a former office building, and paved parking lot. The proposed project would involve the demolition of the existing vacant site improvements.

Based on preliminary plans, SCA would require approval of waivers from the Deputy Mayor for Economic Development to permit the project to proceed. Funding for design and construction would be provided by the New York City Department of Education's (DOE) Capital Plan for Fiscal Years 2020-2024. The proposed project would require approval from the City Council for SCA to acquire the property. Additionally, the New York City Department of Transportation (NYCDOT) would approve the conversion of 88th Avenue between 165th Street and Merrick Boulevard from one-way eastbound to one-way westbound.

The site is located on the block bounded by Hillside Avenue to the north, 165th Street to the west, 88th Avenue to the south, and Merrick Boulevard to the east. In order to accommodate curbside auto and school bus drop-offs/pick-ups, 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way eastbound to one-way westbound for vehicular traffic. The proposed five-story school would be approximately 119,000 gross square feet (gsf). The maximum building height would be approximately 90 feet, including the rooftop bulkhead. The new school would include general education classrooms for grades 9 through 12, specialized instruction rooms, administrative space, as well as a cafeteria.

An approximately 10,000-square-foot (sf) play yard will be located south of the school along 88th Avenue. It is anticipated that the main entrance to the school would be located along 88th Avenue. The new structure would include general education classrooms, specialized instruction rooms, and administrative space. The school would operate during normal school hours, likely between 8:00 AM and 3:30 PM between September and June.

Construction of the proposed project would provide additional public school capacity at the high school level in CSD 28. According to the DOE school utilization profile for 2019 to 2020, CSD 28 has an enrollment of 12,985 high school students with a target capacity of 10,903. The district is operating at 119 percent of target capacity.

For the purpose of this environmental review, it is assumed that construction of the proposed project would begin in 2023, and student occupancy would occur in September 2026. Accordingly, 2026 has been selected as the build year for which the environmental assessment areas have been

analyzed. It is assumed that if the proposed project does not proceed, the proposed school would not be built, and the project site would remain in its current state (the No Action condition).

Impact assessments have been analyzed for land use, historic resources, urban design and visual resources, shadows, transportation, air quality, noise, soil and groundwater, and construction. Screening analyses for the other 2020 *City Environmental Quality Review (CEQR) Technical Manual* analysis areas are also included.

B. POTENTIAL EFFECTS OF THE PROPOSED PROJECT

LAND USE, ZONING, AND COMMUNITY CHARACTER

Overall, the proposed project is not expected to affect land uses in the surrounding study area. The proposed project is located within a C4-5X zoning district, in which schools are allowed as-of-right. Based on preliminary plans, SCA would require approval of waivers for bulk, height, and setback from the Deputy Mayor for Economic Development to permit the project to proceed. Such zoning overrides may be granted when non-compliances do not represent a substantial conflict with the Zoning Resolution of the City of New York and other public policies. The waivers would not apply to other lots in the zoning district. Therefore, the proposed project would have no adverse impacts on zoning in the study area.

In the future with the proposed project, the construction of the school addition would be similar in scale to the existing adjacent residential, public facilities and institutions, and commercial buildings. As described in Chapter 9, "Transportation," the increase in traffic volumes with the proposed project is not expected to result in any significant adverse impacts to the character of the community.

The proposed project would relieve overcrowding of high schools in CSD 28. The NYPD and FDNY monitor conditions to determine how their personnel are deployed. Police and fire services would be adjusted as deemed necessary by NYPD and FDNY, and no significant adverse impacts to police or fire services are expected to result from the proposed project.

SOCIOECONOMIC CONDITIONS

According to the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, a socioeconomic assessment should be conducted if a project may reasonably be expected to create substantial socioeconomic changes within the area affected by the project that would not occur in the absence of the project. As the proposed project would construct a five-story, 119,000-gross square feet (gsf) high school facility, the proposed project does not meet any of the above-described thresholds for analysis. The proposed project would not directly displace any residents or businesses and would not introduce a new residential or commercial use that could indirectly affect socioeconomic conditions. Therefore, the proposed project does not have the potential to result in significant adverse socioeconomic impacts, and no further analysis is warranted.

OPEN SPACE

The *CEQR Technical Manual* recommends conducting an open space assessment for projects that would result in the physical loss of, or limit access to, an open space, change the use of an open space so that it no longer serves the same user population, or affect the usefulness of public open space due to pollution or shadows. The proposed project would not directly affect any open space.

The proposed project would not exceed the analysis thresholds, and therefore no further analysis is warranted.

SHADOWS

A shadow screening study was conducted to determine whether the addition would cast new shadows on sunlight-sensitive resources. The Tier 1 assessment showed that no publicly accessible open spaces or historic resources with sunlight-sensitive features or any other sunlight-sensitive resources of concern were located in the longest shadow study area. Therefore, the assessment concluded that no further assessment was necessary, and the proposed project would not cause any impacts related to shadows.

HISTORIC AND CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

Due to its proximity to other reported archaeological sites, the project site is situated within a generalized area of archaeological sensitivity as mapped by OPRHP in the New York State Cultural Information System (CRIS).[1] The Disturbance Memorandum discusses all previously identified archaeological sites within one mile of the project site, including a Native American trail that may have been located in the vicinity of Jamaica Avenue to the south of the project site. The Disturbance Memorandum concluded that the project site has no sensitivity for archaeological resources associated with the precontact occupation of the project site and low sensitivity for archaeological resources associated with the historic period. Therefore, no further archaeological analysis is warranted. The disturbance memorandum was submitted to the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) for review, and in a comment letter dated June 8, 2021, OPRHP concluded that the project would have no impact on archaeological resources.

ARCHITECTURAL RESOURCES

As there are no known or potential architectural resources on the project site, the proposed project would have no adverse impacts on such resources. The proposed project would not result in the replication of aspects of any architectural resource so as to cause a false historical appearance, or the introduction of significant new shadows affecting historic resources. The Jamaica Main Post Office is located more than 90 feet from the proposed construction activities, beyond the distance within which it could be expected to potentially experience inadvertent construction-related damage. Therefore, the proposed project would have no direct impacts on architectural resources.

The proposed development would not alter the architectural resource's setting or visual relationship with the streetscape. Additionally, the proposed development would not be incompatible with the architectural resource, as the architectural resource is already located in an area characterized by a mix of older and newer buildings. The proposed school would be somewhat taller than the three-story architectural resource; however, the school would be similar in height to the six-story apartment buildings located along 165th Street and 89th Avenue.

[1] https://cris.parks.ny.gov/

In a comment later dated June 8, 2021, OPRHP determined that the proposed project would not result in impacts to architectural resources. In summary, the proposed project is not expected to result in any significant adverse impacts on historic and cultural resources.

URBAN DESIGN

It is anticipated that the new school's primary entrance would be on the building's south (88th Avenue) façade. The new school would enliven the project site by replacing a paved parking lot with a new school facility and new playground that would introduce new pedestrian activity. New street trees would be planted along the sidewalks adjacent to the project site, which would provide greenery and shade and enhance the pedestrian experience. The proposed school would not result in any significant adverse impacts to urban design characteristics of the project site.

The proposed school building would be constructed on an existing block and would not entail any changes to streets or street patterns, public open space, or natural features in the study area. The proposed project would change the streetscape in the study area near the project site, as the proposed five-story school building would be taller and have a larger massing than the existing buildings on the project site; however, the proposed building would be shorter than several buildings across the street from the project site, including the 10-story office building on the south side of 88th Avenue, the 10-story hotel on the west side of 165th Street, and the 13-story apartment building on the east side of 166th Street/Merrick Boulevard. As the project site is located within the Special Downtown Jamaica District, the transition rule regulates the change in building massing from taller building portions along wide streets to a reduced scale for building portions that abut smaller homes in lower density residential zoning districts. The district's controls pertaining to street walls and other streetscape elements would be followed to support an attractive and viable downtown area.

The proposed institutional use would complement the existing school use along the west side of 164th Street within the study area. Therefore, the proposed building would not be inconsistent with the urban design of the study area. The proposed building also would be set back slightly from Hillside Avenue and Merrick Boulevard, consistent with the existing building at the northeast corner of the project site. The planting of new trees on the sidewalks adjacent to the project site also would complement the streetscape of the study area. The inclusion of a playground at the project site would also be consistent with the study area, which includes sports fields and play equipment at the P.S. 349 complex on the west side of 164th Street. In the future with the proposed school, the built FAR and lot coverage of the project site would still be consistent with that of the surrounding study area.

Further, it is anticipated that the proposed project would enhance the vitality, walkability, and visual character of the study area by enlivening the project site with a new active use and by providing landscaping and sidewalk tree plantings that would positively contribute to the pedestrian experience.

VISUAL RESOURCES

The proposed project would not obstruct existing views from the sidewalks adjacent to the project site to the surrounding area. The new school building would be most visible in views along Hillside Avenue; however, its scale and height would not be notable within this view corridor, as there are other taller buildings with large footprints in close proximity. Therefore, the proposed project would not adversely impact visual resources on or visible from the project site. The proposed school building would not obstruct any views to visual resources. Existing views to the Jamaica

Main Post Office from 164th Street and 89th Avenue would be unchanged. As described above, the new school building would be most visible in views along Hillside Avenue; however, its scale and height would not be notable within this view corridor, as there are other taller buildings with large footprints in close proximity. Therefore, the proposed project would not adversely affect visual resources.

Overall, the proposed project would not be expected to result in any significant adverse impacts to urban design or visual resources on the project site or in the study area, and therefore, no further analysis is required.

NATURAL RESOURCES

A natural resources assessment is conducted when a natural resource is present on or near the project site and when an action involves the disturbance of that resource. The project site is located in a fully developed area in Queens, and there are no significant natural resources on the site. The proposed project would not result in any significant adverse impacts on natural resources. Therefore, in accordance with *CEQR Technical Manual* guidelines, a natural resources analysis is not warranted.

TRANSPORTATION

Traffic conditions were evaluated at five intersections for the weekday AM and PM school-related peak hours. In the 2026 future with the proposed project, significant adverse traffic impacts were identified at two intersections during the weekday AM peak hour and three intersections during the weekday PM peak hour. Potential improvement measures may be implemented to mitigate these impacts.

The affected intersections are Hillside Avenue and 165th Street (East) during the AM and PM peak hours, 89th Avenue and 165th Street during the PM peak hour, and Hillside Avenue and 166th Street/Merrick Boulevard during the AM and PM peak hours. With the implementation of standard traffic mitigation measures (signal timing changes), which are subject to review and approval by the New York City Department of Transportation (DOT), these significant adverse traffic impacts could be fully mitigated at Hillside Avenue and 166th Street/Merrick Boulevard during the AM peak hour and 89th Avenue and 165th Street during the PM peak hour only. The intersection of Hillside Avenue and 165th Street (East) could also be partially mitigated with signal timing changes during the AM and PM peak hours. The remaining significant adverse traffic impacts at Hillside Avenue and 165th Street (East) during the AM and PM peak hours and Hillside Avenue and 166th Street/Merrick Boulevard during the PM peak hour would remain unmitigated.

TRANSIT

It was determined that the proposed project's incremental subway trips would not exceed the *CEQR Technical Manual* analysis threshold of 200 or more peak hour subway trips at a station. Therefore, a detailed analysis of subway facilities is not warranted and the proposed project is not expected to result in any significant adverse subway impacts.

In addition, incremental bus trips would be fewer than 50 peak hour bus riders on a bus route in a single direction. Therefore, based on *CEQR Technical Manual* guidelines a detailed analysis of buses is not warranted and the proposed project is not expected to result in any significant adverse bus line-haul impacts.

PEDESTRIANS

Peak-period pedestrian conditions were evaluated at key area sidewalk, corner reservoir, and crosswalk locations. Pedestrian conditions were evaluated at six sidewalks, seven corners, and two crosswalks for the weekday AM and PM school-related peak hours. Analyses performed for these pedestrian elements showed that the proposed project would not result in any significant adverse pedestrian impacts.

PARKING

The proposed project would not include any accessory parking spaces on site, which is not a requirement per zoning regulations. The faculty and staff would need to park at nearby on-street curbsides or off-street parking facilities. There are six off-street parking facilities with approximately 1,520 off-street spaces and approximately 610 on-street spaces located within ¼-mile of the project site. The faculty and staff associated with the proposed project would generate an additional parking demand of 38 vehicles. Based on the off-street and on-street parking supply available within ¼-mile of the project site and the minimal anticipated parking demand, the proposed project is not expected to result in the potential for a parking shortfall or a significant adverse parking impact.

VEHICULAR AND PEDESTRIAN SAFETY

Crash data for the study area intersections were obtained from NYCDOT for the time period between January 1, 2016 and December 31, 2018. During this period, a total of 322 reportable and non-reportable crashes, one fatality, 267 injuries, and 79 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of the crash data identifies three high crash locations in the 2016 to 2018 period, 164th Street and Jamaica Avenue, 165th Street and Jamaica Avenue, and 168th Street and Jamaica Avenue. These intersections would incur modest incremental project-generated vehicle and pedestrian volume increases, such that the proposed project is not anticipated to exacerbate vehicular and pedestrian safety further.

AIR QUALITY

HEAT AND HOT WATER SYSTEMS

The results of the refined heating and hot water systems analysis for one-hour and annual average NO_2 and 24-hour and annual average $PM_{2.5}$ concentration are presented in **Table S-1**. As shown in the table, all predicted pollutant concentrations are less than their applicable impact criteria. Therefore, there would be no potential for significant adverse air quality impacts from the proposed project's heating and hot water systems.

Table S-1
Maximum Modeled Pollutant Concentrations (µg/m^3)

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	NAAQS / *De Minimis* Criterion
NO_2	1-hour	178.1 (1)	N/A	178.1	188 (2)
	Annual	0.99 (3)	28.7	29.7	100 (2)
$PM_{2.5}$	24-hour	3.56	N/A	N/A	8.5(4)
	Annual	0.13	N/A	N/A	0.3 (5)

Notes:
N/A – Not Applicable
1. Reported concentration is the maximum total 98th percentile concentration at any receptor using seasonal-hourly background concentrations.
2. NAAQS.
3. Annual NO_2 concentrations from heating and hot water sources were estimated using a NO_2 /NO_x ratio of 0.75, based on EPA modeling guidance.
4. $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3
5. $PM_{2.5}$ *de minimis* criteria—annual (discrete receptor)

CHEMICAL SPILL ANALYSIS

The recirculation analysis indicates that the minimum potential dilution factor between the fan exhausts and the nearest sensitive receptor is over 472 (i.e., pollutant concentrations at the nearest intake to the exhaust fan would be 472 times less than the concentration at the fan exhaust).

The results of the recirculation analysis are presented in **Table S-2**. The results indicate that a spill in a fume hood as described above would produce a maximum concentration at the nearest intake location below the corresponding STELs or ceiling values set by OSHA and/or NIOSH for each of the chemicals analyzed. Consequently, it can be concluded that no significant impact would be expected due to recirculation of fume hood emissions back into the proposed public high school building's air intakes in the event of a chemical spill.

Table S-2
Fume Hood Recirculation Analysis
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.19
Benzene	1	0.74
Nitric Acid	2	0.68

Note: * 15-Minute average emission rate.

The results of the analysis of potential emissions from the fume hood exhaust system in the surrounding area are shown in **Table S-3**. As shown in the table, the maximum predicted concentrations at elevated receptors downwind of the fume hood exhausts were determined to be below the STEL/OSHA levels. The results of the dispersion analysis demonstrate that, assuming a minimum exhaust stack height of four feet above the building roof, there would be no significant adverse impacts from the exhaust system of the proposed public high school laboratories on the proposed project or the surrounding community.

Table S-3
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.009
Benzene	1	0.484
Nitric Acid	2	0.032
Note: * 15-Minute average emission rate.		

NOISE

An at-grade play yard is proposed along the southern edge of the project site adjacent to 88th Avenue. The nearest sensitive receptors are the proposed adjacent classrooms and the residential buildings located across 165th Street and Merrick Boulevard with direct line of sight to the play yard. Noise levels with the at-grade play yard were calculated at the classrooms of the proposed school and the nearby residences. Measured existing noise levels near these locations were in the mid-to-high 70s dBA, and would be expected to remain relatively unchanged in the future without the proposed project. Noise levels from the playground are not expected to result in a significant impact. The maximum predicted increase in $L_{eq(1)}$ noise level would be 0.3 dBA when the school playground is being used, which would not be noticeable.

NOISE ATTENUATION MEASURES

The measured exterior L10(1) noise levels at the project site and noise levels from the SCA Playground Noise Study were used to determine the building attenuation values for the school façades. The maximum exterior L10(1) noise levels at the proposed building resulting from vehicular traffic on adjacent roadways or the proposed school playground would be 77.0 dBA. Based on this level of noise exposure, a requirement for 33 dBA window/wall attenuation and an alternate means of ventilation would be sufficient to provide interior noise levels that be considered acceptable for classroom use according to CEQR Technical Manual guidelines.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade consists of wall, glazing, and any vents or louvers associated with the building mechanical systems in various ratios of area. The proposed design for the building includes acoustically rated windows and central air conditioning (a means of alternate ventilation). The proposed building's façades, including these elements, would be designed to provide composite window/wall attenuation greater than or equal 33 dBA, along with an alternative means of ventilation for all academic uses.

MECHANICAL SYSTEMS

The building mechanical system (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels.

SOIL AND GROUNDWATER

A Phase I Environmental Site Assessment (ESA) and a Phase II Environmental Site Investigation (ESI) were completed by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) on behalf of the New York City School Construction

Authority (NYCSCA) to evaluate the environmental conditions at the project site. The Phase I ESA was completed in February 2020 and the Phase II ESI was completed in March 2020. Historically, the project site was undeveloped until 1901, when the site was developed with various structures over time. Historic Site uses include an automotive sales lot, trampoline center, and restaurant. The site has been occupied by a funeral home and office building since 1963 and 1967, respectively.

The Phase I ESA identified on-site recognized environmental conditions (RECs) associated with the historical use of the site as an undertaker/funeral home, tire shop, and automotive sales lot, and the potential presence of historic fill of unknown origin, buried structures, and demolition debris associated with the development and demolition of several former on-site buildings. Off-site RECs include the presence of automotive sales and service, filling stations, dry cleaners, hazardous waste generators, spills/leaking underground storage tanks, petroleum bulk storage, dry cleaners, E-Designation sites, historical automotive repair facilities, and historical dry cleaners. Environmental concerns include suspect asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB)-containing materials within the Site building, suspect buried structures/debris, and in buried fill material; and the potential for mold growth due to water intrusion.

A review of the soil vapor sample analytical results indicated that several volatile organic compounds (VOCs) were detected in soil vapor at concentrations above their applicable comparison criteria, which are attributed to off-site sources. One pesticide was detected in soil, several semivolatile organic compounds (SVOCs) and metals were detected in soil and groundwater, and one VOC was detected in groundwater at concentrations above their applicable comparison criteria. The presence of the pesticide in soil is attributed to the presence of historic fill material. The presence of SVOCs and metals in soil and groundwater is attributed to the presence of historic fill material at the site and natural background conditions, respectively, and the presence of the VOC in groundwater can be attributed to off-site sources.

A soil vapor barrier and sub-slab depressurization system would be incorporated into the new building design. Material excavated from the site would be characterized to identify material handling, reuse, and/or disposal requirements, and two feet of environmentally clean fill would be placed over all landscaped areas. Although not anticipated, any dewatering required during construction would be performed in accordance with applicable local, state and federal regulations and minimized to mitigate potential influx of contaminated water from off-site sources toward the site. Suspect ACM, LBP, mold and PCB-containing materials affected by site development would be properly managed. Lastly, to minimize the potential for exposure of construction workers and the surrounding public, standard industry practices, including appropriate health and safety measures, would be utilized.

WATER AND SEWER INFRASTRUCTURE

The proposed project would not generate an additional demand for water nor generate additional sanitary wastewater. It would not increase the amount of impervious surface on the project site. Therefore, in accordance with *CEQR Technical Manual* guidelines, no further analysis is warranted, and the proposed project would not result in any significant adverse impacts to water and sewer infrastructure.

SOLID WASTE AND SANITATION SERVICES

The proposed project would generate well under the 50 tons per week or more threshold that CEQR defines as affecting the City's capacity to handle solid waste and warranting further analysis. Therefore, the proposed project would not result in any significant adverse impacts to solid waste and sanitation services, and no further analysis is required.

ENERGY

The proposed project is not expected to generate a substantial new demand for energy and would not affect the transmission or generation of energy. The proposed project is expected to consume 29,833,300 MBtu's, calculated by multiplying the square footage of 119,000 sf by a rate of 250.7 MBtu/sf, the institutional rate provided by *CEQR Technical Manual* Table 15-1. Therefore, the proposed project would not result in significant adverse impacts to energy supply or consumption, and no further analysis is warranted.

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

An assessment of a project's greenhouse gas (GHG) emissions and its consistency with the City's policy to reduce GHG emissions is typically required only if warranted by specific characteristics of the project. The *CEQR Technical Manual* recommends that a GHG consistency assessment be undertaken for any project preparing an environmental impact statement expected to result in 350,000 square feet or more of development and other energy-intense projects. Construction of new buildings, additions and alterations will subject to the provisions of the New York City Construction Code and projects with less than 350,000 square feet are not expected to result in significant emissions of GHG. The proposed project does not meet the thresholds for analysis, and therefore a GHG consistency assessment is not warranted. It is anticipated that the proposed project would not result in any significant greenhouse gas emission impacts.

PUBLIC HEALTH

According to the guidelines of the *CEQR Technical Manual*, a public health assessment may be warranted if an unmitigated significant adverse impact is identified in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. As described in Chapter 10, "Air Quality," Chapter 11, "Noise," Chapter 12, "Soil and Groundwater," and Chapter 13, "Water and Sewer Infrastructure" of this EAF, no unmitigated significant adverse impacts in these technical areas would occur with the proposed project. Therefore, a public health assessment not warranted, and the project is not expected to result in any significant adverse impacts to public health.

NEIGHBORHOOD CHARACTER

According to the guidelines of the *CEQR Technical Manual*, an assessment of neighborhood character is generally needed when a proposed project has the potential to result in significant adverse impacts in one of the technical areas presented above, or when a project may have moderate effects on several of the elements that define a neighborhood's character. Although the proposed project may result in traffic impacts at two intersections (Hillside Avenue and 165th Street (East) and Hillside Avenue and 166th Street/Merrick) that could not be mitigated with signal timing changes (as described in Chapter 10, "Transportation"), these traffic impacts would not contribute to a combination of moderate effects to several elements that may cumulatively affect neighborhood character as defined by CEQR. Therefore, a detailed assessment of neighborhood

character is not required, and the proposed project is not expected to result in any significant adverse impacts to neighborhood character.

CONSTRUCTION IMPACTS

It is anticipated that construction of the proposed project would require a total of approximately 34 months to complete, although the major external construction activities are expected to be completed in less than 24 months. A breakdown of the anticipated construction program is shown below on **Table S-4**.

Table S-4
On-Site Construction Activities

Construction Activity	Months of Construction
Demolition of existing TCU; Alteration of existing school	4 Months
Excavation and Foundation	3 Months
Superstructure and Exterior Work	8 Months
Interior Construction and Fit-out	10 Months
Exterior Finishing and Landscaping	3 Months
Demolition of Mini-building; Construction of Play Yard	6 Months
Total	**34 Months**
Source: New York City School Construction Authority (NYCSCA).	

Construction would begin with the fencing and screening of the site, followed by demolition, excavation, and grading. The project would require removal of the existing play area. Any debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. Soil would be excavated from the project site and removed by truck to a licensed landfill or recycling facility. If soil containing petroleum or other contaminated materials is discovered during excavation activities, it would be segregated and disposed of in accordance with all applicable federal, state, and local regulations and guidelines. Additionally, all material that needs to be removed from the site would be disposed of in accordance with applicable requirements. Piles would be driven, as necessary, to support the building, and pile caps would be formed and concrete poured to build the foundations for the building.

Next, the project's structural frame and exterior façade would be erected. Construction of the exterior enclosure, or "shell" of the building would include construction of the building's framework (installation of beams and columns), floor decks, façade (exterior walls and cladding), and roof construction. In the final year of construction, interior finishing would proceed, including electrical work, plumbing, wall and ceiling construction, painting, floor work, and other finishing items along with the completion of the remaining exterior work, such as utility and façade work. During this time, most work would occur inside, and operation of heavy on-site equipment would be infrequent. As construction nears completion on the interior of the project, final site work would commence and would include construction of the play areas and any landscaping.

The estimated average number of workers on site by phase would be 40 workers for mobilization, clearing, excavation and foundation; 50 workers for superstructure and exterior work; 80 workers for interior construction and fit-out; and 30 workers for exterior finishing and landscaping.

Typical equipment used for site clearing, excavation, and foundation work would include excavators, bulldozers, backhoes, compaction equipment, tractors, jackhammers, and concrete pumping trucks. Other equipment that would be used include hoist complexes, dump trucks and loaders, concrete trucks, and back hoes. Trucks would deliver concrete and other building

materials, and remove excavated material as well as demolition and construction debris. The construction equipment likely to be used during erection of the superstructure would include compressors, cranes, derricks, hoists, bending jigs, and welding machines. During façade and roof construction, hoists may continue to be used. Trucks would remain in use for material supply and construction waste removal. It is anticipated that trucks would access the site from site 165th Street, Merrick Boulevard, and 88th Avenue), as necessary.

The majority of construction activities would take place Monday through Friday, although if necessary, the delivery or installation of certain equipment could occur on weekend days. Hours of construction are regulated by the New York City Department of Buildings (DOB) and apply in all areas of the City. Much of the proposed project's construction staging would occur within the project site, thereby limiting any effects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the surrounding streets and sidewalks.

The analysis concluded that the proposed project would not result in extensive construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction. ✷

Chapter 1: Project Description

A. INTRODUCTION

The New York City School Construction Authority (SCA) proposes to construct a new high school (497Q) at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens (see **Figure 1-1**). The proposed project would involve the construction of an 801-seat high school in Community School District (CSD) Number 28. The five-story school would occupy Block 9816, Lots 39, 41, and 49. The project site is currently occupied by a former funeral parlor, a former office building, and their associated paved parking lot. The proposed project would involve the demolition of the existing vacant site improvements.

The proposed project is located within an C4-5X commercial district within the Special Downtown Jamaica District. Schools are permitted as-of-right in C4-5X districts. Based on preliminary plans, SCA would require approval of waivers from the Deputy Mayor for Economic Development to permit the project to proceed. Funding for design and construction would be provided by the New York City Department of Education's (DOE) Capital Plan for Fiscal Years 2020-2024. The proposed project would require approval from the City Council for SCA to acquire the property. Additionally, the New York City Department of Transportation (NYCDOT) would approve the conversion of 88th Avenue between 165th Street and Merrick Boulevard from one-way eastbound to one-way westbound.

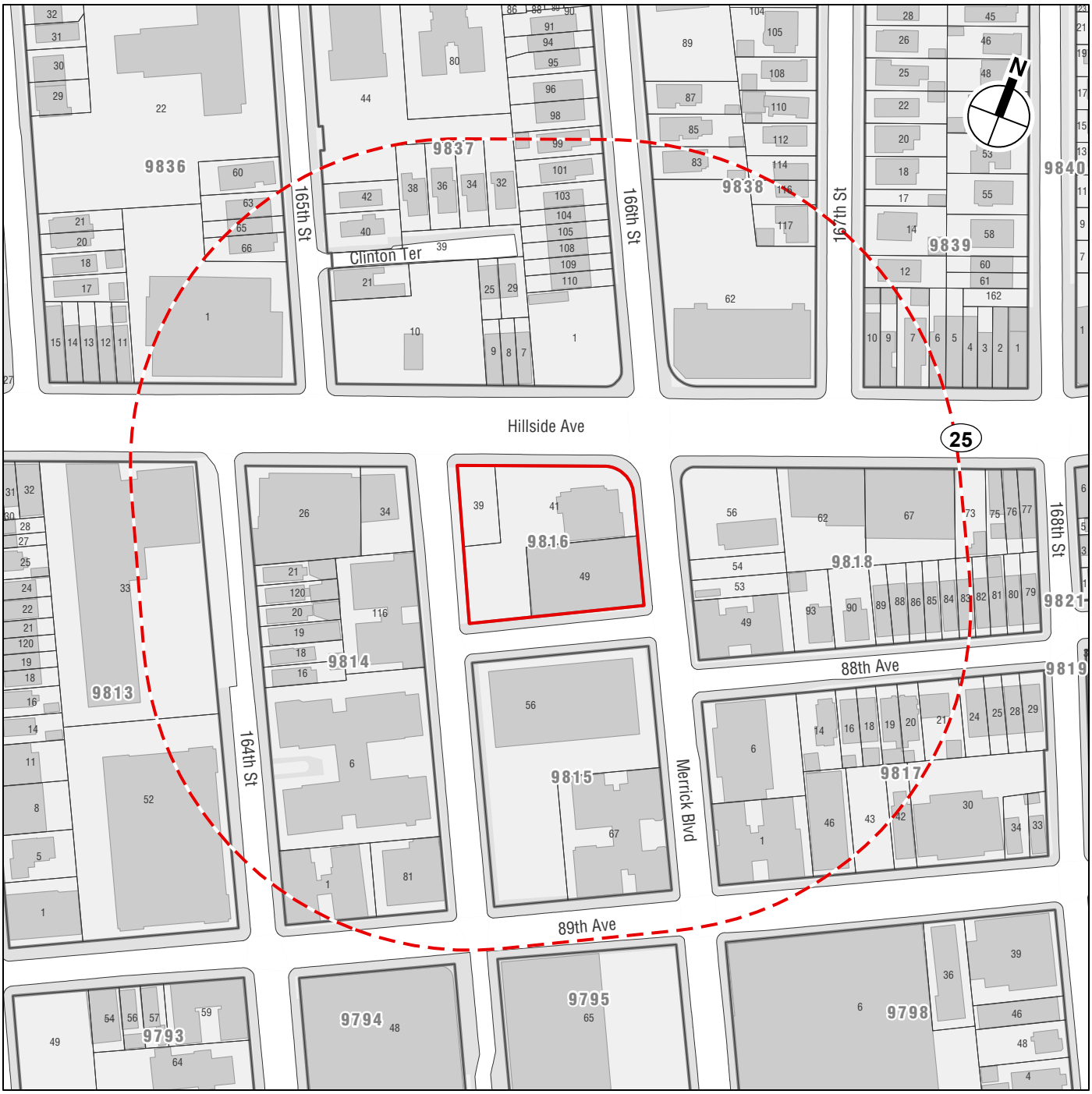
B. PURPOSE AND NEED

Construction of the proposed project would provide additional public school capacity at the high school level in CSD 28. According to the DOE school utilization profile for 2019 to 2020, CSD 28 has an enrollment of 12,985 high school students with a target capacity of 10,903. The district is operating at 119 percent of target capacity. Absent the proposed project, it is expected that the site will remain in its current condition.

C. PROJECT SITE AND PROPOSED PROJECT

The new school would occupy Block 9816, Lots 39, 41, and 49 in the Jamaica Hills neighborhood of Queens. The site is located on the block bounded by Hillside Avenue to the north, 165th Street to the west, 88th Avenue to the south, and Merrick Boulevard to the east. In order to accommodate curbside auto and school bus drop-offs/pick-ups, 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way eastbound to one-way westbound for vehicular traffic. The project site is currently occupied by a former funeral parlor, a former office building, and paved parking lot. With the proposed project, the existing unoccupied structures on the project site would be demolished and replaced by a new, 119,000 gross-square foot, five-story school building.

The maximum building height would be approximately 90 feet, including the rooftop bulkhead. The proposed new school would have 801 seats, including 30 seats for students in a District 75 (special education) program, as well as 90 faculty and staff. The new school would include general



Project Location

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 1-1

education classrooms for grades 9 through 12, specialized instruction rooms, administrative space, as well as a cafeteria at the cellar level.

An approximately 10,000-square-foot (sf) play yard will be located south of the school along 88th Avenue. It is anticipated that the main entrance to the school would be located along 88th Avenue. The school would operate during normal school hours, likely between 8:00 AM and 3:30 PM between September and June.

D. ANALYSIS FRAMEWORK

For the purpose of this environmental review, it is assumed that construction of the proposed project would begin in 2023, and student occupancy would occur in September 2026.[1] Accordingly, 2026 has been selected as the build year for which the environmental assessment areas have been analyzed. It is assumed that if the proposed project does not proceed, the proposed school would not be built and the project site would remain in its current state (the No Action condition).

Impact assessments have been analyzed for land use, historic resources, urban design and visual resources, shadows, transportation, air quality, noise, soil and groundwater, and construction. Screening analyses for the other *City Environmental Quality Review (CEQR) Technical Manual* analysis areas are also included. ✷

[1] Data for the SEQR analysis was collected prior to the March 22, 2020 Governor's Executive Order putting New York State on Pause.

Chapter 2: Land Use, Zoning, and Community Character

A. INTRODUCTION

This chapter considers the effects of the proposed project on land use, zoning, and community character. The proposed project would include the construction of a five-story, 801-seat high school with approximately 119,000 gross square feet (gsf), located at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens. The project site is located in a C4-5X zoning district, in which school uses are permitted as-of-right. Therefore, as described below, this analysis concludes that construction of the proposed project would be compatible with, and supportive of, existing land uses and ongoing land use trends on the project site and in the study area, and would not result in any significant adverse impacts to land use, zoning, or community character.

B. METHODOLOGY

The 400-foot study area is approximately bound by 164th Street to the west, midblock between Highland Avenue and Hillside Avenue to the north, 168th Street to the east, and 89th Avenue to the south (see **Figure 2-1**). This analysis identifies anticipated changes in land use, zoning, and community character that are expected to occur independently of the proposed project by 2026, the project's build year, and assesses any potential adverse impacts to land use, zoning, and community character that would occur as a result of the proposed project.

C. EXISTING CONDITIONS

This section describes existing land use patterns and trends, zoning, and community character for the project site and the study area.

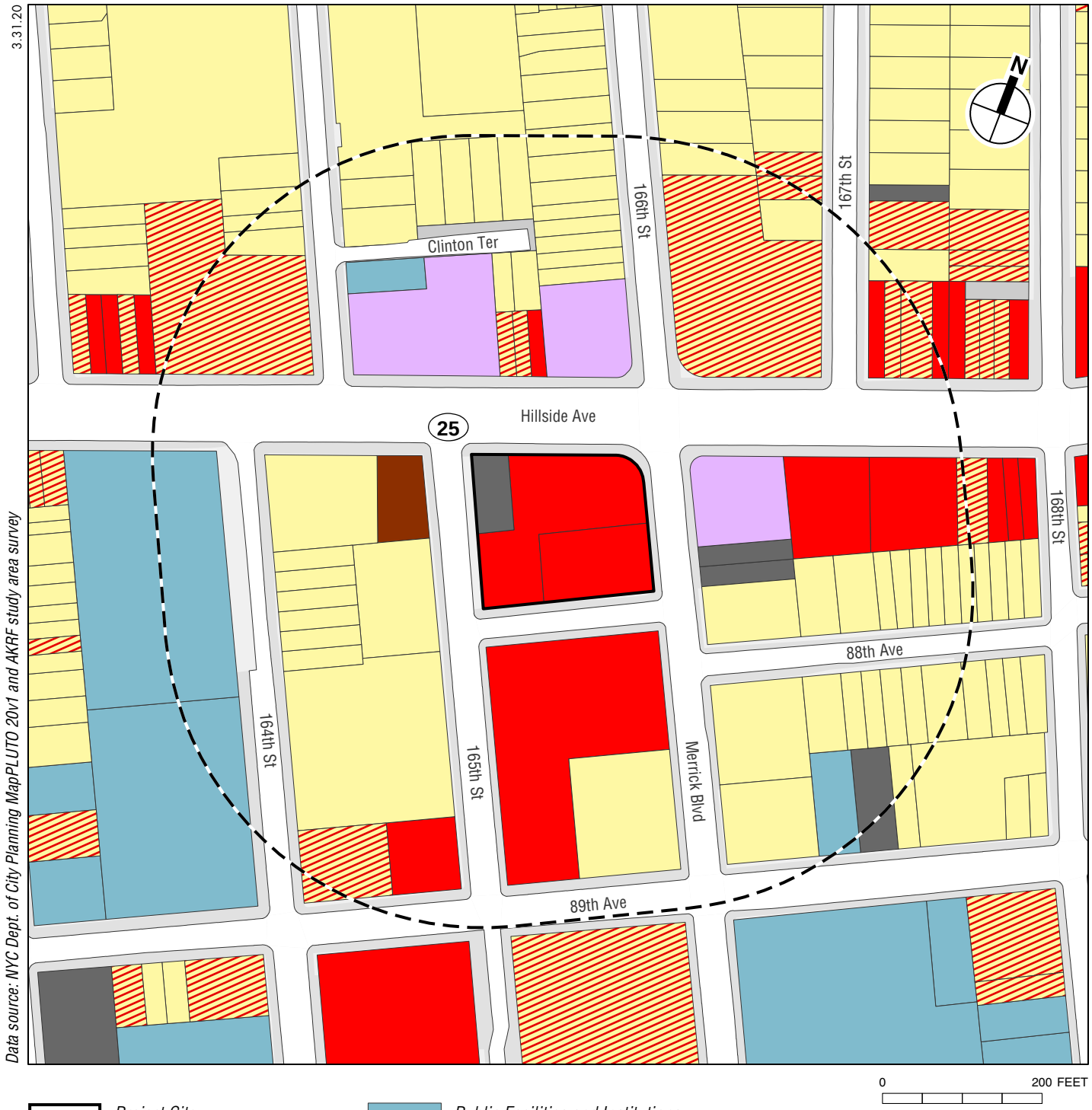
LAND USE

PROJECT SITE

Located in the Jamaica Hills neighborhood of Queens, the site is on the block bounded by Hillside Avenue to the north, Merrick Boulevard to the east, 88th Avenue to the south, and 165th Street to the west. A funeral parlor (Bernard F. Dowd Funeral Home), an office building, and a paved surface parking lot currently occupy the project site.

STUDY AREA

The 400-foot study area is primarily residential, with a concentration of ground-floor retail uses along Hillside Avenue. On the west side of 164th Street south of Hillside Avenue are two institutional buildings with large footprints: P.S. 349 (the Queens School for Leadership and Excellence) and the Jamaica Main Post Office. Residential buildings in the study area primarily consist of two- to three-story residences and apartment buildings ranging from six to 16 stories. Transit options in the area include the Q1, Q2, Q3, Q17, Q36, Q43, Q68x, Q76, Q77, N1, N6, N6x, N22, N22A, N22X, N24, and N26 bus routes. The F subway line is located just outside the study area along Hillside Avenue to the east and west of the study area. Captain Tilly Park is located just north of the study area.



Existing Land Use

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 2-1

ZONING AND PUBLIC POLICY

PROJECT SITE

The project site is located within a C4-5X zoning district in the Special Downtown Jamaica District (see **Figure 2-2**). The Special Downtown Jamaica District builds upon area's multimodal transportation to support businesses in the downtown region, expand housing and economic opportunities along major streets and transportation corridors, create affordable housing, as well as protect adjacent low-density neighborhoods. The use regulations within the district encourage mixed-use development in denser transit-oriented location, which schools are not allowed as-of-right. The transition rule of the Special Downtown Jamaica District regulates the change in building massing from taller building portions along wide streets to a reduced scale for building portions that abut smaller homes in lower density residential zoning districts. The district's controls pertaining to street walls, sidewalk widening, and other streetscape elements support an attractive and viable downtown area.

The C4 zoning districts are regional commercial centers that are located out of central business districts. Multiple uses, such as specialty and department stores, theaters, and other commercial and office uses are allowed that serve a larger region and generate more traffic than a regular neighborhood commercial corridor. A C4-5X zoning district is a general commercial contextual zoning district that permits an FAR of 5.0 for residential uses (R7X equivalent) and 4.0 for commercial uses. No accessory parking is required, but can be modified to permit as-of-right public parking garages with a capacity of 150 spaces or less, subject to the provisions set forth for accessory off-street parking spaces.

A C4-5X zoning district (R7X equivalent) is governed by a contextual Quality Housing Program, with height, setback, and bulk regulations designed to produce a building that is consistent with the existing characteristic of the neighborhood for residential uses. The Quality Housing Program permits a slightly denser development in exchange for height limits and consistent street walls. As previously stated, the district permits a 5.0 residential FAR with an FAR of 6.0 for buildings with inclusionary housing or certain senior facilities. Buildings may rise to a maximum height of 120 feet, with a base height of 60 to 85 feet, and a setback depth of 10 feet on wide streets and 15 feet on narrow streets. If providing a qualifying ground floor, the maximum base height is 95 feet and the maximum height of the building is 125 feet. To maintain the existing streetscape, a new building's street wall can be no closer to the street than any adjacent street wall but need not be farther than 10 feet.

Off-street parking is required for 50 percent of the building's dwelling units, with lower requirements for income-restricted housing units (IRHU), certain areas, or lots 10,000 sf or less. The off-street parking requirements can also be waived if fewer than 15 parking spaces are needed.

STUDY AREA

The majority of the study area is located within the C4-5X district, as described above. However, six zoning districts comprise the rest of the study area (see **Figure 2-2**). Along Hillside Avenue, the majority of the north half is zoned an R7A district that transitions to an R6A district east of 167th Street. The south side of Hillside Avenue is an R7X district east of 167th Street. Within those zoning districts is a C2-4 zoning overlay. For properties that front on Hillside Avenue within study area, except for the C4-5X district, there is a C2-4 district. North of the C2-4 districts is an R5 district, that is located primarily along 168th Street and to the west, with an R4A district along 167th Street and extending east. In the southeastern portion of the study area, east and south of the C4-5X and R7X districts is another R6A district.

Zoning

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 2-2

R4A zoning districts are contextual districts that only allow one- and two-family detached residences at a maximum FAR of 0.75 (plus an attic allowance). Usually mapped in older neighborhoods, the districts require one off-street parking space per dwelling unit and 50 percent of IRHUs. R5 zoning districts allow a variety of housing at higher density, including three- and four-story attached houses and small apartment houses. Permitted a maximum FAR of 1.25, residential buildings have a height limit of 40 feet, serving as a transition between lower- and higher-density neighborhoods. Off-street parking is required for 85 percent of dwelling units in the building, and 42.5 percent of IRHUs.

R6A zoning districts are contextual districts that allow high lot coverage, six- to eight-story apartment buildings set at or near the street line. These districts have mandatory Quality Housing bulk regulations with a maximum FAR of 3.0 (3.6 FAR for inclusionary housing). These districts allow for buildings that are compatible with older buildings found in medium-density neighborhoods. Off-street parking is required for 50 percent of dwelling units in the building, and 25 percent of IRHUs. R7A zoning districts are medium-density contextual districts that allow high lot coverage, seven- to nine-story apartment buildings, blending with existing buildings in established neighborhoods. Residential buildings have a maximum FAR of 4.0, with a maximum FAR of 4.6 for buildings with inclusionary housing. The district requires off-street parking for 50 percent of dwelling units and 15 percent of IRHUs. Similar to C4-5X and R7X zoning districts, off-street parking requirements can be waived in R7A districts if 15 or fewer parking is required, or reduced in certain areas or for lots 10,000 sf or less.

C2-4 zoning districts are commercial overlays mapped within residential districts that permit a maximum FAR of 2.0 for commercial uses when mapped in R6 through R10 districts. Residential and community facility uses in C2-4 districts must comply with the residence district within which the overlay is mapped, which is R6A and R7A residential bulk requirements, described above. Off-street parking space per 1,000 sf of commercial floor area is required.

COMMUNITY CHARACTER

Community character is defined as the combination of a number of traits, including land use, urban design and visual resources, traffic, and noise. These elements are considered together to create a sense of the neighborhood in which a project is proposed, so that the compatibility of the project within its community setting can be presented and assessed.

The residential area surrounding the project site consists mainly of single-family homes and multi-family apartment buildings with local commercial retail predominately concentrated on Hillside and 89th Avenues, and public facilities and institutions uses generally concentrated along 164th Street. There is low to medium pedestrian activity, most of which is local residents. There is low automobile activity generally along of the side streets, mostly from local trips. Main roads, such as Hillside Avenue and Merrick Boulevard, are busier due to the concentration of commercial uses and the bus routes. The study area is served by several local bus lines (Q1, Q2, Q3, Q17, Q36, Q43, Q68x, Q76, Q77, N1, N6, N6X, N22, N22A, N22X, N24, and N26), which can be accessed along Hillside Avenue, as well as at the 165th Street Terminal at 89th Avenue and Merrick Boulevard. In addition, the F subway line—that runs below Hillside Avenue—is accessible at the 169th Street station on Hillside Avenue, just east of the study area boundary.

COMMUNITY FACILITIES

A school addition would provide additional community resources for area residents. The proposed project is not expected to place additional demands on hospitals and other health facilities,

libraries, or public school and day care facilities. This section focuses, therefore, on police and fire protection services.

The project site is served by the New York City Police Department (NYPD) 103rd Precinct. The precinct house is located at 168-02 91st Avenue, approximately 0.3 miles southeast of the project site. The project site is served by the New York City Fire Department (FDNY) Engine 298/Ladder 127/Battalion 50, located at 153-11 Hillside Avenue, approximately 0.4 miles west of the project site.

D. FUTURE WITHOUT THE PROPOSED PROJECT

LAND USE

In the future without the proposed project, the proposed high school would not be constructed and the existing funeral parlor, an office building, and paved surface parking lot would remain on the project site. According to the Department of City Planning (DCP) Queens Office, there are no substantial development projects planned in the study area expected to be completed by the 2026 build year.

ZONING AND PUBLIC POLICY

In the future without the proposed project, the zoning on the project site and study area is expected to remain unchanged.

COMMUNITY CHARACTER

In the future without the proposed project, it is anticipated that the general character of the community would remain as it is today, with single and multi-family apartment buildings, commercial, and public facilities and institutions uses surrounding the project site. Any new development that might occur in the study area is not expected to be substantially different from what currently exists, nor is it expected to introduce a significant new source of traffic or noise. Therefore, no change to the existing community character is expected in the future without the proposed project.

COMMUNITY FACILITIES

NYPD has no plans for any changes that will affect law enforcement services in this portion of the 103rd Precinct. Similarly, there are no other anticipated changes in fire protection services or equipment expected by the 2026 build year.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE

With the proposed project, the existing funeral parlor, office building, and paved surface parking lot would be demolished and an 801-seat high school would be constructed. The proposed school use, which is permitted as-of-right, would be consistent with land uses in the study area.

ZONING AND PUBLIC POLICY

The proposed project is located within a C4-5X zoning district, in which schools are allowed as-of-right. Based on preliminary plans, SCA would require approval of waivers for bulk, height, and setback from the Deputy Mayor for Economic Development to permit the project to proceed. Such zoning overrides may be granted when non-compliances do not represent a substantial conflict with the Zoning Resolution of the City of New York and other public policies. The waivers would

not apply to other lots in the zoning district. Therefore, the proposed project would have no adverse impacts on zoning in the study area.

COMMUNITY CHARACTER

In the future with the proposed project, the construction of the school addition would be similar in scale to the existing adjacent residential, public facilities and institutions, and commercial buildings.

COMMUNITY FACILITIES

The proposed project would relieve overcrowding of high schools in CSD 28. The NYPD and FDNY monitor conditions to determine how their personnel are deployed. Police and fire services would be adjusted as deemed necessary by NYPD and FDNY, and no significant adverse impacts to police or fire services are expected to result from the proposed project. ✷

A. SCREENING ANALYSIS

According to the *City Environmental Quality Review (CEQR) Technical Manual*, a socioeconomic assessment should be conducted if a project may reasonably be expected to create substantial socioeconomic changes within the area affected by the project that would not occur in the absence of the project. Projects that would trigger a CEQR analysis include the following:

- Direct displacement of 500 or more residents or more than 100 employees.
- Direct displacement of a business that is uniquely significant because its products or services are dependent on its location; it is the subject of other regulations or publicly adopted plans aimed at its preservation because of its type or location; or it serves a population that is uniquely dependent on its services, in its particular location.
- The development of 200 residential units or more or 200,000 square feet (sf) or more of commercial use that is markedly different from existing uses, development, and activities in the neighborhood. This type of development may lead to indirect residential or business displacement, respectively.
- The development of 200,000 sf or more of retail on a single development site, creating the potential to draw a substantial amount of sales from existing businesses within the study area. This type of development may lead to indirect business displacement due to market saturation.
- Impacts on a specific industry; for example, if a substantial number of residents or workers depend on the goods or services provided by the specific affected business, or if it would result in the loss or diminution of a certain product or service that is important within the City.

As the proposed project would construct a five-story, 119,000-gross square feet (gsf) high school facility, the proposed project does not meet any of the above-described thresholds for analysis. The proposed project would not directly displace any residents or businesses and would not introduce a new residential or commercial use that could indirectly affect socioeconomic conditions. Therefore, the proposed project does not have the potential to result in significant adverse socioeconomic impacts, and no further analysis is warranted. ✷

A. SCREENING ANALYSIS

Open space is defined as publicly or privately owned land that is publicly accessible and operates, functions, or is available for leisure, play or sport, or set aside for the protection and/or enhancement of the natural environment. The *City Environmental Quality Review (CEQR) Technical Manual* recommends conducting an open space assessment for projects that would result in the physical loss of, or limit access to, an open space, change the use of an open space so that it no longer serves the same user population, or affect the usefulness of public open space due to pollution or shadows. An open space assessment may also be necessary for projects that would generate enough new residents or workers to noticeably diminish the capacity of an area's open spaces to serve the future population.

The proposed project includes an approximately 10,000-square-foot (sf) play yard would not directly affect any open space in the project area. The project site is not located within an underserved or well-served area, and would not generate more than 200 residents or 500 employees. Therefore, no further analysis is warranted, and the proposed project would not result in significant adverse impacts to open space. ✷

Chapter 5: Shadows

A. INTRODUCTION

The proposed new school would be five stories, potentially reaching a maximum height of approximately 90 feet including rooftop mechanical bulkheads. A shadow study was conducted to determine whether the proposed school would cast new shadows on sunlight-sensitive resources. Following the guidelines of the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, sunlight-sensitive resources include publicly accessible parks and open space, sunlight-dependent features of historic resources, and natural resources that depend on sunlight.

The assessment concludes that the proposed school would not cast new shadows on any sunlight-sensitive resources.

B. DEFINITIONS AND METHODOLOGY

This analysis has been prepared in accordance with New York City CEQR procedures and follows the guidelines of the *CEQR Technical Manual*.

DEFINITIONS

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. Such resources generally include the following:

- *Public open space* such as parks, beaches, playgrounds, plazas, schoolyards (if open to the public during non-school hours), greenways, and landscaped medians with seating. Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- *Features of architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features need be considered, as opposed to the entire resource. Such sunlight-sensitive features might include: design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource's condition or microclimate. Such resources could include surface water bodies, wetlands, or designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources include the following, for the purposes of CEQR:

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space); and
- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist. However, a discussion of how shadows would affect the new space may be warranted.

A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

METHODOLOGY

Following the guidelines of the *CEQR Technical Manual*, a preliminary screening assessment must first be conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed building representing the longest shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.

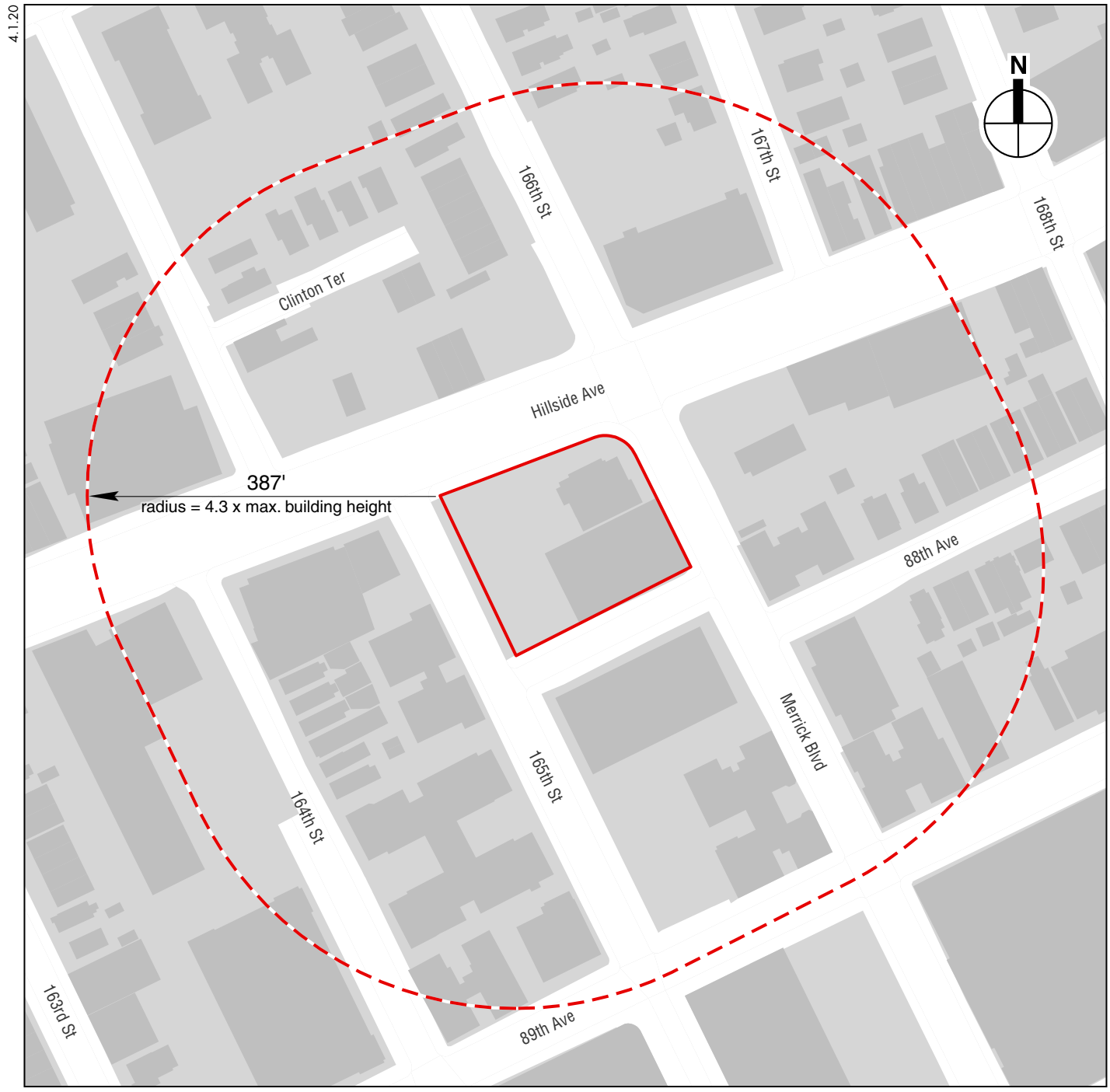
If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by project shadow by looking at specific representative days in each season and determining the maximum extent of shadow over the course of each representative day.

If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

C. PRELIMINARY SCREENING ASSESSMENT

A base map was developed using Geographic Information Systems (GIS)[1] showing the location of the proposed school and the surrounding street layout (see **Figure 5-1**). In coordination with the open space and historic and cultural resources assessments presented in other chapters of this environmental review, potential sunlight-sensitive resources were identified and located on the map.

[1] Software: Esri ArcGIS Pro; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.



Tier 1 Assessment

SCA 165-18 Hillside Avenue, Queens

Figure 5-1

TIER 1 SCREENING ASSESSMENT

For the Tier 1 assessment, the longest shadow that the proposed school could cast is calculated, and, using this length as the radius, a perimeter is drawn around the proposed school footprint. Anything outside this perimeter representing the longest possible shadow could never be affected by project generated shadow, while anything inside the perimeter needs additional assessment.

According to the *CEQR Technical Manual*, the longest shadow that a structure can cast at the latitude of New York City occurs on December 21, the winter solstice, at the start of the analysis day at 8:51 AM, and is equal to 4.3 times the height of the structure.

Therefore, at a maximum height of approximately 90 feet, including rooftop bulkheads, the proposed school could cast a shadow up to approximately 387 feet in length (90 feet times 4.3). Using this length as the radius, a perimeter was drawn around the project site (see **Figure 5-1**).

As shown in **Figure 5-1**, no sunlight-sensitive resources are located in the Tier 1 longest shadow study area, and therefore, no further assessment is required. The proposed project would not result in any significant adverse shadows impacts. ✷

Chapter 6: Historic and Cultural Resources

A. INTRODUCTION

This chapter assesses the potential for the proposed project to affect historic and cultural resources. The project site is located at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens. The project site is bounded by Hillside Avenue to the north, Merrick Boulevard to the east, 88th Avenue to the south, and 165th Street to the west. The proposed project would redevelop the project site with a new 801-seat, 5-story high school. The proposed project would involve the demolition of the existing vacant site improvements.

As described below, this assessment concludes that the proposed project is not expected to result in any significant adverse impacts on historic and cultural resources.

B. METHODOLOGY

Historic and cultural resources include both archaeological and architectural resources. The study area for archaeological resources is the project site itself, representing the area that would be disturbed by the project's construction. To assess the potential archaeological sensitivity of the project site, AKRF, Inc., prepared a Disturbance Memorandum/Preliminary Archaeological Assessment ("disturbance memorandum") of the project site in March 2020.[1] The results of the disturbance memorandum are summarized below.

In general, potential impacts to architectural resources can include both direct physical impacts and indirect impacts. Direct impacts include demolition of a resource and alterations to a resource that cause it to become a different visual entity. A resource could also be damaged from vibration (i.e., from construction blasting or pile driving) and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. As defined in the New York City Department of Buildings (DOB) *Technical Policy and Procedure Notice (TPPN)* #10/88, adjacent construction is as any construction activity that would occur within 90 feet of an architectural resource.[2] Chapter 33 of the New York City Building Code outlines measures to ensure protection of adjoining property and includes additional safeguards for historic structures located within 90 feet. Indirect impacts on architectural resources include contextual or visual impacts that could result from project construction or operation. As described in the *City Environmental Quality Review (CEQR)*

[1] AKRF, Inc. "Proposed High School; 165-18 Hillside Avenue; Block 9816, Lots 39, 41, and 49; Jamaica, Queens County, New York: Disturbance Memorandum/Preliminary Archaeological Assessment." March 2020. Prepared for the New York City School Construction Authority, Long Island City, NY.

[2] *TPPN #10/88* was issued by DOB on June 6, 1988, to supplement Building Code regulations with regard to historic structures. *TPPN #10/88* outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

Technical Manual, indirect impacts could result from blocking significant public views of a resource; isolating a resource from, or alteration of, its setting or relationship to the streetscape, including changes to the resource's visual prominence; introducing incompatible visual, audible, or atmospheric elements to a resource's setting; elimination or screening of publicly accessible views of the resource; or introducing shadows over a historic landscape or an architectural resource with sun-sensitive features that contribute to that resource's significance (e.g., a church with stained-glass windows).

For this analysis, the architectural resources study area has been defined as the area within an approximately 400-foot radius of the project site (see **Figure 6-1**). Known architectural resources include properties that are National Historic Landmarks (NHLs), properties listed on the State and National Registers of Historic Places (S/NR) or that have been determined eligible for S/NR listing (S/NR-eligible), and properties that have been designated as New York City Landmarks (NYCLs), determined eligible for landmark status (NYCL-eligible), or calendared for NYCL designation. In addition, a survey of the study area was conducted to identify any previously undesignated properties that appear to meet S/NR or NYCL eligibility criteria ("potential architectural resources").

C. EXISTING CONDITIONS

ARCHAEOLOGICAL RESOURCES

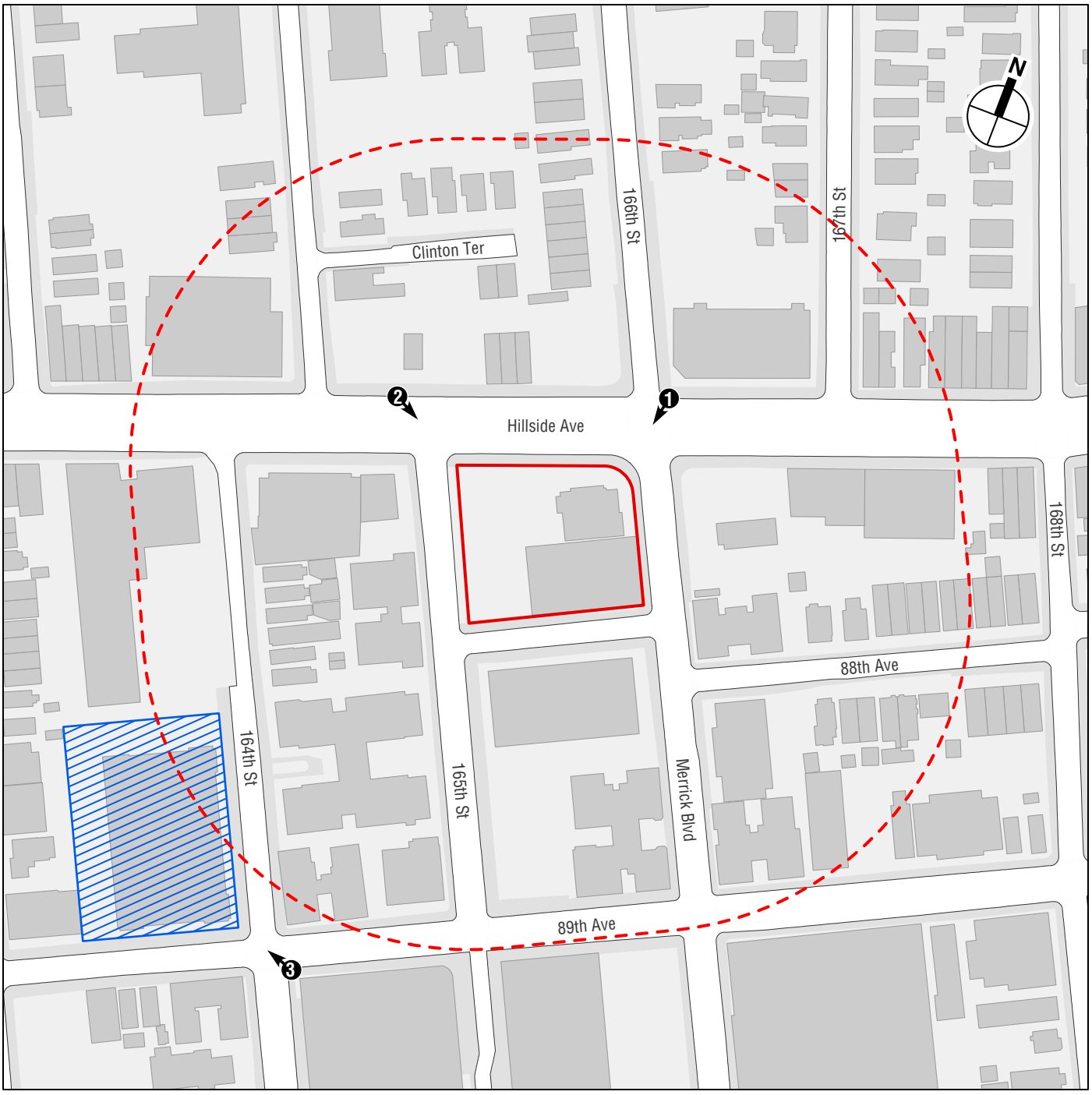
To assess the archaeological sensitivity of the project site, AKRF prepared a disturbance memorandum/preliminary archaeological assessment (see **Appendix A**). The study was designed to examine the land use and development history of the project site to determine whether additional research (e.g., a Phase 1A Archaeological Documentary Study) is required to clarify the site's potential to contain archaeological resources. The memorandum documents known archaeological sites in the vicinity of the project site, describes the site's environmental setting, summarizes the site's development history, and assesses the extent to which the site has been disturbed. The memorandum, the results of which are summarized below, concluded that the project site is not sensitive for archaeological resources dating to either the precontact or historic periods and that no additional archaeological analysis is warranted. The disturbance memorandum was submitted to the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) for review, and in a comment letter dated June 8, 2021, OPRHP concluded that the project would have no impact on archaeological resources (see **Appendix A**). Therefore, this analysis focuses on standing structures only.

PRECONTACT ARCHAEOLOGICAL RESOURCES

The precontact period refers to the time when Queens was occupied by Native Americans before the settlement of the area by European colonists. The precontact sensitivity of sites in New York City is generally evaluated by the site's proximity to level slopes, water courses, well-drained soils, and previously identified precontact archaeological sites. Precontact archaeological sites are generally found at shallow depths, usually within five feet of the original ground surface.

Due to its proximity to a reported archaeological site, the project site is situated within a generalized area of archaeological sensitivity as mapped by OPRHP in the New York State Cultural Information System (CRIS).[3] The disturbance memorandum discusses the previously

[3] https://cris.parks.ny.gov/



Architectural Resources

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 6-1

identified archaeological sites within one mile of the project site, including a Native American trail that may have been located in the vicinity of Jamaica Avenue to the south of the project site. The project site was also located near the southern border of the moraine marking the southern extent of glacial activity and was in the vicinity of a number of several small glacial ponds. The disturbance memorandum therefore determined that it is highly likely that the project site was utilized for long- or short-term settlement or resource exploitation (i.e., hunting and gathering). However, the site has been disturbed through the construction and demolition of a number of current and historical buildings as well as grading and paving associated with the construction of a parking lot on Lots 39 and 41. Therefore, it is not expected that undisturbed archaeological resources associated with Native American occupation would be present on the project site. The disturbance memorandum determined that the project site is considered to have low sensitivity for precontact archaeological resources.

HISTORIC PERIOD ARCHAEOLOGICAL RESOURCES

The disturbance memorandum included a thorough review of historic maps. Those historic maps depict no development on the project site prior to the first decade of the 20th century, by which time municipal water and sewer networks were available in the adjacent streetbeds. Therefore, the disturbance memorandum determined that the project site is not sensitive for archaeological resources dating to the historic period.

ARCHITECTURAL RESOURCES

PROJECT SITE

The project site comprises Queens Block 9816, Lots 39, 41, and 49. A funeral parlor, an office building, and a paved surface parking lot currently occupy the project site (see **Figure 6-2**). The funeral parlor is a two-and-a-half-story building that was constructed circa 1907 to 1909. The building was built by owner Oswald F. Rohe of Jamaica and designed by architect W.K. Benedict. Originally built in the Tudor Revival-style, the former residence has undergone alterations over the years, including enclosure of the porch (which was formerly screened in), and construction of a one-story addition along the building's south façade. The building is set back from the sidewalks on Hillside and Merrick Avenues behind a wrought iron fence with stone-faced columns, with its main entrance on Hillside Avenue and a secondary, smaller entrance on Merrick Avenue. Originally faced in stucco, the building is now clad in stone, with a cross gable roof clad in asphalt shingles. The building features Elizabethan leaded glass windows and a partially enclosed front porch faced in a different stone than the rest of the structure. The main entrance is a paired of decorative wooden doors inset with oval windows. Signage reading 'Bernard F. Dowd Funeral Home' can be found above the porch stairs, with the 'Bernard F. Dowd' portion appearing to be constructed of neon lights.

The vacant two-story office building south of the funeral parlor was constructed between 1966 and 1980. The building's primary facades (south and east) are clad in tan-colored brick with symmetrical fenestration with multi-light windows; the rear of the building (north and west facades) are clad in red-colored brick. Formerly home to the Jamaica HomeBase, a Catholic Charity organization, the building has two entrances with one along Merrick Boulevard and another along 88th Avenue. Both are protected by rolled down metal gates.

The remainder of the project site is occupied by a surface parking lot associated with the funeral parlor and office buildings. It is enclosed by wrought iron fencing and stone faced columns along

4.1.20

View southwest of the project site, at 165-18 Hillside Avenue (Block 9816, Lots 39, 41, and 49) **1**

View southeast of the project site from Hillside Avenue and 165th Street **2**

SCA 165-18 HILLSIDE AVENUE, QUEENS

Project Site
Figure 6-2

Hillside Avenue, and tall chain link fencing along 165th Street and 88th Avenue. The parking lot is accessed via two gates, one along Hillside Avenue and one along 165th Street.

The buildings on the project site are not architecturally distinctive and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation. Therefore, there are no known or potential architectural resources on the project site.

STUDY AREA

The study area is characterized by a variety of early- to mid-20th century residential buildings, some with commercial spaces on the ground floors. Older residential buildings in the study area have been significantly altered, with modifications that include non-original cladding materials, replacement windows, removal of original architectural detailing, and modern additions. Older commercial buildings in the study area have also substantially been altered, with modern storefronts, replacement windows, and the removal of original architectural detailing.

The study area includes one known architectural resource. No potential architectural resources were identified within the study area.

The **Jamaica Main Post Office** (S/NR-listed) is located on the northwest corner of 164th Street and 89th Avenue, approximately 320 feet southwest of the project site (see **Figure 6-3**). The building is set back from the sidewalk behind low landscaping and chain link fencing. The Greek Revival, 2-story post office was built between 1932 and 1934 by architects Cross & Cross. It has a generally rectangular footprint. The building's main entrances are located along 164th Street beneath a granite portico that rises to the roofline. Supported by Iconic columns, the portico includes a bas-relief shield featuring a bald eagle with the words 'United States Post Office' inscribed beneath. Beneath the portico, the façade is faced in granite paneling, while the remainder of the building is clad in red brick. Symmetrically fenestrated, the building has tall multi-light, round arched windows on the ground floor, with multi-light, double-hung windows along the second story. The windows have stone keystones and stone sills. Unlike the red brick-clad portion of the façade, the granite-clad portion of the main façade has three paired metal doors with multi-light transom windows above. The building is capped by a stone cornice with a brick parapet above, with evenly spaced sections of stone railing.

D. FUTURE WITHOUT THE PROPOSED PROJECT

PROJECT SITE

In the future without the proposed project, no development is expected on the project site.

STUDY AREA

Current land use and development trends are expected to continue in the future without the proposed project. No substantial development projects have been identified in the study area that are expected to be completed by the proposed project's 2026 build year.

Architectural resources that are listed on the National Register or that have been found eligible for listing are given a measure of protection from the effects of federally sponsored or assisted projects under Section 106 of the National Historic Preservation Act. Although preservation is not mandated, federal agencies must attempt to avoid adverse impacts on such resources through a notice, review, and consultation process. Properties listed on the State Register are similarly

4.1.20

View northwest of the Jamaica Main Post Office at 88-40 164th Street, a known architectural resource **3**

Study Area
Architectural Resources
Figure 6-3

protected against impacts resulting from state-sponsored or state-assisted projects under the State Historic Preservation Act. Private property owners using private funds can, however, alter or demolish their properties without such a review process. Privately owned sites that are NYCLs, within NYCHDs, or pending designation, are protected under the New York City Landmarks Law, which requires LPC review and approval before any alteration or demolition can occur.

The New York City Building Code provides some measures of protection for all properties against accidental damage from adjacent construction by requiring that all buildings, lots, and service facilities adjacent to foundation and earthwork areas be protected and supported. Chapter 33 of the New York City Building Code outlines measures to ensure protection of adjoining property and includes additional safeguards for historic structures located within 90 feet, by requiring the monitoring of historic structures within 90 feet from the edge of a lot where excavation is occurring during the course of excavation work. (Historic structures are defined as NYCLs, properties within New York City Historic Districts, and S/NR-listed and eligible properties.)

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

ARCHAEOLOGICAL RESOURCES

As described above, the disturbance memorandum prepared by AKRF in March 2020, concluded that the project site is not sensitive for archaeological resources. In a comment letter dated June 8, 2021, OPRHP concluded that the project would have no impact on archaeological resources (see **Appendix A**). Therefore, the proposed project would not have a significant adverse impact on archaeological resources.

ARCHITECTURAL RESOURCES

PROJECT SITE

With the proposed project, the project site would be redeveloped with a new five-story, 119,000 gsf, 801-seat high school building. Based on preliminary design, the new school would have frontages along Hillside and 88th Avenue, and Merrick Boulevard and 165th Street, with the main entrance on 88th Avenue. The southern portion of the project site would be redeveloped with a 10,000 sf play area.

As there are no known or potential architectural resources on the project site, the proposed project would have no adverse impacts on such resources.

STUDY AREA

Direct Impacts

Using the *CEQR Technical Manual* direct impact criteria noted above, the proposed project would not result in the replication of aspects of any architectural resource so as to cause a false historical appearance, or the introduction of significant new shadows affecting historic resources. The Jamaica Main Post Office is located more than 90 feet from the proposed construction activities, beyond the distance within which it could be expected to potentially experience inadvertent construction-related damage. Therefore, the proposed project would have no direct impacts on architectural resources.

Indirect Impacts

As described above, the Jamaica Main Post Office is located approximately 320 feet southwest of the project site. Mature trees along 164th and 165th Streets, and intervening buildings on the block bounded by Hillside Avenue to the north, 165th Street to the east, 89th Avenue to the south, and 164th Street to the west, provide visual barriers between the architectural resource and the project site. Therefore, the proposed development would not alter the architectural resource's setting or visual relationship with the streetscape. Additionally, the proposed development would not be incompatible with the architectural resource, as the architectural resource is already located in an area characterized by a mix of older and newer buildings. The proposed school would be somewhat taller than the three-story architectural resource; however, the school would be similar in height to the six-story apartment buildings located along 165th Street and 89th Avenue.

In a comment later dated June 8, 2021, OPRHP determined that the proposed project would not result in impacts to architectural resources (see **Appendix A**).

In summary, the proposed project is not expected to result in any significant adverse impacts on historic and cultural resources. ✷

Chapter 7: Urban Design and Visual Resources

A. INTRODUCTION

This chapter considers the potential of the proposed project to affect urban design and visual resources. The project site is located at 165-18 Hillside Avenue (Block 9816, Lots 39, 41, and 49) in the Jamaica Hills neighborhood of Queens (see **Figures 7-1 and 7-2**). The project site is located on the block bounded by Hillside Avenue to the north, Merrick Boulevard to the east, 88th Avenue to the south, and 165th Street to the west.

The proposed project would redevelop the project site with a new 801-seat, 5-story high school. Based on preliminary design, the new school would be approximately 119,000 gross square feet in size. The existing buildings on the project site would be demolished.

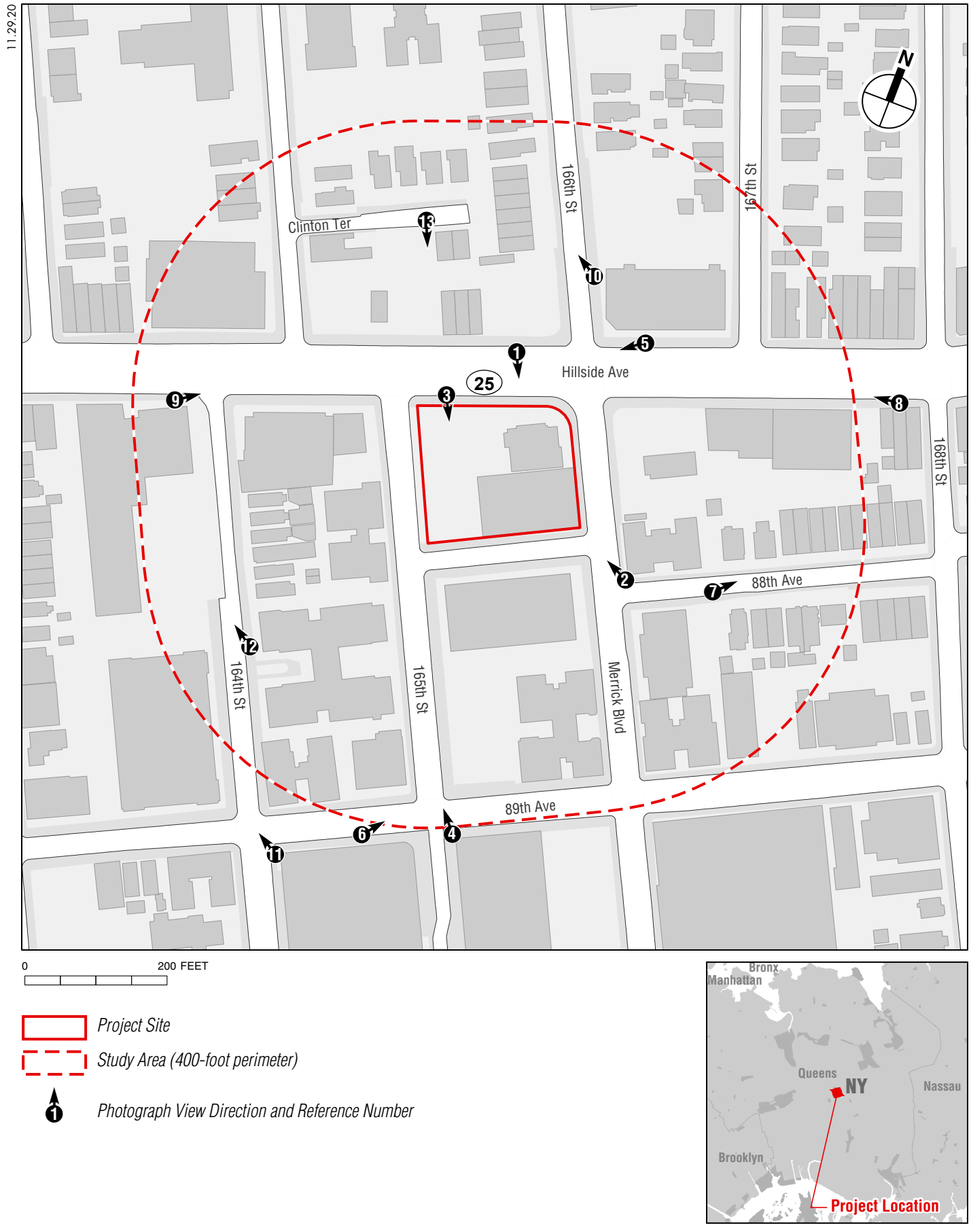
Under the *City Environmental Quality Review (CEQR) Technical Manual*, urban design is defined as the totality of components that may affect a pedestrian's experience of public space. These components include streets, buildings, visual resources, open spaces, natural resources, and wind conditions. An urban design assessment under CEQR must consider whether and how a project may change the experience of a pedestrian in a project area. The *CEQR Technical Manual* guidelines recommend the preparation of a preliminary assessment of urban design and visual resources, followed by a detailed analysis if warranted, based on the conclusions of the preliminary assessment. The analysis provided below addresses urban design characteristics and visual resources for existing conditions and the future without and the future with the proposed project.

As described below, the preliminary assessment concludes that in comparison to the No Action scenario, the proposed project would not be expected to result in any significant adverse impacts to urban design and visual resources on the project site or in the study area and does not require further analysis.

B. METHODOLOGY

Based on the *CEQR Technical Manual*, a preliminary assessment of urban design and visual resources is appropriate when there is the potential for a pedestrian to observe, from the street level, a physical alteration beyond that allowed by existing zoning. Examples include projects that permit the modification of yard, height, and setback requirements, and projects that result in an increase in built floor area beyond what would be allowed "as-of-right" or in the future without the proposed project.

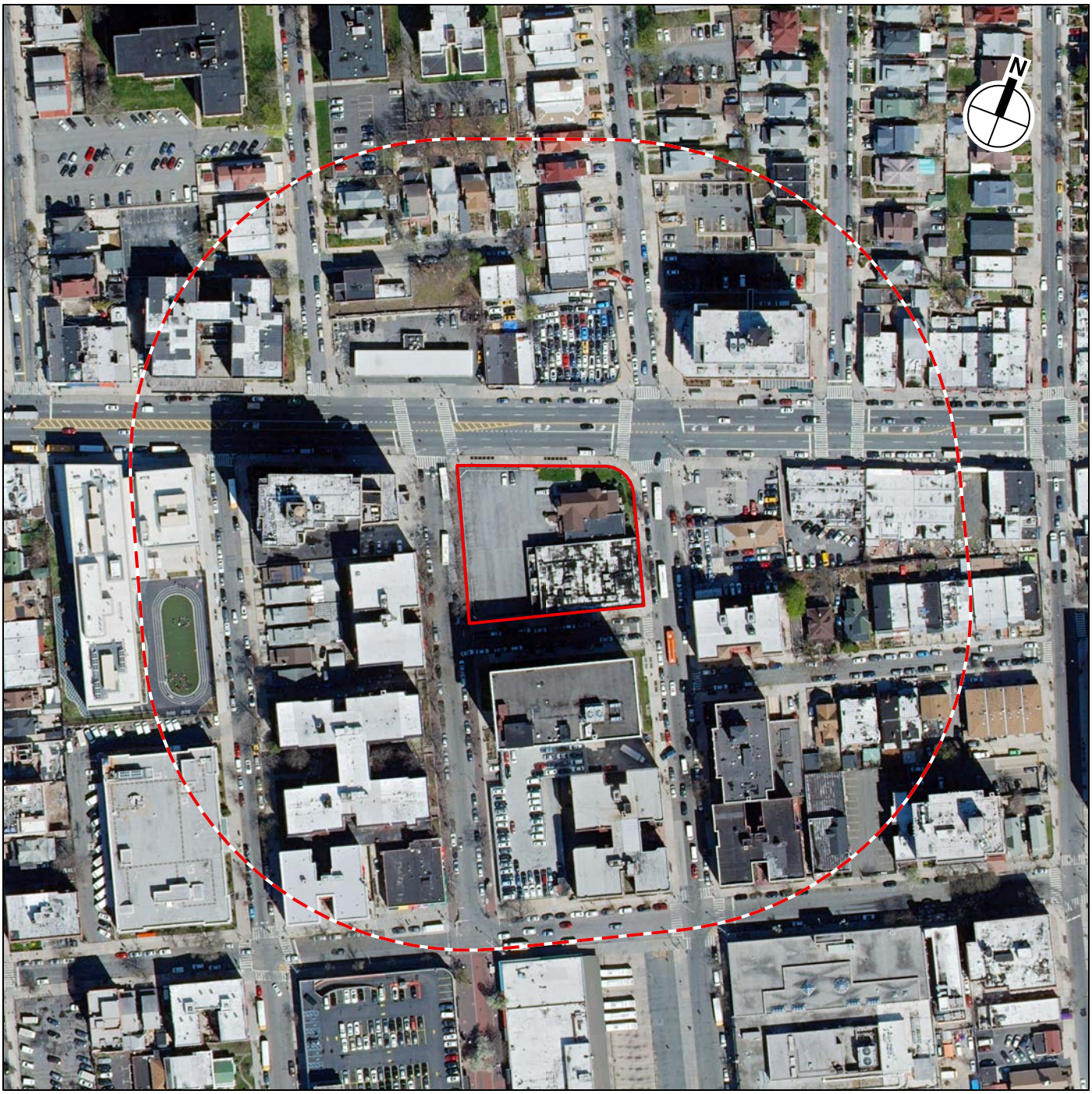
The project site is located in a C4-5X zoning district in the Special Downtown Jamaica District, where school use is permitted as-of-right. Although final design of the proposed building is not complete, it is anticipated that SCA may seek a waivers for bulk, height, and/or setbacks from the Deputy Mayor for Economic Development, which would allow for the development of a project that includes physical alterations observable by pedestrians that are not allowed by existing zoning. Therefore, the proposed project meets the threshold for a preliminary assessment of potential impacts to urban design and visual resources.



Urban Design and Visual Resources Reference Map

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 7-1



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Data source: NYS GIS Program Office, 2018 Digital Orthoimagry in New York City

Project Site

Study Area (400-foot perimeter)

Aerial Map

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 7-2

According to the *CEQR Technical Manual*, the study area for urban design is the area where the project may influence land use patterns and the built environment, and is generally consistent with the information used for the land use analysis. For visual resources, the view corridors within the study area, from which such resources are publicly viewable, should be identified. Consistent with CEQR methodologies, the study area for the urban design and visual resources analysis has been defined as a 400-foot radius around the project site, consistent with the analysis of land use, zoning, and public policy. The study area is roughly bounded by the north side of Clinton Terrace to the north, 168th Street to the east, 89th Avenue to the south, and the west side of 164th Street to the west (see **Figures 7-1 through 7-6**).

The *CEQR Technical Manual* recommends an analysis of pedestrian wind conditions for projects that would result in the construction of large buildings at locations that experience high wind conditions (such as along the waterfront, or other location where winds from the waterfront are not attenuated by buildings or natural features), which may result in an exacerbation of wind conditions due to "channelization" or "downwash" effects that may affect pedestrian safety. The proposed project would not result in the construction of a large building at a location that would experience high wind conditions, and thus a pedestrian wind analysis is not warranted.

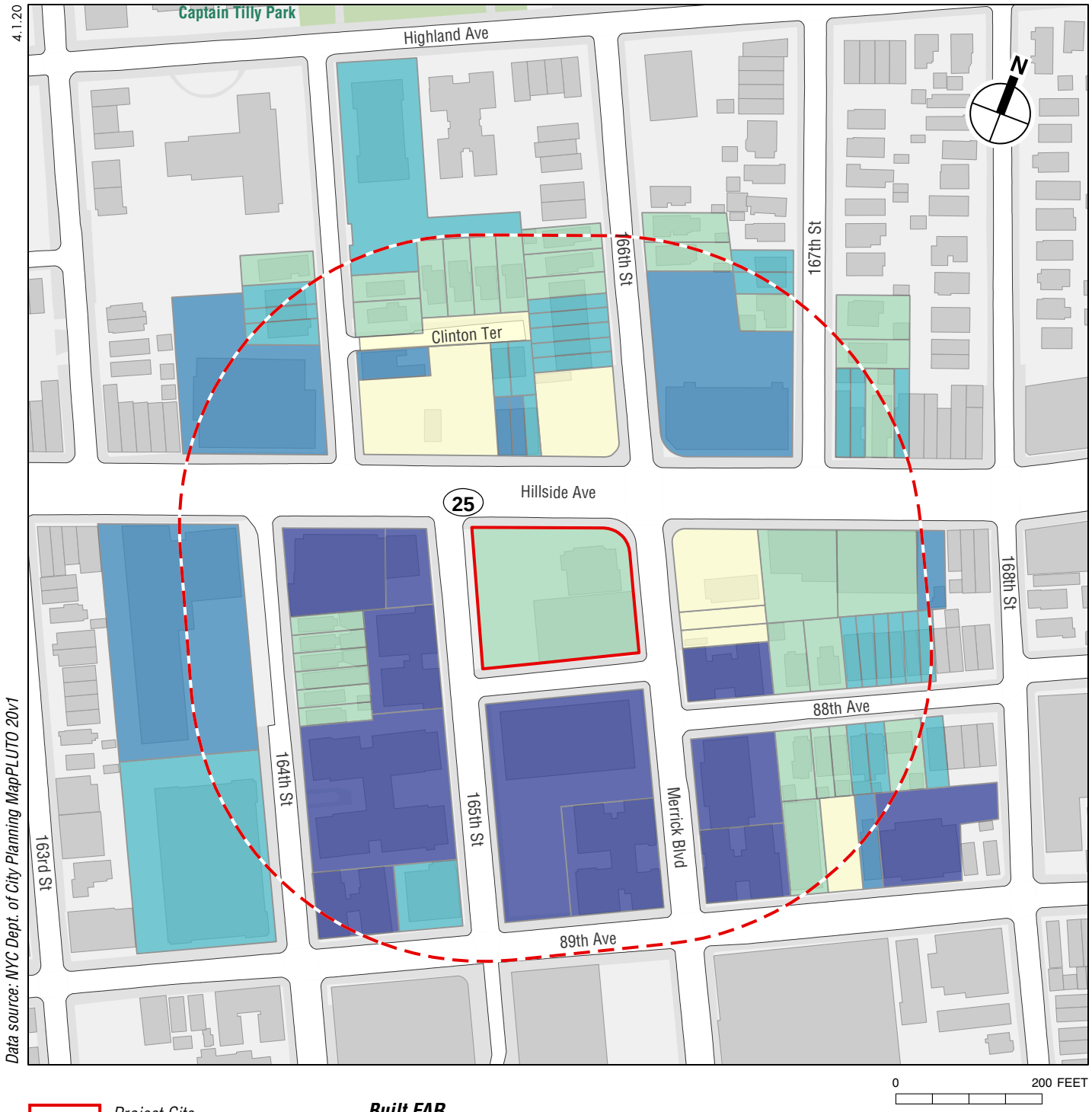
C. EXISTING CONDITIONS

URBAN DESIGN

PROJECT SITE

The project site is a roughly square, approximately 38,800-sf parcel within a C4-5X zoning district, in the Special Downtown Jamaica District. The project site has an approximately 205-foot-long frontage on Hillside Avenue, an approximately 213-foot-long frontage on 88th Street, an approximately 191-foot-long frontage on 165th Street, and an approximately 162-foot-long frontage on Merrick Boulevard.

The project site currently contains a 2-story, 10,210-square foot building formerly used as a funeral parlor, a 2-story vacant office/light manufacturing building, and a paved parking lot (see Views 1-3 of **Figures 7-7 and 7-8**). The parking lot is located on the west side of the project site and is surrounded by chain link fencing on 88th Avenue and 165th Street. The 2-story, 22,100 gsf is rectangular in plan and built to the lot line on Merrick Boulevard and 88th Avenue at the southeast corner of the project site. It is unornamented and clad in light brown brick on its Merrick Boulevard and 88th Avenue facades, and clad in red brick on its facades facing the interior of the block. The 2-story building formerly used as a funeral parlor is located at the northeast corner of the project site. It appears to be a converted single-family house, and is clad in rubble masonry and has a gable roof. It is set back from Hillside Avenue and Merrick Boulevard behind a landscaped area with grass, trees, and a tall flagpole, as well as a low metal fence along the perimeter of the site with stone pillars of a similar appearance to the building's façade material. There is an opening in the fence and a curb cut off Hillside Avenue west of the funeral parlor building, leading to the parking lot. The office building has building entrances enclosed with roll-down metal gates on Merrick Boulevard and 88th Avenue, and a vehicular entrance and related curb cut on 88th Avenue. There are street trees on the sidewalks adjacent to the project site. The 165th Street sidewalk adjacent to the project site is paved with red brick. The lot coverage of the project site is approximately 40 percent, and the built FAR of the site is approximately 0.83.



Project Site

Study Area (400-foot perimeter)

Built FAR

- 0.0 - 0.14
- 0.14 - 0.89
- 0.89 - 1.64
- 1.64 - 3.30
- 3.30 - 8.64

Built FAR

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 7-3

Project Site

Study Area (400-foot perimeter)

Lot Coverage

0 - 18%

18 - 40%

40 - 55%

55 - 71%

71 - 100%

Lot Coverage

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 7-4

Building Heights

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 7-5

SCA 165-18 HILLSIDE AVENUE, QUEENS

Build Year

Figure 7-6

Project site, view south from Hillside Avenue **1**

Project site, view northwest from Merrick Boulevard **2**

Project Site Photographs

Figure 7-7

Project site, view to parking lot from Hillside Avenue **3**

165th Street, view north from 89th Avenue **4**

Project Site and Study Area Photographs

STUDY AREA

The discussion below focuses first on the area's urban design—its basic layout and structures—and then describes its visual resources.

Streets, Streetscape, Open Space, and Natural Features

The study area has a regular street pattern, with a mix of square and rectangular blocks generally oriented with their long sides in the north-south direction. Hillside Avenue cuts through the street grid at a slight diagonal from the northwest to the southeast. Within the study area, Hillside Avenue is the widest street, at 100 feet; it carries two-way traffic and has some areas of curbside parking. Hillside Avenue also has wide sidewalks. The other study area streets are narrower (generally 60 feet wide) and carry one-way traffic. There is one dead-end street in the study area; Clinton Terrace, which extends east into the midblock from 165th Street north of Hillside Avenue. Most streets have sidewalks on both sides. Multiple bus routes extend through the study area along Hillside Avenue, 165th Street, Merrick Boulevard, and 89th Avenue; there is a bus terminal at the south end of the study area, at 165th Street and Merrick Boulevard, where multiple bus lines terminate. The F train line runs below Hillside Avenue through the study area; however, there are no stations within the study area itself. The closest stations are at Parsons Boulevard to the west and 169th Street to the east. There are no Citi Bike stations or bike routes through the study area.

The topography of the study area is generally flat, with an upward slope north of Hillside Avenue. There are few street trees along Hillside Avenue, but street trees are generally present in the remainder of the study area. There are no public open space or natural features within the study area.

Along Hillside Avenue, the streetscape is characterized by a mix of low-scale commercial uses and taller mixed-use buildings, as described below in "Built Environment." The streetscape on the narrower study area streets includes a mix of building types and uses. Cobrahead style lampposts are used throughout the study area. Sidewalk materials are typical in the study area except along 165th Street south of Hillside Avenue, where they are a mix of red brick and concrete, leading to pedestrian use-only portion of 165th Street south of 89th Avenue, which is paved with red bricks. There is a large amount of signage on commercial buildings along Hillside Avenue.

Built Environment

Buildings in the study area are primarily commercial, residential with ground-floor commercial/retail, and institutional. On the block immediately west of the project site are a 10-story brick-clad hotel built in 2007, a large, mid-century 16-story red brick-clad apartment building, three 6-story red brick-clad apartment buildings, and a small group of 2-story detached houses on 164th Street (see Views 4 and 5 of **Figures 7-8 and 7-9**). The 6-story apartments are all H-shaped in plan, at least 50 years old, and are generally built to the lot line. On the block immediately south of the project site is a 10-story, white brick-clad office building, set back slightly from the lot line and surrounded by a low chain link fence; an associated parking garage; and a 6-story, H-plan apartment building. The closest portions of the blocks directly east of the project site include a gas station/auto repair facility and 6- and 9-story brick-clad apartment buildings (see View 6 of **Figure 7-9**). Further east on 88th Avenue is a group of 2-story detached houses, and along the Hillside Avenue east of 166th Street/Merrick Boulevard are one and two-story buildings with ground-floor retail use and large-scale signage (see Views 7 and 8 of **Figure 7-10**).

View southwest on Hillside Avenue near 166th Street/Merrick Boulevard **5**

View east on 89th Avenue near 166th Street **6**

Study Area Photographs
Figure 7-9

North side of 88th Avenue, looking east from near Merrick Boulevard **7**

View northwest on Hillside Avenue near 168th Street **8**

Study Area Photographs

Figure 7-10

On the north side of Hillside Avenue, directly north of the project site, is a gas station, two-story commercial buildings with large-scale signage, and an auto sales facility, which is surrounded by large-scale signage and roll-down metal gates (see View 9 of **Figure 7-11**). A 7-story red brick apartment building is located at the northwest corner of Hillside Avenue and 165th Street, and a 13-story tan brick apartment building with ground-floor retail occupies the full blockfront Hillside Avenue between 166th and 167th Streets. North of the buildings facing Hillside Avenue on these blocks are 2-story houses, mostly clad in siding, as well as a few small 3-story apartment buildings (see View 10 of **Figure 7-11**). The single-family houses in the study area typically have small footprints, are located on narrow lots, and are set back from the street and sidewalk behind terraced or paved front yards and decorative perimeter fences.

On the west side of 164th Street south of Hillside Avenue are two institutional buildings with large footprints: P.S. 349 (the Queens School for Leadership and Excellence) and the Jamaica Main Post Office (see Views 11 and 12 of **Figure 7-12**). The Jamaica Main Post Office is a 2-story, Colonial Revival-style brick building on a granite base. It has marble trip and a marble portico supported by Ionic style columns and is listed on the National Register of Historic Places (see Chapter 6, "Historic and Cultural Resources"). P.S. 349 is a 4-story building with a large, L-shaped footprint and a sports field with a running track facing 164th Street. The sports field is surrounded by a tall chain link fence.

The lot coverage of the 2-story houses in the study area is generally under 50 percent, and their built FAR is generally under 2.0. The built FAR of the 6- and 7-story apartment buildings in the study area is generally in the range of 3.3 to 4.8; their lot coverage varies widely. The highest built FAR in the study area is that of the 16-story apartment building on Hillside Avenue; the other taller buildings in the study area are located on larger lots and/or have lower lot coverage. The lot coverage of P.S. 349 on 164th Street is approximately 45 percent, and its built FAR is approximately 1.88; the Jamaica Main Post Office has a lot coverage of approximately 60 percent and a built FAR of approximately 1.15.

Most of the smaller buildings in the study area and the Jamaica Main Post Office date from the early 20th century (pre-1940); the larger apartment buildings and mixed-use (residential and retail) buildings in the area date from the 1940s through the 1960s. The hotel directly west of the project site, and P.S. 349, are among the few more modern structures.

VISUAL RESOURCES

As defined in the *CEQR Technical Manual*, "a visual resource is the connection from the public realm to significant natural or built features, including views of the waterfront, public parks, landmark structures or districts, otherwise distinct buildings or groups of buildings, or natural resources."

PROJECT SITE

As described above, the project site contains a vacant 2-story unornamented building in office/light manufacturing use, a 2-story stone-faced building formerly used as a funeral home, and a paved parking lot. The existing buildings on the project site are not considered to be visual resources. Views from the sidewalks adjacent to the project site on Hillside Avenue extend for long distances due to the width of the street and its relative lack of street trees, and include the surrounding commercial and residential development described above. North-south views on Merrick Boulevard and 165th Street are more constrained, due to narrower street widths as well

View northeast on Hillside Avenue near 164th Street **9**

West side of 166th Street, north of Hillside Avenue **10**

Study Area Photographs
Figure 7-11

164th Street, view northwest from 89th Avenue **11**

West side of 164th Street between Hillside and 89th Avenues **12**

as the height of surrounding development. Views west on the portion of 88th Avenue adjacent to the project site end at 165th Street, and views east end at Merrick Boulevard.

STUDY AREA

As described above, views along Hillside Avenue extend for long distances due to the width of the street and its relative lack of street trees. The taller apartment and hotel buildings on the avenue in close proximity to the project site, as well as the commercial signage on the low-scale buildings, are most noticeable in these views. Views north on 165th, 166th, and 167th Street north of Hillside Avenue are limited by the topography of the study area, which slopes upwards north of Hillside Avenue; views south on 165th and 167th Streets from north of Hillside Avenue end at the avenue, due to the shift in the street grid to the south. Views north on 164th and 165th Streets from south of Hillside Avenue also end at the avenue, due to the shift in the street grid. There are no visual landmarks in these views.

The shift in the street grid east of Merrick Boulevard also limits view corridors along 88th Avenue. As described above, views west on the portion of 88th Avenue adjacent to the project site end at 165th Street, and views east end at Merrick Boulevard. The 10-story office building south of the project site is most noticeable in views west on 88th Avenue from east of Merrick Boulevard. Due to the low scale of the gas station north of the site and the upward slope of the study area north of Hillside Avenue, views to the project site and the 10-story office building south of the project site are also visible from portions of Clinton Terrace (see View 13 of **Figure 7-13**). Views east and west on 89th Avenue extend for long distances, but do not have any notable focus with the exception of the Jamaica Main Post Office as noted below.

The Jamaica Main Post Office is visually interesting; however, views to the building are mostly limited to nearby portions of 164th Street and 89th Avenue. There are no other visual resources in the study area.

D. FUTURE WITHOUT THE PROPOSED PROJECT

PROJECT SITE

Absent the proposed project, it is assumed that the existing structures will remain on the project site and the parking lot will remain undeveloped. Therefore, the urban design character of the project site will not be altered.

EFFECTS OF OTHER FUTURE PROJECTS

As described in Chapter 2, "Land Use, Zoning, and Public Policy," there are no substantial development projects anticipated that would be completed by the 2026 Build year. Therefore, the urban design character of the study area, and views to visual resources, will not be altered.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The *CEQR Technical Manual* guidelines state that if the preliminary assessment shows that changes to the pedestrian environment are sufficiently significant to require greater explanation and further study, then a detailed analysis is appropriate. Examples include projects that would potentially obscure view corridors, compete with icons in the skyline, or make substantial alterations to the streetscape of a neighborhood by noticeably changing the scale of buildings. Detailed analyses are also generally appropriate for area-wide rezonings that include an increase

View south to project site from Clinton Terrace **13**

Study Area Photographs

in permitted floor area or changes in height and setback requirements, general large-scale developments, or projects that would result in substantial changes to the built environment of a historic district or components of a historic building that contribute to the resource's historic significance.

URBAN DESIGN

PROJECT SITE

As discussed in Chapter 1, "Project Description," plans for the proposed project are not yet finalized; however, based on preliminary design, the proposed project would redevelop the northern portion of the project site with a new public school building that would be up to five stories (with a maximum height of approximately 90 feet tall, including the rooftop bulkheads). The new school would be approximately 119,000 gsf in size. The southern portion of the project site would be redeveloped with a 10,000 sf play area (see Figure 1-2 in Chapter 1, "Project Description). The new school building would be expected to have a large, roughly rectangular footprint, with approximately 187-foot-long frontages on Hillside and 88th Avenue, as well as frontages on Merrick Boulevard and 165th Street. Based on preliminary design, it is anticipated that the new school building would be set back from Hillside Avenue, 165th Street, and Merrick Boulevard behind landscaped areas, and that the school's primary entrance would be on the building's south (88th Avenue) façade. In order to accommodate curbside auto and school bus drop-offs/pick-ups, it has been assumed that 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way eastbound to one-way westbound.

As noted above, the school use is permitted as-of-right within the site's C4-5X district. Based on preliminary plans, SCA would require approval of waivers from the Deputy Mayor for Economic Development to permit the project to proceed. It is likely that waivers would also be required for height and setback regulations. The overrides would only apply to the project site.

The new school would enliven the project site by replacing a paved parking lot with a new school facility and new playground that would introduce new pedestrian activity. New street trees would be planted along the sidewalks adjacent to the project site, which would provide greenery and shade and enhance the pedestrian experience. In the future with the proposed school, the project site would have a built FAR of approximately 3.06, in comparison to the existing built FAR of for the site (approximately 0.83).

Therefore, the proposed school would not result in any significant adverse impacts to urban design characteristics of the project site.

STUDY AREA

The proposed school building would be constructed on an existing block and would not entail any changes to streets or street patterns, public open space, or natural features in the study area.

The proposed project would change the streetscape in the study area near the project site, as the proposed five-story school building would be taller and have a larger massing than the existing buildings on the project site; however, the proposed building would be shorter than several buildings across the street from the project site, including the 10-story office building on the south side of 88th Avenue, the 10-story hotel on the west side of 165th Street, and the 13-story apartment building on the east side of 166th Street/Merrick Boulevard. As the project site is located within the Special Downtown Jamaica District, the transition rule regulates the change in building

massing from taller building portions along wide streets to a reduced scale for building portions that abut smaller homes in lower density residential zoning districts. The district's controls pertaining to street walls and other streetscape elements would be followed to support an attractive and viable downtown area.

The proposed institutional use would complement the existing school use along the west side of 164th Street within the study area. Therefore, the proposed building would not be inconsistent with the urban design of the study area. The proposed building also would be set back slightly from Hillside Avenue and Merrick Boulevard, consistent with the existing building at the northeast corner of the project site. The planting of new trees on the sidewalks adjacent to the project site also would complement the streetscape of the study area. The inclusion of a playground at the project site would also be consistent with the study area, which includes sports fields and play equipment at the P.S. 349 complex on the west side of 164th Street. In the future with the proposed school, the built FAR and lot coverage of the project site would still be consistent with that of the surrounding study area.

Further, it is anticipated that the proposed project would enhance the vitality, walkability, and visual character of the study area by enlivening the project site with a new active use and by providing landscaping and sidewalk tree plantings that would positively contribute to the pedestrian experience.

VISUAL RESOURCES

PROJECT SITE

The proposed project would not obstruct existing views from the sidewalks adjacent to the project site to the surrounding area. The new school building would be most visible in views along Hillside Avenue; however, its scale and height would not be notable within this view corridor, as there are other taller buildings with large footprints in close proximity. Therefore, the proposed project would not adversely impact visual resources on or visible from the project site.

STUDY AREA

The proposed school building would not obstruct any views to visual resources. Existing views to the Jamaica Main Post Office from 164th Street and 89th Avenue would be unchanged. As described above, the new school building would be most visible in views along Hillside Avenue; however, its scale and height would not be notable within this view corridor, as there are other taller buildings with large footprints in close proximity. Therefore, the proposed project would not adversely affect visual resources.

Overall, the proposed project would not be expected to result in any significant adverse impacts to urban design or visual resources on the project site or in the study area, and therefore, no further analysis is required. ✷

A. SCREENING ANALYSIS

A natural resources assessment is conducted when a natural resource is present on or near the project site and when an action involves the disturbance of that resource. The 2020 *City Environmental Quality Review (CEQR) Technical Manual* defines natural resources as water resources, including surface waterbodies and groundwater; wetland resources, including freshwater and tidal wetlands; upland resources, including beaches, dunes, and bluffs, thickets, grasslands, meadows and old fields, woodlands and forests, and gardens and other ornamental landscaping; and built resources, including piers and other waterfront structures. The project site is located in a fully developed area in Queens, and there are no significant natural resources on the site. Therefore, no additional analysis of natural resources is warranted, and the proposed project would not result in any significant adverse impacts on natural resources. ✷

A. INTRODUCTION

This chapter examines the potential effects of the proposed project on the study area transportation systems. Specifically, it compares conditions in the future with the proposed project (the With Action condition) against conditions in the future without the proposed project (the g condition) in order to determine the potential for significant adverse impacts to transportation systems. The analyses consider the 2026 analysis year to identify potential impacts, and if warranted, determine improvement measures that would be appropriate to address those impacts. The travel demand projections, trip assignments, and capacity analysis presented in this chapter were conducted pursuant to the methodologies outlined in the 2020 *City Environmental Quality Review (CEQR) Technical Manual*.

BACKGROUND

As detailed in Chapter 1, "Project Description," the project site is located in the Jamaica Hills neighborhood of Queens on the block bounded by Hillside Avenue to the north, 88th Avenue to the south, 165th Street to the west, and Merrick Boulevard/166th Street to the east (Block 9816, Lots 39, 41, and 49). The project site is currently occupied by a former funeral parlor, a former office building, and paved parking lot. With the proposed project, the existing unoccupied structures on the project site would be demolished and replaced by a new, 119,000 gross-square foot, five-story school building. It is assumed that if the proposed project does not proceed, the proposed school would not be built and the project site would remain in its current state (the No Action condition).

In the future with the proposed project, as summarized in **Table 9-1**, the project site would be redeveloped with a new High School (H.S.) with 801 students (including 30 District 75 students) in grades 9 through 12, as well as 90 faculty and staff.

Table 9-1:
Future With the Proposed Project Development Program Assumptions

Components	Future With the Proposed Project
High School Students	771
District 75 Students	30
Faculty and Staff[(1)]	90
Notes: (1) Per SCA, 1 faculty/staff member for every 10 high school students and 1 faculty/staff member for every 2.4 District 75 students.	

The proposed project would result in incremental trip generation, as detailed below. Based on feedback from the New York City Department of Transportation (NYCDOT), the proposed project would have an entrance for students and faculty and staff located on 88th Avenue. In order to accommodate curbside auto and school bus drop-offs/pick-ups, it has been assumed that 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way

eastbound to one-way westbound. This change has been assumed as part of the Level 2 assignments presented below.

PRINCIPAL CONCLUSIONS

TRAFFIC

Traffic conditions were evaluated at five intersections for the weekday AM and PM school-related peak hours. In the 2026 future with the proposed project, significant adverse traffic impacts were identified at two intersections during the weekday AM peak hour and three intersections during the weekday PM peak hour. **Table 9-2** summarizes the projected significant adverse traffic impacts for the 2026 future with the proposed project.

Table 9-2:
Summary of Significant Adverse Traffic Impacts
2026 Future With the Proposed Project

Intersection		Weekday AM Peak Hour	Weekday PM Peak Hour
EB/WB Street	**NB/SB Street**		
Hillside Avenue	165th Street (East)	NB-L NB-R	NB-L NB-R
89th Avenue	165th Street		WB-R
Hillside Avenue	166th Street/Merrick Boulevard	EB-R	EB-TR WB-L
Total Impacted Intersections/Lane Groups		**2/3**	**3/5**

Note:
L = Left Turn, T = Through, R = Right Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

With the implementation of standard traffic mitigation measures (signal timing changes), which are subject to review and approval by DOT, these significant adverse traffic impacts could be fully mitigated at Hillside Avenue and 166th Street/Merrick Boulevard during the AM peak hour and 89th Avenue and 165th Street during the PM peak hour only. The intersection of Hillside Avenue and 165th Street (East) could also be partially mitigated with signal timing changes during the AM and PM peak hours. The remaining significant adverse traffic impacts at Hillside Avenue and 165th Street (East) during the AM and PM peak hours and Hillside Avenue and 166th Street/Merrick Boulevard during the PM peak hour would remain unmitigated.

TRANSIT

The proposed project's incremental subway trips would not exceed the *CEQR Technical Manual* analysis threshold of 200 or more peak hour subway trips at a station. Therefore, a detailed analysis of subway facilities is not warranted and the proposed project is not expected to result in any significant adverse subway impacts.

In addition, incremental bus trips would be fewer than 50 peak hour bus riders on a bus route in a single direction. Therefore, based on *CEQR Technical Manual* guidelines a detailed analysis of buses is not warranted and the proposed project is not expected to result in any significant adverse bus line-haul impacts.

PEDESTRIANS

Peak-period pedestrian conditions were evaluated at key area sidewalk, corner reservoir, and crosswalk locations. Pedestrian conditions were evaluated at six sidewalks, seven corners, and two crosswalks for the weekday AM and PM school-related peak hours. Analyses performed for these pedestrian elements showed that the proposed project would not result in any significant adverse pedestrian impacts.

PARKING

The proposed project would not include any accessory parking spaces on site, which is not a requirement per zoning regulations. The faculty and staff would need to park at nearby on-street curbsides or off-street parking facilities. There are six off-street parking facilities with approximately 1,520 off-street spaces and approximately 610 on-street spaces located within ¼-mile of the project site. The faculty and staff associated with the proposed project would generate an additional parking demand of 38 vehicles. Based on the off-street and on-street parking supply available within ¼-mile of the project site and the minimal anticipated parking demand, the proposed project is not expected to result in the potential for a parking shortfall or a significant adverse parking impact.

VEHICULAR AND PEDESTRIAN SAFETY

Crash data for the study area intersections were obtained from NYCDOT for the time period between January 1, 2016 and December 31, 2018. During this period, a total of 322 reportable and non-reportable crashes, one fatality, 267 injuries, and 79 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of the crash data identifies three high crash locations in the 2016 to 2018 period, 164th Street and Jamaica Avenue, 165th Street and Jamaica Avenue, and 168th Street and Jamaica Avenue. These intersections would incur modest incremental project-generated vehicle and pedestrian volume increases, such that the proposed project is not anticipated to exacerbate vehicular and pedestrian safety further.

B. PRELIMINARY ANALYSIS METHODOLOGY AND SCREENING ASSESSMENT

The *CEQR Technical Manual* recommends a two-tier screening procedure for the preparation of a "preliminary analysis" to determine if quantified analyses of transportation conditions are warranted. As discussed below, the preliminary analysis begins with a trip generation analysis (Level 1) to estimate the volume of person and vehicle trips attributable to the proposed project. If the proposed project is expected to result in fewer than 50 peak hour vehicle trips and fewer than 200 peak hour transit or pedestrian trips, further quantified analyses are not warranted. When these thresholds are exceeded, detailed trip assignments (Level 2) are performed to estimate the incremental trips at specific transportation elements and to identify potential locations for further analyses. If the trip assignments show that the proposed project would result in 50 or more peak hour vehicle trips at an intersection, 200 or more peak hour subway trips at a station, 50 or more peak hour bus trips in one direction along a bus route, or 200 or more peak hour pedestrian trips traversing a pedestrian element, then further quantified analyses may be warranted to assess the potential for significant adverse impacts on traffic, transit, pedestrians, parking, and vehicular and pedestrian safety. If the results of the analysis show that the proposed school would generate an incremental increase of 20 or more students at any uncontrolled crossing during the highest crossing hour (a threshold recommended by the Federal Highway Administration's 2009 edition

of the *Manual on Uniform Traffic Control Devices*), these pedestrian elements would also be included in the detailed safety and operational analyses, including potentially a signal warrant analysis.

LEVEL 1 SCREENING ASSESSMENT

A Level 1 trip generation screening assessment was conducted to estimate the number of person and vehicle trips by mode expected to be generated by the proposed project during the weekday AM and PM school-related peak hours. These estimates were then compared to the *CEQR Technical Manual* thresholds to determine if a Level 2 screening and/or quantified operational analyses would be warranted.

TRANSPORTATION PLANNING ASSUMPTIONS

Trip generation factors for the proposed project were developed based on information from the *CEQR Technical Manual*, the 2019 *SCA H.S. 472 Environmental Impact Statement (EIS)*, U.S. Census Data, and standard District 75 travel demand assumptions, as summarized in **Table 9-3**.

Table 9-3:
Travel Demand Assumptions

Use	School – Faculty and Staff (90 Faculty and Staff)		School – Students (771 Students)		School – District 75 Students (30 Students)	
Total Daily Person Trip	(1) Weekday 2.0 Trips / Person		(1) Weekday 2.0 Trips / Person		(1) Weekday 2.0 Trips / Person	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Temporal	(1)		(1)		(1)	
	40%	40%	49.5%	49.5%	49.5%	49.5%
Direction	(2)		(2)		(3)	
In	100%	0%	100%	0%	100%	0%
Out	0%	100%	0%	100%	0%	100%
Total	100%	100%	100%	100%	100%	100%
Modal Split	(4)		(2)		(3)	
	AM	**PM**	**AM**	**PM**	**AM**	**PM**
Auto (Drop-Off/Pick-Up)	0.0%	0.0%	10.0%*	10.0%*	2.0%*	2.0%*
Auto (Self-Drove)	46.0%	46.0%	1.0%	1.0%	0.0%	0.0%
Taxi	1.0%	1.0%	0.0%	0.0%	0.0%	0.0%
Subway	24.0%	24.0%	33.0%	33.0%	0.0%	0.0%
Bus	21.0%	21.0%	36.0%	36.0%	0.0%	0.0%
School Bus	0.0%	0.0%	0.0%	0.0%	98.0%*	98.0%*
Walk	8.0%	8.0%	20.0%	20.0%	0.0%	0.0%
Total	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(4) Weekday		(2) Weekday		(2) Weekday	
Auto	1.08		1.30		1.30	
Taxi	1.08		1.30		1.30	
School Bus	N/A		N/A		7.00	

Sources:
(1) 2020 *CEQR Technical Manual*
(2) *SCA H.S. 472 EIS (2019)*
(3) Standard SCA District 75 assumption taken from existing facility.
(4) U.S. Census Bureau Reverse Journey-to-Work ACS 2012-2016 five-year estimates for Census Tracts 444, 446.01, 446.02, 454, 458, 460, and 462.
*Both inbound and outbound vehicle trips take place during the same peak hour

High School Students

The daily person trip generation rate and temporal distribution are from the *CEQR Technical Manual*. Modal splits, directional distributions, and vehicle occupancies are from the 2019 *SCA H.S. 472 EIS*. Both inbound and outbound auto drop-off/pick-up vehicle trips take place during the same peak hour.

District 75 Students

The daily person trip generation rate and temporal distribution are from the *CEQR Technical* Manual. Modal splits and directional distributions are standard SCA District 75 assumptions taken from an existing facility (the Hungerford School in Staten Island). Vehicle occupancies are from the 2019 *SCA H.S. 472 EIS*. Both inbound and outbound vehicle trips take place during the same peak hour.

Faculty and Staff

The daily person trip rate and temporal distribution are from the *CEQR Technical Manual*. Vehicle occupancies and modal splits are based on Reverse Journey-to-Work (RJTW) data from the 2012–2016 U.S. Census Bureau American Community Survey (ACS) for Queens Tracts 444, 446.01, 446.02, 454, 458, 460, and 462. Directional distributions are from the 2019 *SCA H.S. 472 EIS*.

TRAVEL DEMAND PROJECTION SUMMARY

As summarized in **Table 9-4**, the proposed project would generate a total of 865 incremental person trips during the weekday AM and PM peak hours. Approximately 169 vehicle trips would be generated during the same respective time periods.

Table 9-4:
Trip Generation Summary

Peak Hour	In/Out	Person Trips								Vehicle Trips				
		Auto (Drop-Off)	Auto (Self-Drove)	Taxi	Subway	School Bus	Bus	Walk	Total	Auto (Drop-Off)	Auto (Self-Drove)	Taxi	School Bus	Total
Student Trip Generation														
AM	In	77	8	0	252	29	275	152	793	60	6	0	5	71
	Out	0	0	0	0	0	0	0	0	60	0	0	5	65
	Total	77	8	0	252	29	275	152	793	120	6	0	10	136
PM	In	0	0	0	0	0	0	0	0	60	0	0	5	65
	Out	77	8	0	252	29	275	152	793	60	6	0	5	71
	Total	77	8	0	252	29	275	152	793	120	6	0	10	136
Faculty/Staff Trip Generation														
AM	In	0	33	1	17	0	15	6	72	0	31	1	0	32
	Out	0	0	0	0	0	0	0	0	0	0	1	0	1
	Total	0	33	1	17	0	15	6	72	0	31	2	0	33
PM	In	0	0	0	0	0	0	0	0	0	0	1	0	1
	Out	0	33	1	17	0	15	6	72	0	31	1	0	32
	Total	0	33	1	17	0	15	6	72	0	31	2	0	33
Total Trip Generation (Students and Faculty/Staff)														
AM	In	77	41	1	269	29	290	158	865	60	37	1	5	103
	Out	0	0	0	0	0	0	0	0	60	0	1	5	66
	Total	77	41	1	269	29	290	158	865	120	37	2	10	169
PM	In	0	0	0	0	0	0	0	0	60	0	1	5	66
	Out	77	41	1	269	29	290	158	865	60	37	1	5	103
	Total	77	41	1	269	29	290	158	865	120	37	2	10	169

LEVEL 1 SCREENING

TRAFFIC

As shown in **Table 9-4**, the incremental trips generated in the future with the proposed project would be 169 vehicle trips during the weekday AM and PM peak hours. Since the incremental vehicle trips would be greater than 50 vehicles during the weekday AM and PM peak hours, a Level 2 screening assessment (presented in the section below) was conducted to determine if there is a need for additional quantified traffic analyses.

TRANSIT

Existing public transit options to and from the study area are shown in **Figure 9-1**. As detailed in **Table 9-4**, the incremental trips generated in the future with the proposed project would be 269 person trips by subway during the weekday AM and PM peak hours. Considering that these trips would be dispersed among multiple subway stations serving the study area including the Jamaica Center Parsons/Archer Station (E/J/Z subway lines), the 169th Street Station (F line), and the Parsons Boulevard Station (F line), no single station would exceed the *CEQR Technical Manual* analysis threshold of 200 peak hour subway trips. Similarly, no subway line would exceed 200 peak hour trips in a single direction. Therefore, detailed subway facilities and subway line-haul analyses are not warranted, and the proposed project is not expected to result in any significant adverse subway impacts.

The trips generated in the future with the proposed project would be 290 person trips by bus during the weekday AM and PM peak hours. Considering that these trips would be further dispersed among the many local bus routes serving the study area including the Q1/Q2/Q3/Q17/Q20/ Q36/Q43/Q76/Q77 bus routes along Hillside Avenue, the Q6/Q8/Q9/Q41/Q54/Q56 bus routes along Jamaica Avenue, the Q65 bus route along 164th Street, the Q25/Q34 bus routes along Parsons Boulevard, the Q30/Q31bus routes along 169th/170th Streets, no single bus route would exceed the *CEQR Technical Manual* analysis threshold of 50 or more peak hour bus riders on a bus route in a single direction. Therefore, a detailed bus line-haul analysis is not warranted, and the proposed project is not expected to result in any significant adverse bus line-haul impacts.

PEDESTRIANS

All person trips generated by the proposed project would traverse the pedestrian elements (i.e., sidewalks, corners, and crosswalks) surrounding the project site. As shown in **Table 9-4**, the project generated pedestrian trips would be greater than 200 during both peak hours. A Level 2 screening assessment (presented in the section below) was conducted to determine if there is a need for additional quantified pedestrian analyses.

PARKING

The proposed project would not include any accessory parking spaces on site, which is not a requirement per zoning regulations. The faculty and staff would need to park at nearby on-street curbsides or off-street parking facilities. There are six off-street parking facilities with approximately 1,520 off-street spaces and approximately 610 on-street spaces located within ¼-mile of the project site. The faculty and staff associated with the proposed project would generate an additional parking demand of 38 vehicles. Based on the off-street and on-street parking supply available within ¼-mile of the project site and the minimal anticipated parking demand, the

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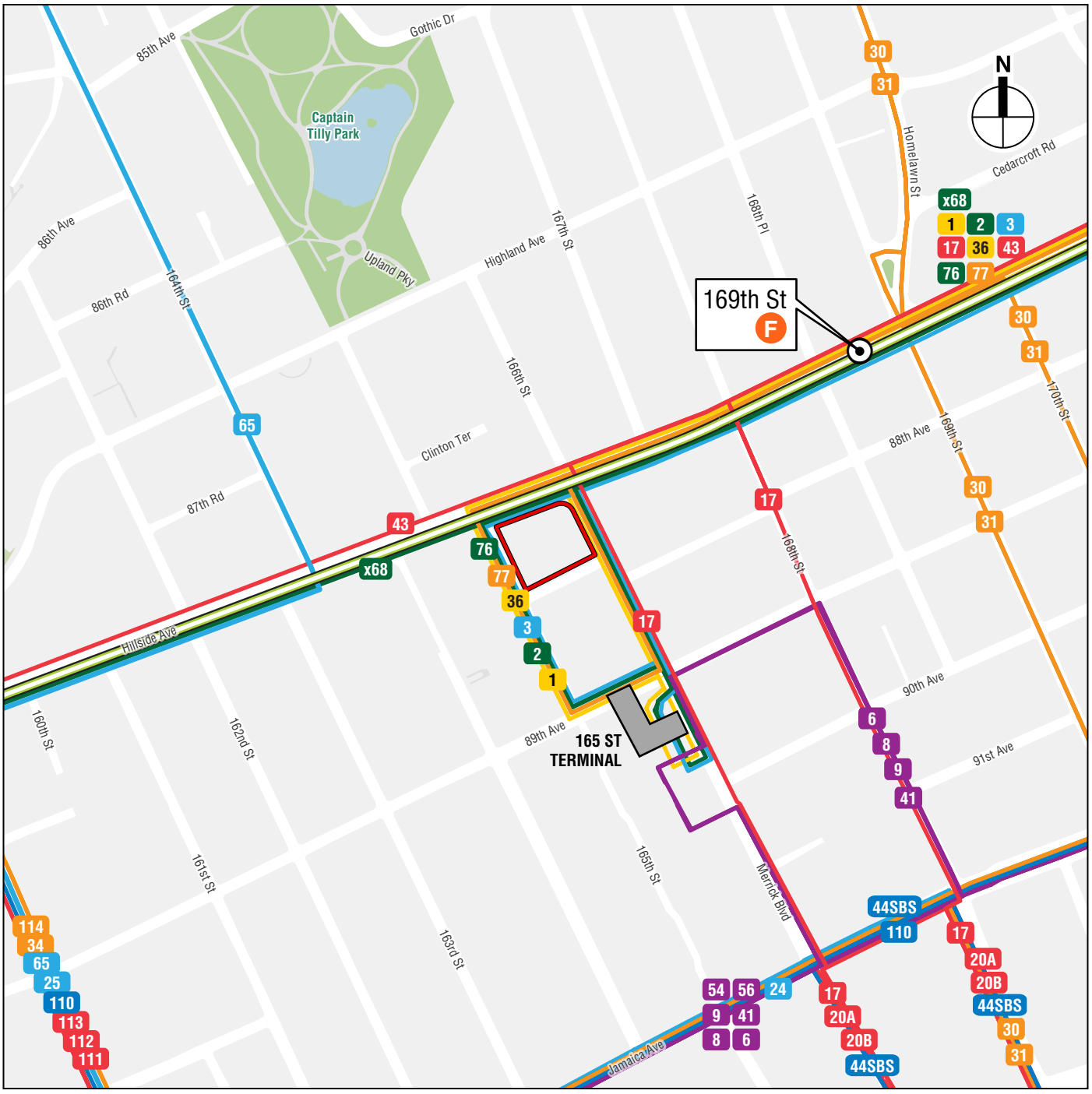


Transit Study Area

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-1

proposed project is not expected to result in the potential for a parking shortfall or a significant adverse parking impact.

LEVEL 2 SCREENING ASSESSMENT

As part of the Level 2 screening assessment, project-generated trips were assigned to specific intersections and pedestrian elements near the project site. As previously stated, further quantified analyses to assess the potential impacts of the proposed project on the transportation system would be warranted if the trip assignments were to identify key intersections incurring 50 or more peak hour vehicle-trips or pedestrian elements incurring 200 or more peak hour pedestrian-trips.

SITE ACCESS AND EGRESS

The proposed project would have a main entrance for students and faculty and staff located on 88th Avenue.

TRAFFIC

As shown in **Table 9-4**, incremental vehicle trips resulting from the proposed project would exceed the *CEQR* Level-1 screening threshold during the weekday AM and PM peak hours. These vehicle trips were assigned to area intersections based on the most likely travel routes to and from the project site, prevailing travel patterns, commuter origin-destination (O-D) summaries from the census data, the configuration of the roadway network, the anticipated locations of site access and egress, and the Community School District (CSD) boundaries. All of the student auto and school bus pick-up/drop-off trips were assigned adjacent to the school's entrance on 88th Avenue. As discussed above, it has been assumed that 88th Avenue between 165th Street and Merrick Boulevard would be converted from one-way eastbound to one-way westbound as part of the proposed project. All of the faculty and staff auto trips and student self-drive auto trips were assigned to off-street parking spaces within a ¼-mile of the project site. Traffic assignments for students and faculty and staff are discussed below.

Students

Auto trips generated by the students were assigned to the surrounding roadway network taking into consideration the most likely travel routes to and from the project site, the location of adjacent residences, the configuration of the roadway network, the CSD boundaries, and the anticipated locations of site access and egress. As a result, student trips were distributed in the following manner: 25 percent from the north, 25 percent from the east, 25 percent from the south, and 25 percent from the west.

Faculty and Staff

Auto trips generated by the faculty and staff were assigned to the surrounding roadway network based on the 2012–2016 U.S. Census ACS RJTW origin-destination estimates. The majority of the faculty and staff trips would originate from within the local region of Queens (57 percent) with the remaining trips originating from Long Island (31 percent), New Jersey (3 percent), Brooklyn (7 percent), the Bronx (1 percent), and Upstate New York (1 percent).

Summary

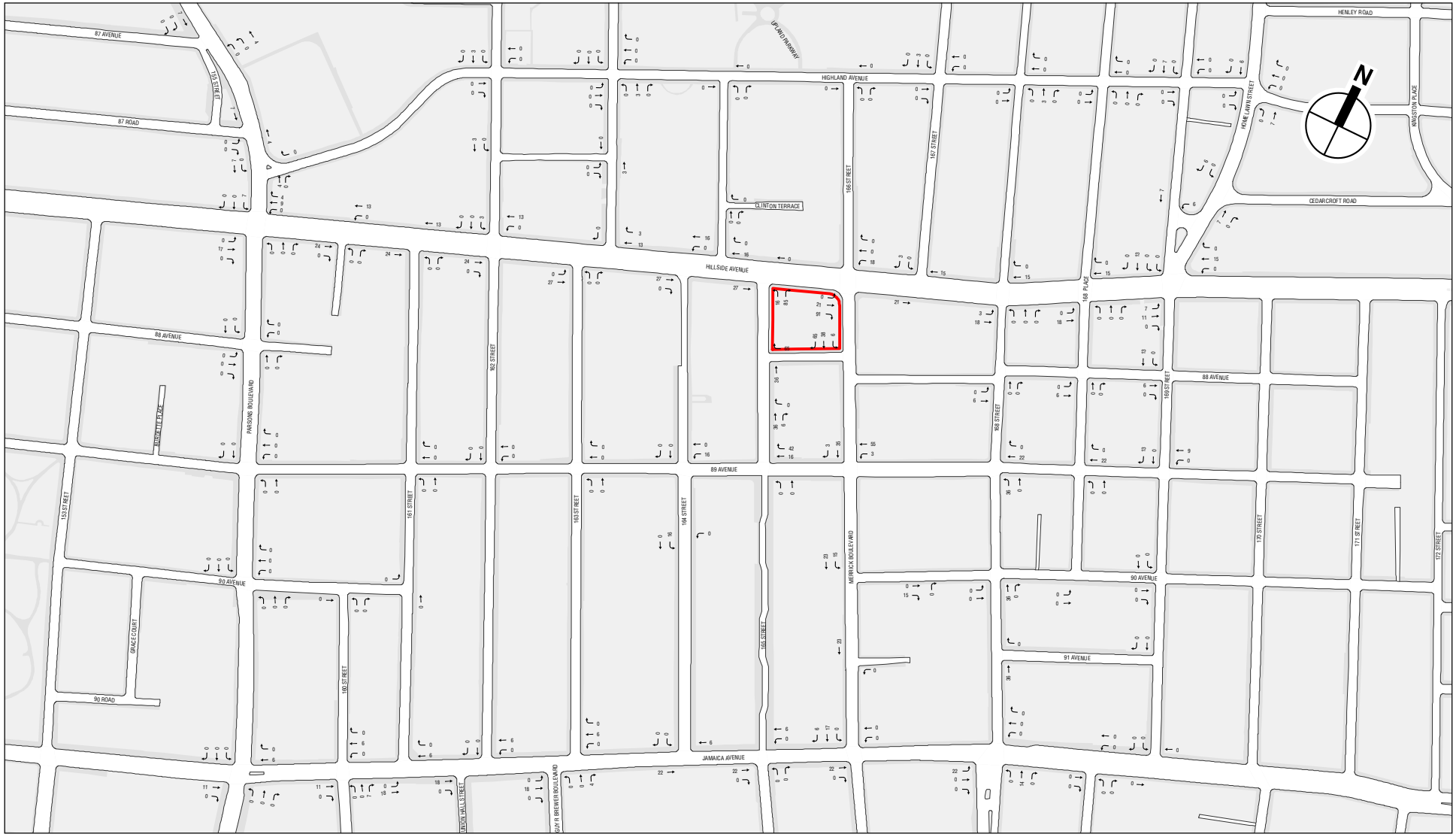
According to the *CEQR Technical Manual*, intersections expected to incur 50 or more incremental peak hour vehicle trips as a result of a proposed project would have the potential for significant

adverse traffic impacts and should be assessed in a quantified traffic impact analysis. As presented in **Figures 9-2 and 9-3** and **Table 9-5**, quantified analyses were prepared at five intersections for the AM and PM peak hours. The intersection of 88th Avenue and 165th Street would also exceed the CEQR analysis threshold, however, this intersection would not meet the minimum volume requirements for the installation of a traffic signal or all-way stop control in the future with the proposed project. An enhanced crossing warrant was also prepared at this intersection which could be installed at the discretion of DOT prior to the schools opening. Since an enhanced crossing cannot be analyzed using HCM methodology (and the intersection could also not be analyzed in the existing and future without the proposed project conditions since it is uncontrolled), a quantified traffic analysis at this intersection was not prepared.

Table 9-5:
Traffic Level 2 Screening Analysis Results—Selected Analysis Locations

Traffic Intersections	Incremental Vehicle Trips (Weekday)		Selected Analysis Locations
	AM	PM	
Parsons Boulevard and Hillside Avenue	37	37	
160th Street and Hillside Avenue	37	37	
160th Street and Jamaica Avenue	24	23	
161st Street and Hillside Avenue	37	37	
161st Street and Jamaica Avenue	24	23	
162nd Street and Hillside Avenue	40	40	
162nd Street and Hillside Avenue	24	23	
163rd Street and Hillside Avenue	40	40	
163rd Street/Guy R Brewer Boulevard and Jamaica Avenue	28	32	
164th Street and Hillside Avenue (West)	43	38	
164th Street and Hillside Avenue (East)	43	38	
164th Street and Jamaica Avenue	28	38	
165th Street and Hillside Avenue (West)	43	38	
165th Street and Hillside Avenue (East)	**128**	**127**	✓
165th Street and 88th Avenue*	101	107	
165th Street and 89th Avenue	**58**	**36**	✓
165th Street and Jamaica Avenue	28	28	
166th Street/Merrick Boulevard and Hillside Avenue	**130**	**122**	✓
Merrick Boulevard and 88th Avenue*	109	96	
Merrick Boulevard and 89th Avenue	**96**	**61**	✓
Merrick Boulevard and 90th Avenue	38	25	
Merrick Boulevard and 91st Avenue	23	25	
Merrick Boulevard and Jamaica Avenue	45	47	
167th Street and Hillside Avenue	39	39	
168th Street and Hillside Avenue	36	45	
168th Street and 89th Avenue	**58**	48	✓
168th Street and 90th Avenue	36	38	
168th Street and 91st Avenue	36	23	
168th Street and Jamaica Avenue	36	23	
168th Place and Hillside Avenue	33	39	
168th Place and 89th Avenue	22	13	
169th Street/Homelawn Street and Hillside Avenue	46	46	
169th Street and 88th Avenue	19	13	
169th Street and 89th Avenue	22	13	

Note:
✓ denotes intersection selected for the detailed traffic analysis.
* denotes intersection with 50 or more incremental peak hour vehicle trips that cannot be analyzed using HCM methodology (not signalized or stop-controlled)



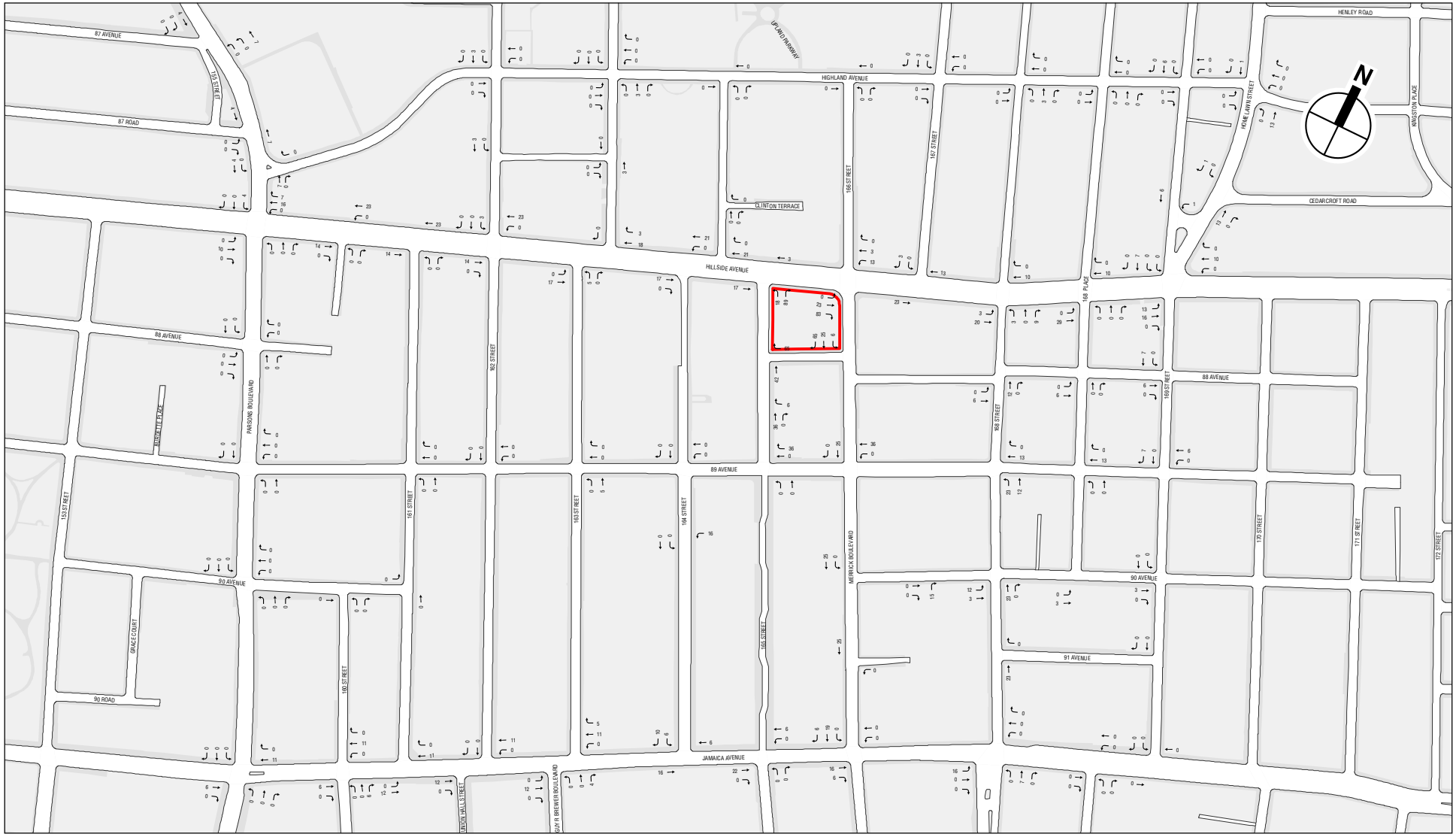
Project Site

0 200 FEET

Proposed Project Generated Vehicle Trips
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-2



Proposed Project Generated Vehicle Trips
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-3

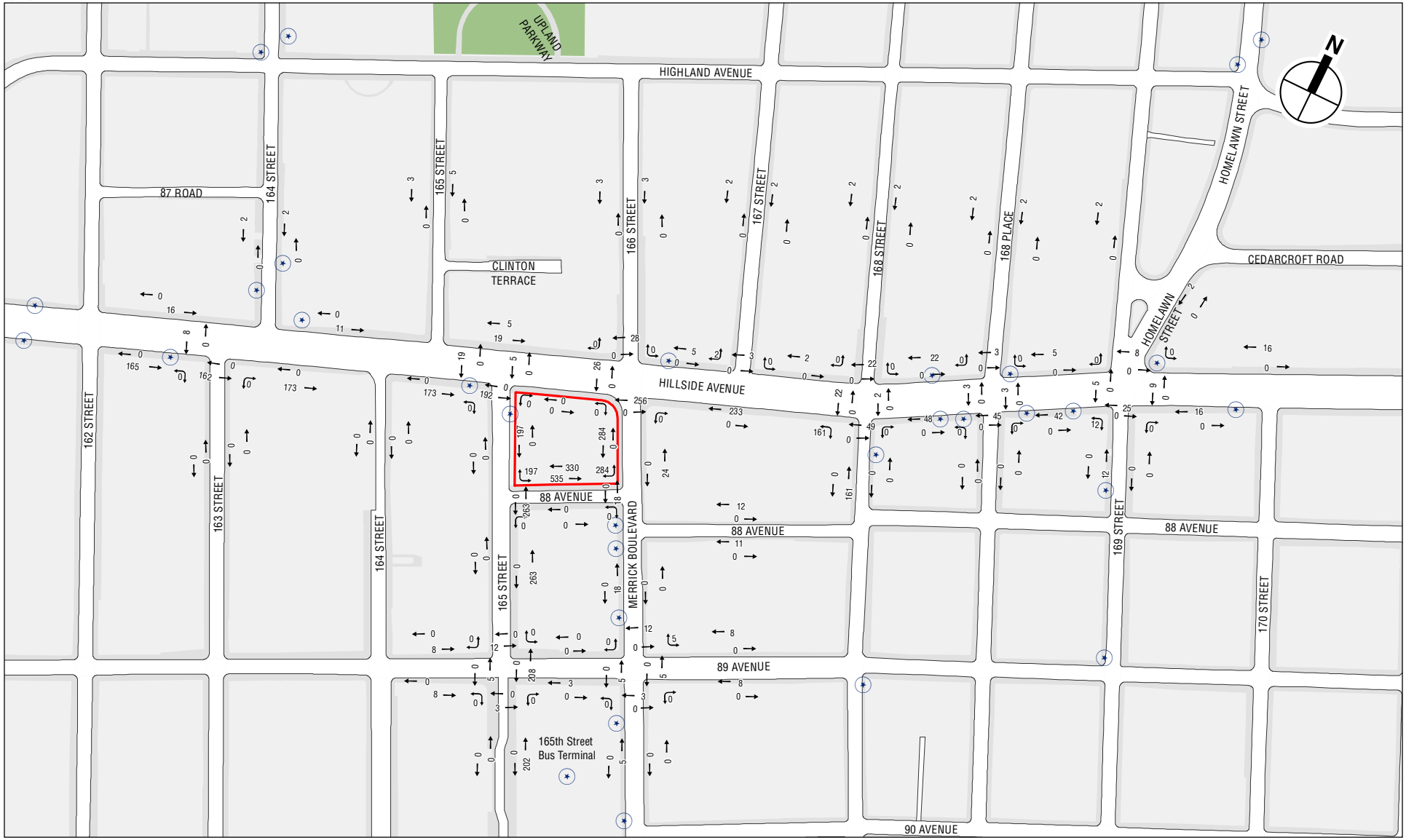
PEDESTRIANS

As shown in **Table 9-4**, the projected peak hour pedestrian trips would exceed the CEQR analysis threshold of 200 pedestrians during both peak hours. Level 2 pedestrian trip assignments were individually developed for students and faculty and staff and are shown in **Figures 9-4 and 9-5** and are discussed below.

- Auto Trips – Parents dropping off students would drive to the curb adjacent to the project site's entrance on 88th Avenue. Faculty and Staff and students that drive themselves would park nearby and walk from those locations to the project site.
- City Bus Trips – City bus riders would use buses stopping on Hillside Avenue (approximately 200 to 825 feet from the project site), Jamaica Avenue (approximately 1,550 feet from the project site), 164th Street (approximately 925 feet from the project site), Parsons Boulevard (approximately 1,750 feet from the project site), and 169th/170th Streets (approximately 1,400 to 1,700 feet away from the project site).
- School Bus Trips – School bus passengers have been assumed to board/alight adjacent to the school's entrance on 88th Avenue.
- Subway Trips – Subway riders were assigned to the F subway line at the 169th Street Station and Parsons Boulevard Station (approximately 0.20 and 0.35 miles away from the project site, respectively) and the E/J/Z subway lines at the Jamaica Center Parsons/Archer Station (approximately 0.80 miles away from the project site).
- Walk-Only Trips – Pedestrian walk-only trips were developed by distributing project-generated person trips to surrounding pedestrian facilities (i.e., sidewalks, corner reservoirs, and crosswalks) based on population origin-destination data as well as the land use characteristics of the surrounding neighborhood.

Based on the detailed assignment of pedestrian trips, six sidewalks, seven corners, and two crosswalks were selected for detailed analysis for the weekday AM and PM peak hours as shown in **Table 9-6**. Even though the southeast corner of Hillside Avenue and 165th Street would be just below the *CEQR* analysis threshold, it has also been selected for detailed analysis (197 and 198 pedestrian trips during the AM and PM peak hours, respectively).

4.22.21



Project Site

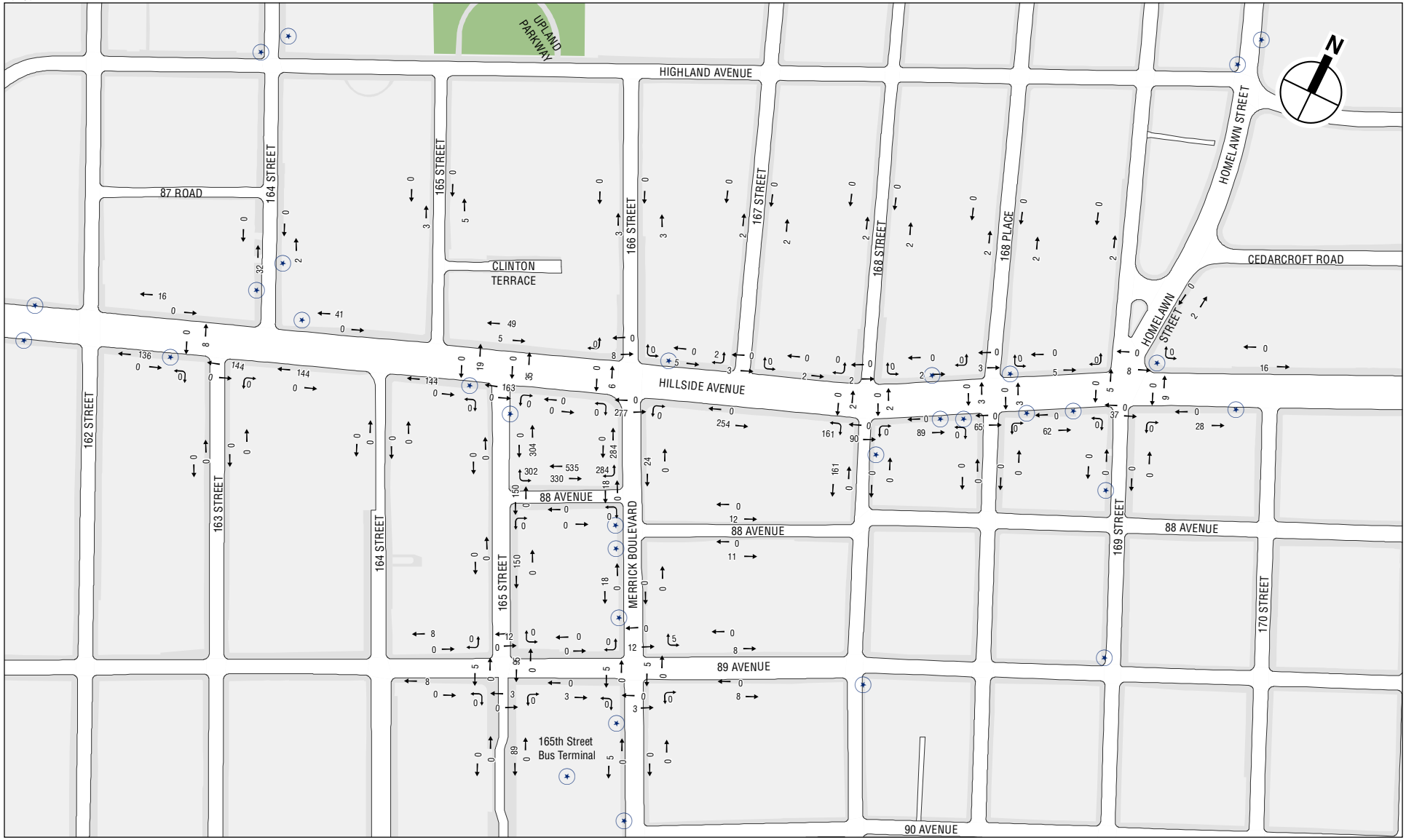
Bus Stop

Proposed Project Generated Pedestrian Trips
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-4

4.23.21



Project Site

Bus Stop

Proposed Project Generated Pedestrian Trips
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-5

Table 9-6:
Pedestrian Level 2 Screening Analysis Results—Selected Analysis Locations

Pedestrian Elements	Incremental Pedestrian Trips		Selected Analysis Location
	AM	PM	
Hillside Avenue and 168th Street			
Southwest Corner	**232**	**253**	✓
West Sidewalk along 168th Street between Hillside Avenue and 88th Avenue	161	161	
South Sidewalk along Hillside Avenue between 168th Street and 167th Street	**233**	**254**	✓
Hillside Avenue and Merrick Boulevard / 166th Street			
South Crosswalk	**256**	**277**	✓
Southeast Corner	**256**	**277**	✓
Southwest Corner	**282**	**283**	✓
West Sidewalk along Merrick Boulevard between Hillside Avenue and 88th Avenue	**284**	**284**	✓
88th Avenue and Merrick Boulevard			
North Sidewalk along 88th Avenue between Merrick Boulevard and 165th Street	**865**	**865**	✓
Hillside Avenue and 165th Street			
South Crosswalk	192	163	
Southeast Corner	197	198	✓
Southwest Corner	**211**	182	✓
East Sidewalk along 165th Street between Hillside Avenue and 88th Avenue	**197**	**304**	✓
South Sidewalk along Hillside Avenue between 165th Street and 164th Street	173	144	
88th Avenue and 165th Street			
East Sidewalk along 165th Street between 88th Avenue and 89th Avenue	**263**	**150**	✓
89th Avenue and 165th Street			
East Crosswalk	**208**	95	✓
Northeast Corner	**220**	107	✓
Southeast Corner	**211**	98	✓
East Sidewalk along 165th Street between 89th Avenue and Jamaica Avenue	**202**	89	✓
Hillside Avenue and 164th Street			
South Sidewalk along Hillside Avenue between 164th Street and 163rd Street	173	144	
Hillside Avenue and 163rd Street			
South Crosswalk	162	144	
Southeast Corner	162	144	
Southwest Corner	170	152	
South Sidewalk along Hillside Avenue between 163rd Street and 162nd Street	165	136	

Notes: Pedestrian elements with fewer than 100 project-generated pedestrian trips in a peak hour are not presented in this table.
✓ denotes pedestrian elements selected for detailed analysis.

C. TRANSPORTATION ANALYSIS METHODOLOGIES

TRAFFIC OPERATIONS

The operations of all of the signalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized intersections using average stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined in **Table 9-7**.

Table 9-7:
Level of Service Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.

Significant Impact Criteria

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the future with the proposed project of 5 or more seconds of delay in a lane group over future without the proposed project levels beyond mid-LOS D. For future without the proposed project LOS E, a 4-second increase in delay is considered significant. For future without the proposed project LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the future without the proposed project to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the future with the proposed project.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalk capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2010 *HCM*, pursuant to procedures detailed in the *CEQR Technical Manual*.

The primary performance measure for sidewalks and walkways is pedestrian space, expressed as square feet per pedestrian (SFP), which is an indicator of the quality of pedestrian movement and

comfort. The calculation of the sidewalk SFP is based on the pedestrian volumes by direction, the effective sidewalk or walkway width, and average walking speed. The SFP forms the basis for a sidewalk Level of Service (LOS) analysis. The determination of sidewalk LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Street corners and crosswalks are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The *HCM* methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in square feet-second, is calculated by multiplying the net area of the corner (in square feet) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of available SFP.

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk.

The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized in **Table 9-8**. The *CEQR Technical Manual* specifies acceptable mid-LOS D or better (minimum of 31.5 SFP platoon flows for sidewalks; minimum of 19.5 SFP for corners and crosswalks) in CBD settings, which include the project study area.

Table 9-8:
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	> 60 SFP	> 530 SFP	> 60 SFP
B	> 40 and ≤ 60 SFP	> 90 and ≤ 530 SFP	> 40 and ≤ 60 SFP
C	> 24 and ≤ 40 SFP	> 40 and ≤ 90 SFP	> 24 and ≤ 40 SFP
D	> 15 and ≤ 24 SFP	> 23 and ≤ 40 SFP	> 15 and ≤ 24 SFP
E	> 8 and ≤ 15 SFP	> 11 and ≤ 23 SFP	> 8 and ≤ 15 SFP
F	≤ 8 SFP	≤ 11 SFP	≤ 8 SFP

Note: SFP = square feet per pedestrian.
Sources: New York City Mayor's Office of Environmental Coordination, 2020 *CEQR Technical Manual*

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted decrease in pedestrian space between the future without the proposed project and the future with the proposed project. For different pedestrian elements, flow conditions, and area types, the CEQR procedure

for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the determination of significant sidewalk impacts is based on the sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the future without the proposed project pedestrian space in SFP. For platoon flow, the sliding-scale formula is $Y \geq X/(9.5 - 0.321)$. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, these formulas would apply only if the future with the proposed project pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 9-9** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the future without the proposed project pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the future with the proposed project pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 9-10** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high crash locations, where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent 3-year period for which data are available. For these locations, accident trends are identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, accident types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with NYCDOT for their approval.

Table 9-9:
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: ***Y ≥ X/9.0 – 0.31***				**Sliding Scale Formula:** ***Y ≥ X/(9.5 – 0.321)***			
Non-CBD Areas		**CBD Areas**		**Non-CBD Areas**		**CBD Areas**	
No Action Ped. Space (X, SFP)	**With Action Ped. Space Reduc. (Y, SFP)**	**No Action Ped. Space (X, SFP)**	**With Action Ped. Space Reduc. (Y, SFP)**	**No Action Ped. Space (X, SFP)**	**With Action Ped. Space Reduc. (Y, SFP)**	**No Action Ped. Space (X, SFP)**	**With Action Ped. Space Reduc. (Y, SFP)**
–	–	–	–	43.5 to 44.3	≥ 4.3	–	–
–	–	–	–	42.5 to 43.4	≥ 4.2	–	–
–	–	–	–	41.6 to 42.4	≥ 4.1	–	–
–	–	–	–	40.6 to 41.5	≥ 4.0	–	–
–	–	–	–	39.7 to 40.5	≥ 3.9	–	–
–	–	–	–	38.7 to 39.6	≥ 3.8	38.7 to 39.2	≥ 3.8
–	–	–	–	37.8 to 38.6	≥ 3.7	37.8 to 38.6	≥ 3.7
–	–	–	–	36.8 to 37.7	≥ 3.6	36.8 to 37.7	≥ 3.6
–	–	–	–	35.9 to 36.7	≥ 3.5	35.9 to 36.7	≥ 3.5
–	–	–	–	34.9 to 35.8	≥ 3.4	34.9 to 35.8	≥ 3.4
–	–	–	–	34.0 to 34.8	≥ 3.3	34.0 to 34.8	≥ 3.3
–	–	–	–	33.0 to 33.9	≥ 3.2	33.0 to 33.9	≥ 3.2
–	–	–	–	32.1 to 32.9	≥ 3.1	32.1 to 32.9	≥ 3.1
–	–	–	–	31.1 to 32.0	≥ 3.0	31.1 to 32.0	≥ 3.0
–	–	–	–	30.2 to 31.0	≥ 2.9	30.2 to 31.0	≥ 2.9
–	–	–	–	29.2 to 30.1	≥ 2.8	29.2 to 30.1	≥ 2.8
25.8 to 26.6	≥ 2.6	–	–	28.3 to 29.1	≥ 2.7	28.3 to 29.1	≥ 2.7
24.9 to 25.7	≥ 2.5	–	–	27.3 to 28.2	≥ 2.6	27.3 to 28.2	≥ 2.6
24.0 to 24.8	≥ 2.4	–	–	26.4 to 27.2	≥ 2.5	26.4 to 27.2	≥ 2.5
23.1 to 23.9	≥ 2.3	–	–	25.4 to 26.3	≥ 2.4	25.4 to 26.3	≥ 2.4
22.2 to 23.0	≥ 2.2	–	–	24.5 to 25.3	≥ 2.3	24.5 to 25.3	≥ 2.3
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1	23.5 to 24.4	≥ 2.2	23.5 to 24.4	≥ 2.2
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0	22.6 to 23.4	≥ 2.1	22.6 to 23.4	≥ 2.1
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9	21.6 to 22.5	≥ 2.0	21.6 to 22.5	≥ 2.0
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8	20.7 to 21.5	≥ 1.9	20.7 to 21.5	≥ 1.9
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7	19.7 to 20.6	≥ 1.8	19.7 to 20.6	≥ 1.8
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6	18.8 to 19.6	≥ 1.7	18.8 to 19.6	≥ 1.7
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5	17.8 to 18.7	≥ 1.6	17.8 to 18.7	≥ 1.6
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4	16.9 to 17.7	≥ 1.5	16.9 to 17.7	≥ 1.5
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3	15.9 to 16.8	≥ 1.4	15.9 to 16.8	≥ 1.4
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2	15.0 to 15.8	≥ 1.3	15.0 to 15.8	≥ 1.3
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1	14.0 to 14.9	≥ 1.2	14.0 to 14.9	≥ 1.2
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0	13.1 to 13.9	≥ 1.1	13.1 to 13.9	≥ 1.1
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9	12.1 to 13.0	≥ 1.0	12.1 to 13.0	≥ 1.0
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8	11.2 to 12.0	≥ 0.9	11.2 to 12.0	≥ 0.9
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7	10.2 to 11.1	≥ 0.8	10.2 to 11.1	≥ 0.8
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6	9.3 to 10.1	≥ 0.7	9.3 to 10.1	≥ 0.7
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5	8.3 to 9.2	≥ 0.6	8.3 to 9.2	≥ 0.6
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4	7.4 to 8.2	≥ 0.5	7.4 to 8.2	≥ 0.5
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3	6.4 to 7.3	≥ 0.4	6.4 to 7.3	≥ 0.4
< 5.1	≥ 0.2	< 5.1	≥ 0.2	< 6.4	≥ 0.3	< 6.4	≥ 0.3

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP
Sources: New York City Mayor's Office of Environmental Coordination, 2020 *CEQR Technical Manual*

Table 9-10:
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: ***Y ≥ X/9.0 – 0.31***			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**With Action Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, 2020 *CEQR Technical Manual*.

D. DETAILED TRAFFIC ANALYSIS

As described above in Section B, "Preliminary Analysis Methodology and Screening Assessment," five intersections have been selected for analysis in the weekday AM and PM peak hours.

EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

The key roadways in the study area include Hillside Avenue, 88th Avenue, 89th Avenue, 165th Street, and Merrick Boulevard. The physical and operational characteristics of the study area roadways are as follows:

- Hillside Avenue is a two-way eastbound-westbound roadway that operates between Myrtle Avenue and the Jericho Turnpike with a curb-to-curb width of approximately 70 feet. Curbside parking is available along both sides of the street.
- 88th Avenue is a local roadway that operates one-way westbound between 165th Street and 171st Street with a curb-to-curb width of approximately 27 feet. Curbside parking is available along both sides of the street.
- 89th Avenue is a local roadway that operates one-way eastbound between 139th Street and 171st Street with a curb-to-curb width of approximately 44 feet. Curbside parking is available along both sides of the street.

- 165th Street is a local roadway that operates one-way northbound between Highland Avenue and 89th Avenue with a curb-to-curb width of approximately 36 feet. Curbside parking is available along both sides of the street.
- Merrick Boulevard is a two-way northbound-southbound roadway that operates between Hillside Avenue and Hook Creek Boulevard. Within the study area it operates one-way southbound with a curb-to-curb width of approximately 38 feet. Curbside parking is available along both sides of the street.

TRAFFIC CONDITIONS

Traffic data were collected in March 2021 for the weekday AM and PM peak periods via a combination of video intersection counts and 24-hour Automatic Traffic Recorder (ATR) counts. Due to current COVID-19 pandemic conditions and based on the data collection guidance issued by DOT in October 2020, the collected traffic data were compared and calibrated against historical data to arrive at appropriate baseline volumes for analysis.

The 2016 historical count data from the DOT Traffic Information Management System (TIMS) database were summarized and compared to the March 2021 data to determine the growth adjustments needed to arrive at representative pre-COVID volume levels for use in the analysis. The following steps were taken to adjust the traffic volumes:

- The 2016 historical data were grown to 2021 levels by applying the CEQR background growth rate of 0.50 percent per year for years 2017 through 2021.
- The cumulative intersection volumes across all locations with data in common were calculated for the March 2021 data and grown 2021 historical data by peak period. These data sets were compared and the growth adjustments needed to arrive at representative pre-COVID volume levels were calculated.
- The calculated growth adjustments for each peak period were applied uniformly across all movements and intersections to determine the representative pre-COVID volumes for use in the analysis.

The existing traffic volumes for the weekday AM and PM peak hours are shown in **Figures 9-6 and 9-7**. Inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were recorded to provide appropriate inputs for the operational analyses. Official signal timings were also obtained from NYCDOT for use in the analysis of the study area signalized intersections.

LEVELS OF SERVICE

A summary of the existing conditions traffic analysis results by lane group is presented in **Table 9-11**. Details on level-of-service, v/c ratios, and average delays are presented in **Table 9-12**.

Table 9-11:
Existing Conditions Traffic Analysis Results

Level of Service	Analysis Peak Hours	
	Weekday AM	Weekday PM
Signalized Intersections		
Lane Groups at LOS A/B/C	17	12
Lane Groups at LOS D	2	3
Lane Groups at LOS E	0	2
Lane Groups at LOS F	0	0
Total	19	17
Lane Groups with v/c ≥ 0.90	0	2

Notes: LOS = Level-of-Service; v/c = volume-to-capacity ratio.

5.18.21

2021 Existing Traffic Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-6

5.18.21

2021 Existing Traffic Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-7

Table 9-12:
Existing Conditions Level of Service Analysis

Intersection	AM				PM			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Hillside Avenue and 165th Street (East)								
Eastbound	T	0.58	17.0	B	T	0.85	23.8	C
Westbound	T	0.76	21.8	C	T	0.51	13.6	B
Northbound	L	0.38	41.3	D	L	0.49	50.2	D
	R	0.43	43.1	D	R	0.79	73.2	E
	Intersection		21.5	C	Intersection		23.8	C
89th Avenue and 165th Street								
Westbound	T	0.15	9.7	A	T	0.37	11.9	B
	R	0.51	16.8	B	R	0.73	26.9	C
Northbound	LT	0.12	13.0	B	LT	0.16	13.5	B
	Intersection		13.9	B	Intersection		18.1	B
Hillside Avenue and 166th Street/Merrick Boulevard								
Eastbound	L	0.22	12.3	B	L	0.20	10.9	B
	T	0.36	10.7	B	-	-	-	-
	R	0.49	14.4	B	-	-	-	-
	-	-	-	-	TR	1.00	44.7	D
Westbound	L	0.66	10.0	A	L	0.97	70.4	E
	T	0.73	17.4	B	-	-	-	-
	R	0.11	8.7	A	-	-	-	-
	-	-	-	-	TR	0.58	13.9	B
	Intersection		14.0	B	Intersection		38.4	D
89th Avenue and Merrick Boulevard								
Westbound	L	0.54	23.3	C	L	0.81	45.8	D
	T	0.30	15.9	B	T	0.65	22.7	C
Southbound	T	0.74	19.8	B	T	0.87	28.2	C
	R	0.26	10.5	B	R	0.42	13.9	B
	Intersection		18.6	B	Intersection		27.5	C
89th Avenue and 168th Street								
Westbound	TR	0.30	23.1	C	TR	0.46	26.1	C
Northbound	LT	0.59	16.8	B	LT	0.74	21.7	C
	Intersection		18.2	B	Intersection		22.9	C

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service

The capacity analysis indicates that most of the study area's intersection approaches/lane groups operate acceptably—at mid-LOS D or better (delays of 45 seconds or less per vehicle for signalized intersections)—during both analysis peak hours. Approaches/lane groups operating beyond mid-LOS D and those with v/c ratios of 0.90 or greater are listed below.

- Northbound left-turn at the Hillside Avenue and 165th Street (East) intersection (LOS D with a v/c ratio of 0.49 and a delay of 50.2 seconds per vehicle [spv] during the weekday PM peak hour);
- Northbound right-turn at the Hillside Avenue and 165th Street (East) intersection (LOS E with a v/c ratio of 0.79 and a delay of 73.2 spv during the weekday PM peak hour);
- Eastbound shared lane at the Hillside Avenue and 166th Street/Merrick Boulevard intersection (LOS D with a v/c ratio of 1.00 and a delay of 44.7 spv during the weekday PM peak hour);
- Westbound left-turn at the Hillside Avenue and 166th Street/Merrick Boulevard intersection (LOS E with a v/c ratio of 0.97 and a delay of 70.4 spv during the weekday PM peak hour); and

- Westbound left-turn at the 89th Avenue and Merrick Boulevard intersection (LOS D with a v/c ratio of 0.81 and a delay of 45.8 spv during the weekday PM peak hour).

FUTURE WITHOUT THE PROPOSED PROJECT

The future without the proposed project was developed by increasing existing traffic levels by the expected growth in overall travel through and within the study area. As per *CEQR Technical Manual* guidelines, an annual background growth rate of 0.50 percent was assumed for the years 2022 through 2026. There are no development projects expected to occur in the future without the proposed project (No Build projects) within a ¼-mile study area of the proposed project by the 2026 build year.

TRAFFIC OPERATIONS

The future without the proposed project traffic volumes are shown in **Figures 9-8 and 9-9** for the weekday AM and PM peak hours. The future without the proposed project condition traffic volumes were projected by layering the background growth on top of the existing traffic volumes. A summary of the 2026 future without the proposed project traffic analysis results is presented in **Table 9-13**. Details on level-of-service, v/c ratios, and average delays are presented in **Table 9-14**.

Table 9-13:
2026 No Action Traffic Analysis Results

Level of Service	Analysis Peak Hours	
	Weekday AM	Weekday PM
Signalized Intersections		
Lane Groups at LOS A/B/C	17	12
Lane Groups at LOS D	2	3
Lane Groups at LOS E	0	1
Lane Groups at LOS F	0	1
Total	19	17
Lane Groups with v/c ≥ 0.90	0	2

Notes: LOS = Level-of-Service; v/c = volume-to-capacity ratio.

Based on the analysis results presented in **Table 19-14**, the majority of the approaches / lane groups in the future without the proposed project condition would operate at the same LOS as in the existing conditions or within acceptable mid-LOS D or better (delays of 45 seconds or less per vehicle for signalized intersections) for all analysis peak hours. The following approaches / lane groups in the future without the proposed project condition are expected to operate at deteriorated LOS when compared to the existing conditions:

- Westbound left-turn at the Hillside Avenue and 166th Street/Merrick Boulevard intersection will deteriorate to LOS F with a v/c ratio of 1.01 and a delay of 80.8 spv during the weekday PM peak hour.

5.18.21

2026 No Action Traffic Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-8

5.18.21

2026 No Action Traffic Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-9

Table 9-14:
2021 Existing and 2026 No Action Conditions Level of Service Analysis

	Weekday AM								Weekday PM							
	2021 Existing				2026 No Action				2021 Existing				2026 No Action			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Hillside Avenue and 165th Street (East)																
Eastbound	T	0.58	17.0	B	T	0.60	17.3	B	T	0.85	23.8	C	T	0.87	25.3	C
Westbound	T	0.76	21.8	C	T	0.78	22.6	C	T	0.51	13.6	B	T	0.53	13.8	B
Northbound	L	0.38	41.3	D	L	0.40	41.8	D	L	0.49	50.2	D	L	0.52	51.6	D
	R	0.43	43.1	D	R	0.44	43.5	D	R	0.79	73.2	E	R	0.80	75.5	E
	Intersection		21.5	C	Intersection		22.1	C	Intersection		23.8	C	Intersection		24.8	C
89th Avenue and 165th Street																
Westbound	T	0.15	9.7	A	T	0.15	9.7	A	T	0.37	11.9	B	T	0.38	12.0	B
	R	0.51	16.8	B	R	0.53	17.6	B	R	0.73	26.9	C	R	0.78	31.7	C
Northbound	LT	0.12	13.0	B	LT	0.12	13.0	B	LT	0.16	13.5	B	LT	0.17	13.6	B
	Intersection		13.9	B	Intersection		14.4	B	Intersection		18.1	B	Intersection		20.1	C
Hillside Avenue and 166th Street/Merrick Boulevard																
Eastbound	L	0.22	12.3	B	L	0.23	12.9	B	L	0.20	10.9	B	L	0.21	11.2	B
	T	0.36	10.7	B	T	0.37	10.8	B	-	-	-	-	-	-	-	-
	R	0.49	14.4	B	R	0.50	14.7	B	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	TR	1.00	44.7	D	TR	1.02	51.4	D
Westbound	L	0.66	10.0	A	L	0.68	11.5	B	L	0.97	70.4	E	L	1.01	80.8	F
	T	0.73	17.4	B	T	0.75	18.0	B	-	-	-	-	-	-	-	-
	R	0.11	8.7	A	R	0.11	8.8	A	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	TR	0.58	13.9	B	TR	0.60	14.3	B
	Intersection		14.0	B	Intersection		14.6	B	Intersection		38.4	D	Intersection		43.5	D
89th Avenue and Merrick Boulevard																
Westbound	L	0.54	23.3	C	L	0.57	24.1	C	L	0.81	45.8	D	L	0.85	50.4	D
	T	0.30	15.9	B	T	0.31	16.0	B	T	0.65	22.7	C	T	0.66	23.2	C
Southbound	T	0.74	19.8	B	T	0.76	20.7	C	T	0.87	28.2	C	T	0.84	26.0	C
	R	0.26	10.5	B	R	0.27	10.7	B	R	0.42	13.9	B	R	0.44	14.3	B
	Intersection		18.6	B	Intersection		19.3	B	Intersection		27.5	C	Intersection		27.4	C
89th Avenue and 168th Street																
Westbound	TR	0.30	23.1	C	TR	0.31	23.2	C	TR	0.46	26.1	C	TR	0.47	26.3	C
Northbound	LT	0.59	16.8	B	LT	0.61	17.2	B	LT	0.74	21.7	C	LT	0.77	22.9	C
	Intersection		18.2	B	Intersection		18.5	B	Intersection		22.9	C	Intersection		23.8	C

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service

PROBABLE IMPACTS OF THE PROPOSED PROJECT

In the future with the proposed project, the development site would be redeveloped to construct a new high school with 801 students and 90 faculty and staff. The proposed project would result in approximately 169 incremental vehicle trips during the weekday AM and PM peak hours. All of the student auto and school bus pick-up/drop-off trips were assigned adjacent to the school's entrance on 88th Avenue. All of the faculty and staff auto trips and student self-drive auto trips were assigned to off-street parking spaces within a ¼-mile of the project site.

TRAFFIC OPERATIONS

The 2026 future with the proposed project traffic volumes are shown in **Figures 9-10 and 9-11** for the weekday AM and PM peak hours. The 2026 future with the proposed project traffic volumes were constructed by layering on top of the future without the proposed project traffic volumes the incremental vehicle trips shown in **Figures 9-2 and 9-3**. A summary of the 2026 future with the proposed project condition traffic analysis results is presented in **Table 9-15**. Details on level-of-service, volume-to-capacity (v/c) ratios, and average delays are presented in **Table 9-16**.

5.18.21

2026 With Action Traffic Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-10

5.18.21

2026 With Action Traffic Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-11

Table 9-15:
2026 With Action Traffic Analysis Results

Level of Service	Analysis Peak Hours	
	Weekday AM	Weekday PM
Signalized Intersections		
Lane Groups at LOS A/B/C	16	11
Lane Groups at LOS D	2	2
Lane Groups at LOS E	0	1
Lane Groups at LOS F	1	3
Total	19	17
Lane Groups with v/c ≥ 0.90	2	4
Notes: LOS = Level-of-Service; v/c = volume-to-capacity ratio.		

Table 9-16:
2026 No Action and With Action Conditions Level of Service Analysis

	Weekday AM								Weekday PM							
	2026 No Action				2026 With Action				2026 No Action				2026 With Action			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Hillside Avenue and 165th Street (East)																
Eastbound	T	0.60	17.3	B	T	0.62	17.8	B	T	0.87	25.3	C	T	0.88	26.1	C
Westbound	T	0.78	22.6	C	T	0.78	22.6	C	T	0.53	13.8	B	T	0.53	13.8	B
Northbound	L	0.40	41.8	D	L	0.57	49.0	D+	L	0.52	51.6	D	L	0.75	70.5	E+
	R	0.44	43.5	D	R	1.12	144.7	F+	R	0.80	75.5	E	R	1.65	365.5	F+
	Intersection		22.1	C	Intersection		33.2	C	Intersection		24.8	C	Intersection		57.3	E
89th Avenue and 165th Street																
Westbound	T	0.15	9.7	A	T	0.17	9.8	A	T	0.38	12.0	B	T	0.37	11.8	B
	R	0.53	17.6	B	R	0.71	25.4	C	R	0.78	31.7	C	R	0.92	50.1	D+
Northbound	LT	0.12	13.0	B	LT	0.13	13.0	B	LT	0.17	13.6	B	LT	0.17	13.6	B
	Intersection		14.4	B	Intersection		18.9	B	Intersection		20.1	C	Intersection		29.1	C
Hillside Avenue and 166th Street/Merrick Boulevard																
Eastbound	L	0.23	12.9	B	L	0.23	13.0	B	L	0.21	11.2	B	L	0.21	11.2	B
	T	0.37	10.8	B	T	0.39	11.0	B	-	-	-	-	-	-	-	-
	R	0.50	14.7	B	R	0.92	45.3	D+	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	TR	1.02	51.4	D	TR	1.22	127.7	F+
Westbound	L	0.68	11.5	B	L	0.76	17.5	B	L	1.01	80.8	F	L	1.11	116.4	F+
	T	0.75	18.0	B	T	0.75	18.0	B	-	-	-	-	-	-	-	-
	R	0.11	8.8	A	R	0.12	8.8	A	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	TR	0.60	14.3	B	TR	0.60	14.3	B
	Intersection		14.6	B	Intersection		20.1	C	Intersection		43.5	D	Intersection		90.3	F
89th Avenue and Merrick Boulevard																
Westbound	L	0.57	24.1	C	L	0.58	24.8	C	L	0.85	50.4	D	L	0.85	51.2	D
	T	0.31	16.0	B	T	0.45	18.3	B	T	0.66	23.2	C	T	0.74	26.6	C
Southbound	T	0.76	20.7	C	T	0.82	24.1	C	T	0.84	26.0	C	T	0.88	29.8	C
	R	0.27	10.7	B	R	0.25	10.4	B	R	0.44	14.3	B	R	0.41	13.7	B
	Intersection		19.3	B	Intersection		21.5	C	Intersection		27.4	C	Intersection		30.1	C
89th Avenue and 168th Street																
Westbound	TR	0.31	23.2	C	TR	0.36	24.0	C	TR	0.47	26.3	C	TR	0.50	27.0	C
Northbound	LT	0.61	17.2	B	LT	0.67	18.8	B	LT	0.77	22.9	C	LT	0.81	25.7	C
	Intersection		18.5	B	Intersection		20.1	C	Intersection		23.8	C	Intersection		26.0	C

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact.

Based on impact criteria prescribed by the *CEQR Technical Manual*, the future with the proposed project would result in significant adverse traffic impacts at two intersections during the weekday AM peak hour and three intersections during the weekday PM peak hour. The specific details are provided below.

- Northbound left-turn at the Hillside Avenue and 165th Street (East) intersection would deteriorate within LOS D (from a v/c ratio of 0.40 and 41.8 spv of delay to a v/c ratio of 0.57 and 49.0 spv of delay) and from LOS D (v/c ratio of 0.52 and 51.6 spv of delay) to LOS E (v/c ratio of 0.75 and

70.5 spv of delay), increases in delay of more than 5 seconds during the weekday AM and PM peak hours. These projected increases in delay constitute significant adverse impacts;

- Northbound right-turn at the Hillside Avenue and 165th Street (East) intersection would deteriorate from LOS D (v/c ratio of 0.44 and 43.5 spv of delay) to LOS F (v/c ratio of 1.12 and 144.7 spv of delay) and from LOS E (v/c ratio of 0.80 and 75.5 spv of delay) to LOS F (v/c ratio of 1.65 and 365.5 spv of delay) increases in delay of more than 5 seconds and 4 seconds during the weekday AM and PM peak hours, respectively. These projected increases in delay constitute significant adverse impacts;
- Westbound right-turn at the 89th Avenue and 165th Street intersection would deteriorate from LOS C (v/c ratio of 0.78 and 31.7 spv of delay) to LOS D (v/c ratio of 0.92 and 50.1 spv of delay) during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact;
- Eastbound right-turn at the Hillside Avenue and 166th Street/Merrick Boulevard intersection would deteriorate from LOS B (v/c ratio of 0.50 and 14.7 spv of delay) to LOS D (v/c ratio of 0.92 and 45.3 spv of delay) during the weekday AM peak hour. This projected increase in delay constitutes a significant adverse impact;
- Eastbound shared lane at the Hillside Avenue and 166th Street/Merrick Boulevard intersection would deteriorate from LOS D (v/c ratio of 1.02 and 51.4 spv of delay) to LOS F (v/c ratio of 1.22 and 127.7 spv of delay), an increase of more than 5 seconds during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact; and
- Westbound left-turn lane at the Hillside Avenue and 166th Street/Merrick Boulevard intersection would deteriorate within LOS F (from a v/c ratio of 1.01 and 80.8 spv of delay to a v/c ratio of 1.11 and 116.4 spv of delay), an increase of more than 3 seconds during the weekday PM peak hour. This projected increase in delay constitutes a significant adverse impact.

MITIGATION MEASURES

The potential measures to mitigate these impacts (consisting of signal retiming) are shown in **Tables 9-17 and 9-18** and discussed below. These measures would be subject to approval by DOT prior to implementation. If these measures are deemed infeasible and no alternative mitigation measure can be identified, then the identified significant adverse traffic impacts would be unmitigated.

Table 9-17
Recommended Mitigation Measures
Weekday AM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Hillside Avenue and 165th Street (East)	EB/WB: Green = 71 s LPI: Green = 7 s NB: Green = 32 s	Partially mitigated (NB-L only; NB-R unmitigated). Shift 2 seconds of green time from the EB/WB phase to the NB phase.	EB/WB: Green = 69 s LPI: Green = 7 s NB: Green = 34 s
Hillside Avenue and 166th Street/Merrick Boulevard	EB/WB: Green = 77 s WB-L: Green = 25 s LPI: Green = 7 s	Shift 1 second of green time from the WB-L phase to the EB/WB phase	EB/WB: Green = 78 s WB-L: Green = 24 s LPI: Green = 7 s
Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval			

Table 9-18
Recommended Mitigation Measures
Weekday PM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Hillside Avenue and 165th Street (East)	EB/WB: Green = 75 s LPI: Green = 7 s NB: Green = 28 s	Partially mitigated (NB-L only; NB-R unmitigated). Shift 3 seconds of green time from the EB/WB phase to the NB phase.	EB/WB: Green = 72 s LPI: Green = 7 s NB: Green = 31 s
89th Avenue and 165th Street	WB: Green = 28 s NB: Green = 22 s	Shift 1 second of green time from the NB phase to the WB phase.	WB: Green = 29 s NB: Green = 21 s
Hillside Avenue and 166th Street/Merrick Boulevard	EB/WB: Green = 77 s WB-L: Green = 25 s LPI: Green = 7 s	Unmitigated	No change from No Action

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right; LPI = Lead Pedestrian Interval

With the implementation of the above traffic mitigation measures, the significant adverse traffic impacts could be fully mitigated at Hillside Avenue and 166th Street/Merrick Boulevard during the AM peak hour and 89th Avenue and 165th Street during the PM peak hour. The intersection of Hillside Avenue and 165th Street (East) could also be partially mitigated with signal timing changes during the AM and PM peak hours. The remaining significant adverse traffic impacts at Hillside Avenue and 165th Street (East) during the AM and PM peak hours and Hillside Avenue and 166th Street/Merrick Boulevard during the PM peak hour would remain unmitigated.

Tables 9-19 and 9-20 compares the LOS and lane group delays for the impacted intersections under the 2026 No Action, With Action, and Mitigation conditions for the AM and PM analysis peak hours, respectively.

Table 9-19
2026 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday AM Peak Hour

	Weekday AM											
	2026 No Action				2026 With Action				2026 Mitigation			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Hillside Avenue and 165th Street (East)												
Eastbound	T	0.60	17.3	B	T	0.62	17.8	B	T	0.64	19.4	B
Westbound	T	0.78	22.6	C	T	0.78	22.6	C	T	0.80	24.9	C
Northbound	L	0.40	41.8	D	L	0.57	49.0	D+	L	0.53	45.1	D
	R	0.44	43.5	D	R	1.12	144.7	F+	R	1.05	119.6	F+
	Intersection		22.1	C	Intersection		33.2	C	Intersection		32.4	C
Hillside Avenue and 166th Street/Merrick Boulevard												
Eastbound	L	0.23	12.9	B	L	0.23	13.0	B	L	0.23	12.3	B
	T	0.37	10.8	B	T	0.39	11.0	B	T	0.38	10.5	B
	R	0.50	14.7	B	R	0.92	45.3	D+	R	0.90	41.7	D
Westbound	L	0.68	11.5	B	L	0.76	17.5	B	L	0.76	17.5	B
	T	0.75	18.0	B	T	0.75	18.0	B	T	0.74	17.1	B
	R	0.11	8.8	A	R	0.12	8.8	A	R	0.12	8.4	A
	Intersection		14.6	B	Intersection		20.1	C	Intersection		19.1	B

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact

Table 9-20
2026 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	Weekday PM											
	2026 No Action				2026 With Action				2026 Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Hillside Avenue and 165th Street (East)												
Eastbound	T	0.87	25.3	C	T	0.88	26.1	C	T	0.92	31.7	C
Westbound	T	0.53	13.8	B	T	0.53	13.8	B	T	0.55	15.7	B
Northbound	L	0.52	51.6	D	L	0.75	70.5	E+	L	0.65	56.4	E
	R	0.80	75.5	E	R	1.65	365.5	F+	R	1.47	283.4	F+
	Intersection		24.8	C	Intersection		57.3	E	Intersection		52.2	D
89th Avenue and 165th Street												
Westbound	T	0.38	12.0	B	T	0.37	11.8	B	T	0.36	11.1	B
	R	0.78	31.7	C	R	0.92	50.1	D+	R	0.86	38.8	D
Northbound	LT	0.17	13.6	B	LT	0.17	13.6	B	LT	0.18	14.4	B
	Intersection		20.1	C	Intersection		29.1	C	Intersection		23.9	C
Hillside Avenue and 166th Street/Merrick Boulevard												
Eastbound	L	0.21	11.2	B	L	0.21	11.2	B	Unmitigated			
	TR	1.02	51.4	D	TR	1.22	127.7	F+				
Westbound	L	1.01	80.8	F	L	1.11	116.4	F+				
	TR	0.6	14.3	B	TR	0.6	14.3	B				
	Intersection		43.5	D	Intersection		90.3	F				

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service
+ Denotes a significant adverse traffic impact

HILLSIDE AVENUE AND 165TH STREET (EAST)

The significant adverse impacts at the northbound left-turn of this intersection could be fully mitigated by shifting two seconds of green time and three seconds of green time from the eastbound/westbound phase to the northbound phase during the AM and PM peak hours, respectively. The significant adverse impacts at the northbound right-turn of this intersection during the AM and PM peaks hours could not be mitigated.

89TH AVENUE AND 165TH STREET

The significant adverse impact at the westbound right-turn of this intersection could be fully mitigated by shifting one second of green time from the northbound phase to the westbound phase during the PM peak hour.

HILLSIDE AVENUE AND 166TH STREET/MERRICK BOULEVARD

The significant adverse impact at the eastbound right-turn of this intersection could be fully mitigated by shifting one second of green time from the westbound left-turn phase to the eastbound/westbound phase during the AM peak hour. The significant adverse impacts at the eastbound shared lane and westbound left-turn lane of this intersection during the PM peak hour could not be mitigated.

E. DETAILED PEDESTRIAN ANALYSIS

As described above in Section B, "Preliminary Analysis Methodology and Screening Assessment," Level 1 and Level 2 screening analyses were prepared to identify the pedestrian elements that warranted a detailed analysis. Based on the assignment of pedestrian trips, six sidewalks, seven corners, and two crosswalks were selected for analysis for the weekday AM and PM peak hours.

EXISTING CONDITIONS

Pedestrian data were collected in March 2021 in accordance with procedures outlined in the *CEQR Technical Manual* during the weekday hours of 7:00 AM to 9:30 AM and 2:00 PM to 4:30 PM. As with traffic, the collected pedestrian data were compared and calibrated against historic data to develop appropriate 2021 baseline volumes for use in the analysis.

During data collection, construction activities were observed at the south sidewalk of Hillside Avenue between 168th Street and 167th Street. The construction-related physical conditions of this location were noted and have been incorporated into the existing condition pedestrian analyses. As detailed below, the physical condition for this location is modified in the future without the proposed project and future with the proposed project analyses to reflect the assumption that the existing condition construction activities would be concluded before the proposed project's build year.

The existing peak hour pedestrian volumes are shown in **Figures 9-12 and 9-13**. As shown in **Tables 9-21 through Table 9-23**, the analysis locations currently operate at favorable LOS C or better.

Table 9-21:
Existing Conditions: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	3.5	307	0.64	104.6	B
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	56	0.64	409.0	B
165th Street between Hillside Avenue and 88th Avenue	East	4.5	138	0.70	330.5	B
88th Avenue between Merrick Boulevard and 165th Street	North	4.5	92	0.37	261.1	B
165th Street between 88th Avenue and 89th Avenue	East	7.5	231	0.81	380.2	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	245	0.63	275.3	B
Weekday PM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	3.5	935	0.85	45.0	C
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	173	0.75	154.9	B
165th Street between Hillside Avenue and 88th Avenue	East	4.5	169	0.65	249.1	B
88th Avenue between Merrick Boulevard and 165th Street	North	4.5	44	0.44	647.9	A
165th Street between 88th Avenue and 89th Avenue	East	7.5	381	0.78	221.1	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	781	0.83	114.5	B

Note: SFP = square feet per pedestrian.

Table 9-22:
Existing Conditions: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS
Hillside Avenue and 168th Street	Southwest	194.1	A	54.0	B
Hillside Avenue and Merrick Boulevard / 166th Street	Southwest	208.4	A	85.5	A
	Southeast	306.7	A	187.5	A
Hillside Avenue and 165th Street	Southwest	83.8	A	113.1	A
	Southeast	192.1	A	124.6	A
89th Avenue and 165th Street	Northeast	226.3	A	245.6	A
	Southeast	145.8	A	82.2	A

Note: SFP = square foot per pedestrian

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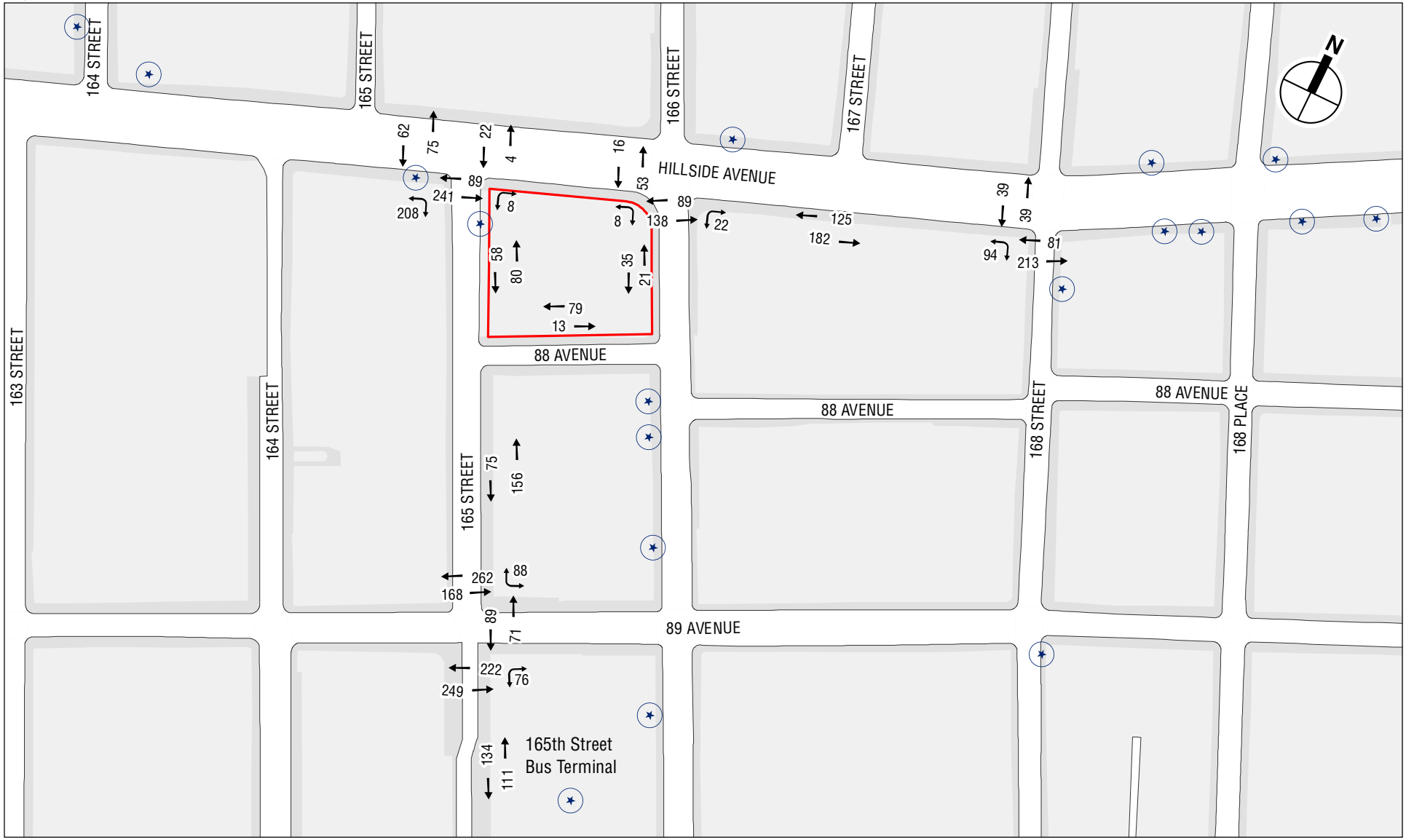

Project Site

Bus Stop

2021 Existing Pedestrian Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-12

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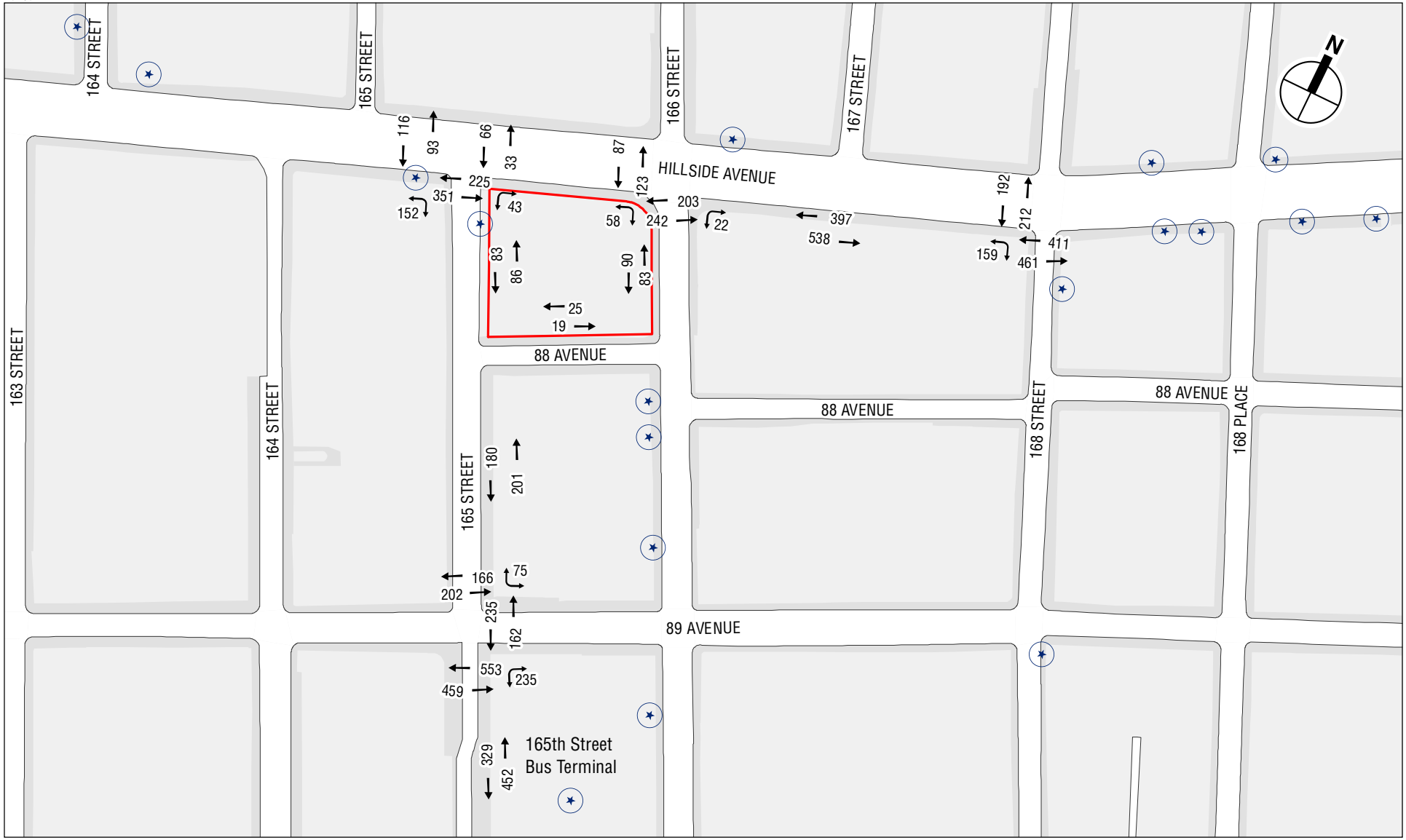

Project Site

Bus Stop

2021 Existing Pedestrian Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-13

Table 9-23:
Existing Conditions: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	227	198.2	A
89th Avenue and 165th Street	East	39.5	12.0	160	114.8	A
Weekday PM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	445	105.7	A
89th Avenue and 165th Street	East	30.0	7.0	10	2104.6	A
Note: SFP = square feet per pedestrian.						

FUTURE WITHOUT THE PROPOSED PROJECT

Pedestrian volumes in the future without the proposed project were estimated by increasing existing pedestrian levels to reflect expected growth in overall travel through and within the study area. As per *CEQR* guidelines, an annual background growth rate of 0.50 percent was assumed for the years 2022 to 2026. There are no development projects expected to occur in the future without the proposed project condition (No Build projects) within a ¼-mile study area of the proposed project by the 2026 build year. Pedestrian volumes in the future without the proposed project are shown in **Figures 9-14 and 9-15**.

As noted above under existing conditions, construction activities were observed at the south sidewalk of Hillside Avenue between 168th Street and 167th Street. The construction-related physical conditions of this location were noted and incorporated into the existing condition pedestrian analyses and were modified in the future without the proposed project and future with the proposed project analyses to reflect the assumption that the construction activities would be concluded before the proposed project's build year.

STREET-LEVEL PEDESTRIAN OPERATIONS

As shown in **Tables 9-24 through Table 9-26**, in the future without the proposed project, all analysis locations will operate at favorable LOS A and B.

Table 9-24:
2026 No Action Conditions: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	8.5	315	0.64	248.3	B
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	58	0.64	394.9	B
165th Street between Hillside Avenue and 88th Avenue	East	4.5	141	0.70	323.4	B
88th Avenue between Merrick Boulevard and 165th Street	North	4.5	94	0.37	255.6	B
165th Street between 88th Avenue and 89th Avenue	East	7.5	237	0.81	370.5	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	251	0.63	268.8	B
Weekday PM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	8.5	959	0.85	108.5	B
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	177	0.75	151.4	B
165th Street between Hillside Avenue and 88th Avenue	East	4.5	173	0.65	243.3	B
88th Avenue between Merrick Boulevard and 165th Street	North	4.5	45	0.44	633.5	A
165th Street between 88th Avenue and 89th Avenue	East	7.5	391	0.78	215.4	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	800	0.83	111.8	B
Note: SFP = square feet per pedestrian.						

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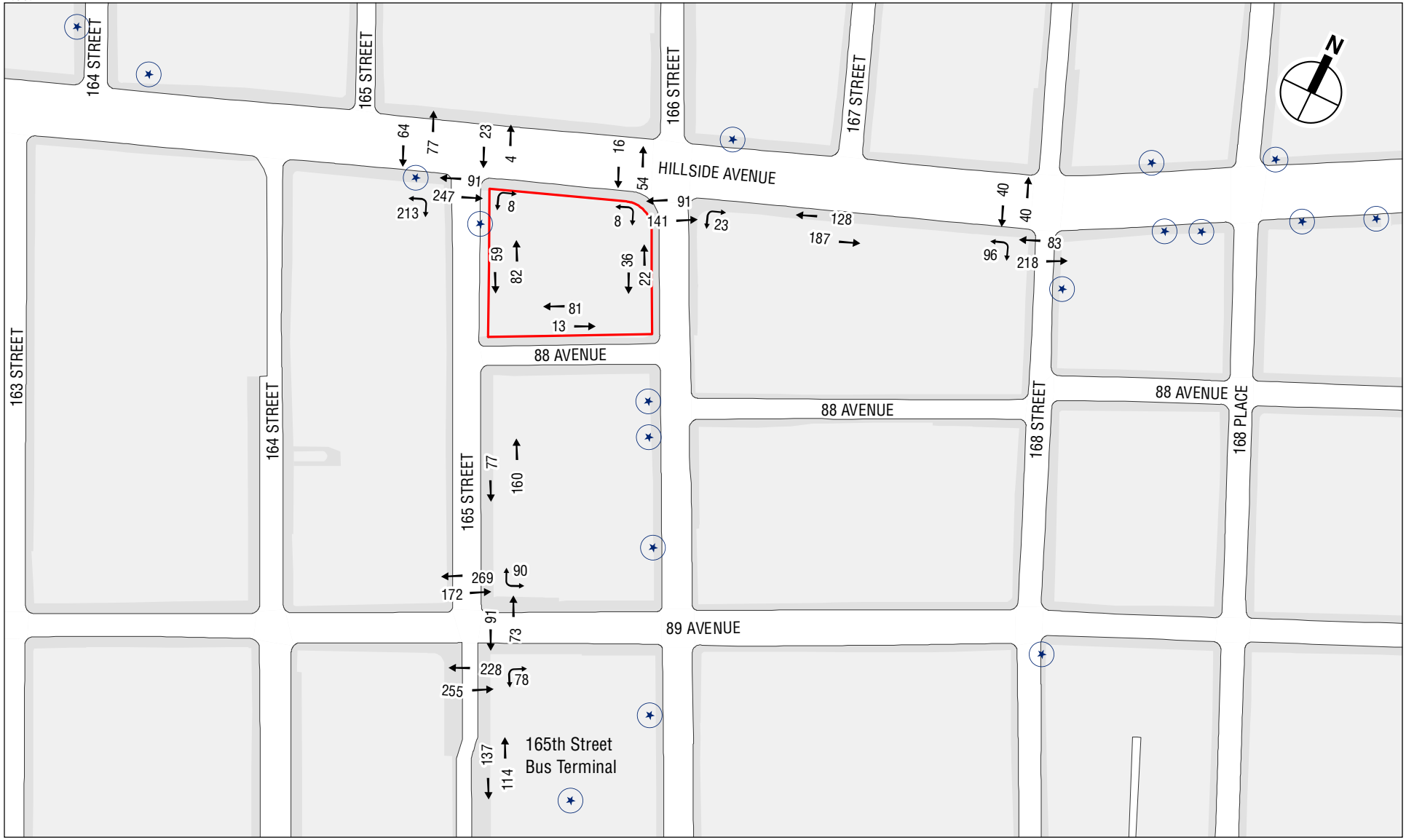

Project Site

Bus Stop

0 200 FEET

2026 No Action Pedestrian Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-14

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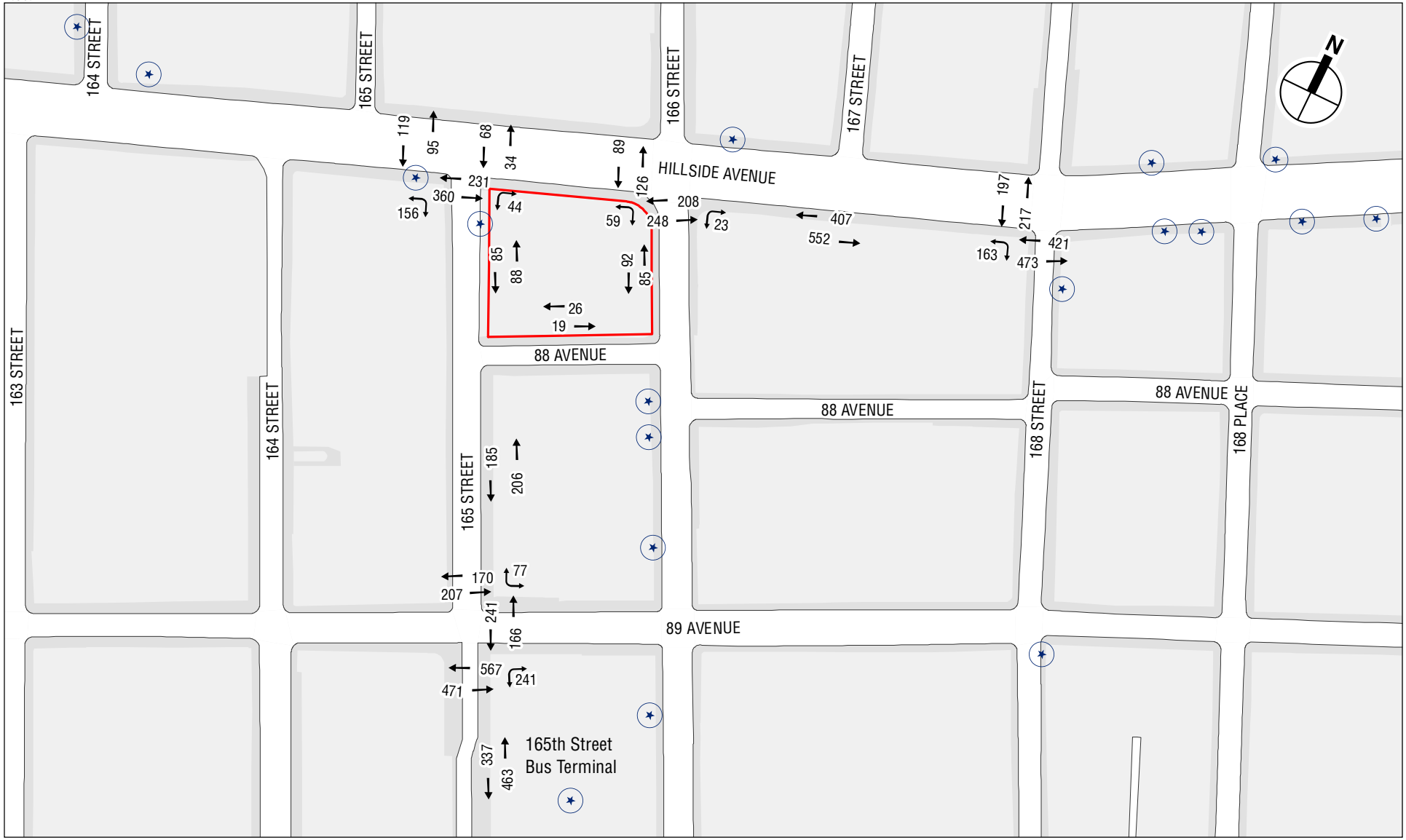

Project Site

Bus Stop

0 200 FEET

2026 No Action Pedestrian Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-15

Table 9-25:
2026 No Action Conditions: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS
Hillside Avenue and 168th Street	Southwest	189.3	A	52.4	B
Hillside Avenue and Merrick Boulevard / 166th Street	Southwest	204.1	A	83.2	A
	Southeast	299.4	A	182.7	A
Hillside Avenue and 165th Street	Southwest	81.5	A	110.0	A
	Southeast	187.5	A	121.2	A
89th Avenue and 165th Street	Northeast	220.6	A	239.4	A
	Southeast	142.1	A	80.0	A

Note: SFP = square foot per pedestrian

Table 9-26:
2026 No Action Conditions: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	232	192.6	A
89th Avenue and 165th Street	East	39.5	12.0	164	112.0	A
Weekday PM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	456	102.1	A
89th Avenue and 165th Street	East	39.5	12.0	407	61.9	A

Note: SFP = square feet per pedestrian.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

Project-generated pedestrian volumes were assigned to the pedestrian network considering current land uses in the area, population distribution, available transit services, and surrounding pedestrian facilities. The hourly incremental pedestrian volumes presented above in Section B, "Level 2 Screening Assessment," were added to the projected 2026 future without the proposed project volumes to generate the 2026 future with the proposed project pedestrian volumes for analysis (see **Figures 9-16 and 9-17**).

STREET-LEVEL PEDESTRIAN OPERATIONS

As part of the proposed project, 10-foot wide clear path sidewalks would be constructed along the Hillside Avenue, 88th Avenue, Merrick Boulevard, and 165th Street frontages adjacent to the school building. As shown in **Table 9-27 though Table 9-29**, all study area pedestrian elements would continue to operate at favorable LOS C or better. Based on the *CEQR Technical Manual* sliding scale impact thresholds, no significant adverse pedestrian impacts were identified for any of the analysis locations during the AM and PM peak hours.

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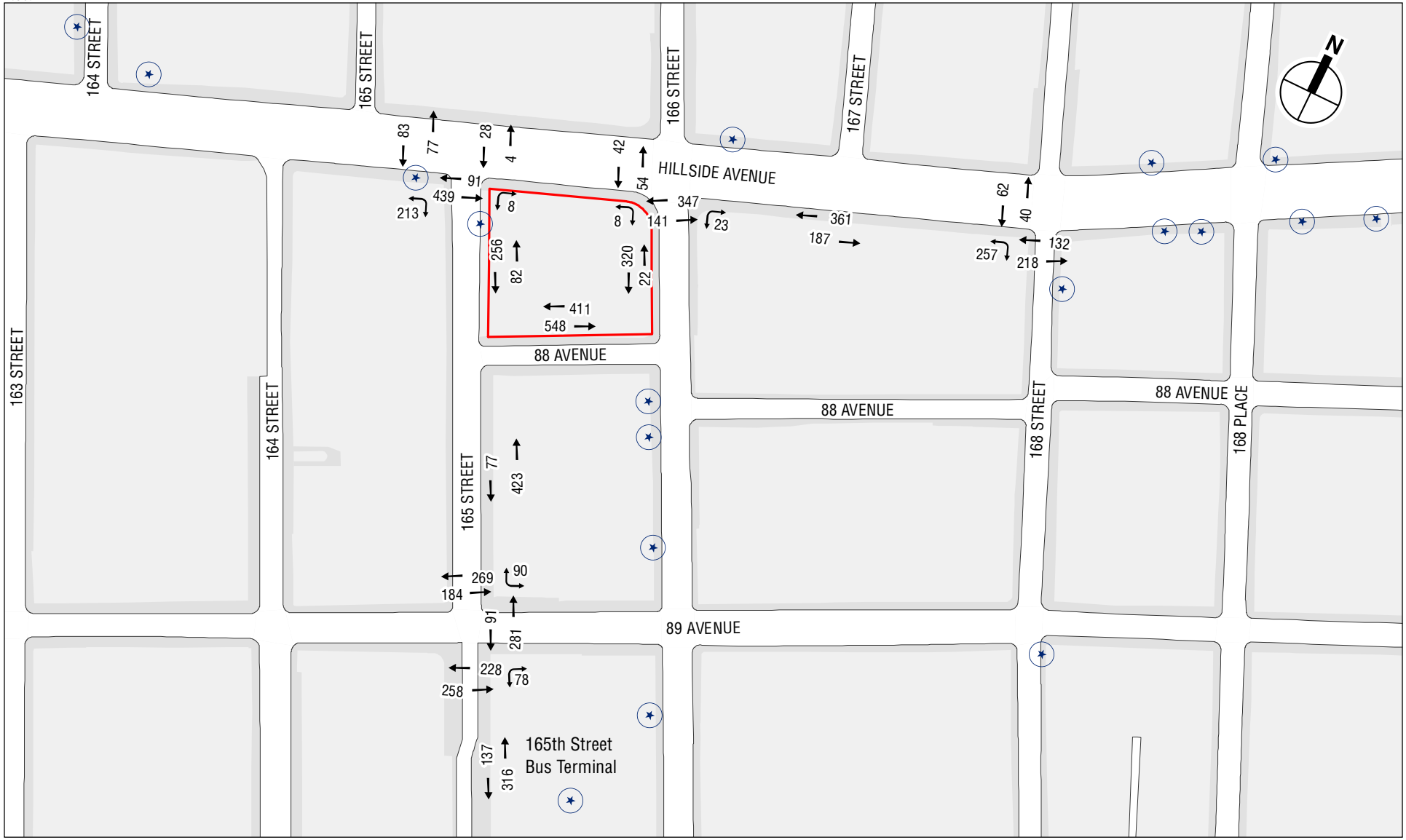


Project Site

Bus Stop

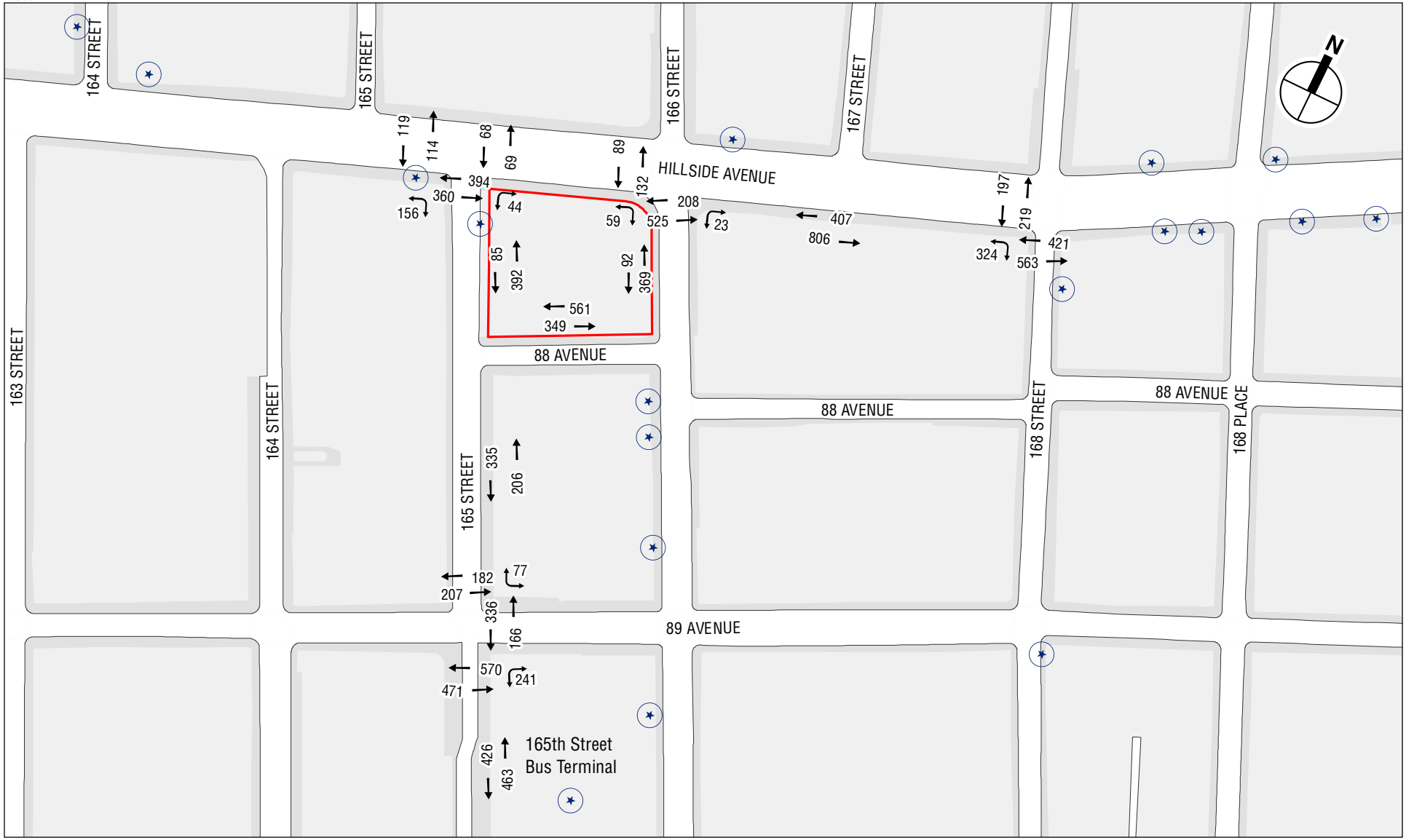
0 200 FEET

2026 With Action Pedestrian Volumes
Weekday AM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-16

4.30.21



Project Site

Bus Stop

0 200 FEET

2026 With Action Pedestrian Volumes
Weekday PM Peak Hour

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 9-17

Table 9-27:
2026 With Action Conditions: Sidewalk Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	8.5	548	0.64	142.5	B
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	342	0.64	66.3	C
165th Street between Hillside Avenue and 88th Avenue	East	4.5	338	0.70	134.7	B
88th Avenue between Merrick Boulevard and 165th Street	North	7.5	959	0.37	40.7	C
165th Street between 88th Avenue and 89th Avenue	East	7.5	500	0.81	175.4	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	453	0.63	148.7	B
Weekday PM Peak Hour						
Hillside Avenue between 168th Street and 167th Street	South	8.5	1213	0.85	85.6	C
Merrick Boulevard between Hillside Avenue and 88th Avenue	West	2.5	461	0.75	57.5	C
165th Street between Hillside Avenue and 88th Avenue	East	4.5	477	0.65	87.8	C
88th Avenue between Merrick Boulevard and 165th Street	North	7.5	910	0.44	51.4	C
165th Street between 88th Avenue and 89th Avenue	East	7.5	541	0.78	155.6	B
165th Street between 89th Avenue and Jamaica Avenue	East	7.5	889	0.83	100.5	B

Note: SFP = square feet per pedestrian.

Table 9-28:
2026 With Action Conditions: Corner Analysis

Location	Corner	Weekday AM Peak Hour		Weekday PM Peak Hour	
		SFP	LOS	SFP	LOS
Hillside Avenue and 168th Street	Southwest	130.4	A	43.6	B
Hillside Avenue and Merrick Boulevard / 166th Street	Southwest	108.3	A	58.9	B
	Southeast	147.0	A	117.3	A
Hillside Avenue and 165th Street	Southwest	60.3	A	84.6	A
	Southeast	124.6	A	90.2	A
89th Avenue and 165th Street	Northeast	172.1	A	213.9	A
	Southeast	106.5	A	75.8	A

Note: SFP = square foot per pedestrian

Table 9-29:
2026 With Action Conditions: Crosswalk Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	488	81.9	A
89th Avenue and 165th Street	East	39.5	12.0	372	48.6	B
Weekday PM Peak Hour						
Hillside Avenue and Merrick Boulevard / 166th Street	South	38.0	15.0	733	57.4	B
89th Avenue and 165th Street	East	39.5	12.0	502	49.8	B

Note: SFP = square feet per pedestrian.

F. VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

Crash data for the study area intersections were obtained from NYCDOT for the time period between January 1, 2016 and December 31, 2018. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of vehicular crashes with pedestrians and bicycles at each location.

During the January 1, 2016 and December 31, 2018 three-year period, a total of 322 reportable and non-reportable crashes, one fatality, 267 injuries, and 79 pedestrian/bicyclist-related crashes

occurred at the study area intersections. A rolling total of crash data identifies three high crash locations in the 2016 to 2018 period, 164th Street and Jamaica Avenue, 165th Street and Jamaica Avenue, and 168th Street and Jamaica Avenue. **Table 9-30** depicts total crash characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle crashes by year and location**. Table 9-31** shows a detailed description of each pedestrian/bicycle-related crash at the high crash locations during the three-year period. As detailed below for each high crash location, most incidents were attributed to inattentiveness and failure to yield by motorists, as well as pedestrians and bicyclists. Based on the review performed for each of the high crash locations, additional safety measures were recommended where available to further enhance safety at these intersections.

Table 9-30:
Crash Summary

Intersection		Study Period						Crashes by Year						
		All Crashes by Year						Pedestrian			Bicycle			
North-South Roadway	East-West Roadway	2016	2017	2018	All Crashes Highest 12- Month Rolling	Total Fatalities	Total Injuries	2016	2017	2018	2016	2017	2018	Ped + Bike 12 consecutive months maximum
163rd Street	Hillside Avenue	4	2	2	4	0	6	0	1	1	0	0	0	2
163rd Street	89th Avenue	2	1	5	6	0	8	0	1	1	0	0	0	2
163rd Street	Jamaica Avenue	8	8	14	15	0	30	2	2	2	0	0	0	3
164th Street	Highland Avenue	3	5	1	5	0	11	1	1	0	0	0	0	2
164th Street	87th Road	1	0	0	1	0	2	0	0	0	1	0	0	1
164th Street	Hillside Avenue	7	4	4	7	0	18	2	1	1	0	0	0	2
164th Street	89th Avenue	5	3	3	5	0	12	2	2	0	0	0	0	2
164th Street	**Jamaica Avenue**	**7**	**3**	**6**	**7**	**0**	**13**	**5**	**0**	**2**	**0**	**0**	**0**	**5**
165th Street	Highland Avenue	2	0	0	2	0	0	0	0	0	0	0	0	0
165th Street	Clinton Terrace	0	0	1	1	0	0	0	0	0	0	0	0	0
165th Street	Hillside Avenue	5	3	6	7	0	10	1	0	0	0	0	0	1
165th Street	88th Avenue	0	1	1	2	0	3	0	1	0	0	0	0	1
165th Street	89th Avenue	1	2	2	3	0	3	1	0	0	0	0	0	1
165th Street	**Jamaica Avenue**	**6**	**1**	**14**	**14**	**0**	**27**	**0**	**0**	**5**	**0**	**0**	**0**	**5**
166th Street	Highland Avenue	0	1	0	1	0	1	0	0	0	0	0	0	0
Merrick Boulevard	Hillside Avenue	4	6	7	8	0	12	1	0	1	0	3	0	3
Merrick Boulevard	88th Avenue	1	1	0	1	0	1	0	0	0	0	0	0	0
Merrick Boulevard	89th Avenue	1	1	1	2	0	2	0	0	0	0	0	0	0
Merrick Boulevard	90th Avenue	3	1	2	3	0	5	2	0	0	1	0	0	3
Merrick Boulevard	91st Avenue	0	0	1	1	0	0	0	0	0	0	0	0	0
Merrick Boulevard	Jamaica Avenue	3	5	3	5	0	10	0	0	1	0	0	0	1
167th Street	Highland Avenue	1	0	6	6	0	1	0	0	0	0	0	0	0
167th Street	Hillside Avenue	3	10	6	10	0	9	0	2	1	0	0	0	2
168th Street	Highland Avenue	3	3	6	7	0	12	2	1	1	0	0	0	2
168th Street	Hillside Avenue	6	3	12	12	0	18	2	2	2	0	0	0	3
168th Street	88th Avenue	0	1	2	3	0	1	0	0	0	0	0	0	0
168th Street	89th Avenue	1	2	3	3	0	3	0	2	1	0	0	0	2
168th Street	90th Avenue	1	1	1	1	0	3	0	0	1	0	0	0	1
168th Street	91st Avenue	1	4	1	4	0	4	0	1	0	0	0	0	1
168th Street	**Jamaica Avenue**	**8**	**6**	**9**	**11**	**0**	**20**	**4**	**1**	**2**	**1**	**0**	**0**	**6**
168th Place	Highland Avenue	1	2	4	4	0	3	0	0	1	0	0	0	1
168th Place	Hillside Avenue	2	4	6	6	0	7	0	0	0	0	0	0	0
168th Place	88th Avenue	0	2	3	0	1	3	0	2	1	0	0	0	2
168th Place	89th Avenue	0	3	2	4	0	1	0	1	0	0	0	0	1
168th Place	90th Avenue	1	0	0	1	0	2	1	0	0	0	0	0	1
168th Place	Jamaica Avenue	2	4	6	7	0	6	0	2	0	0	0	0	2

Note: Bold intersections are high crash locations.
Source: NYCDOT January 1, 2016 and December 31, 2018 crash data

Table 9-31:
Vehicle and Pedestrian Crash Details

Intersection	Year	Date	Time	Crash Class		Action of Vehicle	Action of Pedestrian	Cause of Crash			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
164th Street and Jamaica Avenue	2016	2/6	4:45pm	X		Going straight – East	Crossing with signal				Unknown
		3/29	7:10pm	X		Going straight – East	Crossing, no signal or xwalk		X		
		9/13	8:50am	X		Making left turn – South	Crossing with signal	X			Failure to yield R.o.W.
		9/15	7:52pm	X		Making right turn – Southwest	Working in roadway	X			Turning improper, Failure to yield R.o.W.
		12/3	12:13pm	X		Going straight – West	Crossing with signal				Unknown
	2018	5/26	9:06am	X		Making left turn – Southeast	Crossing with signal	X			Failure to yield R.o.W.
		9/6	12:10pm	X		Backing – West	Other actions in roadway				View obstructed/ limited
165th Street and Jamaica Avenue	2018	3/9	1:20pm	X		Going straight – West	Crossing, no signal or xwalk				Failure to yield R.o.W.
		4/26	8:10am	X		Making left turn – West	Crossing with signal	X			
		4/26	5:30pm	X		Making right turn – South	Crossing with signal	X		X	
		8/13	6:00pm	X		Starting in traffic – East	Crossing, no signal or xwalk		X		
		9/3	10:55am	X		Starting from parking – East	Getting on/off vehicle			X	Passenger distraction
168th Street and Jamaica Avenue	2016	5/26	9:35pm	X		Making left turn – West	Crossing with signal	X		X	Failure to yield R.o.W.
		6/14	1:00pm	X		Going straight – West	Going straight – West				Unsafe speed
		6/16	5:30pm	X		Making left turn – North	Crossing with signal	X			Failure to yield R.o.W.
		7/8	11:50am	X		Going straight – North	Crossing against signal		X		Oversized vehicle
		9/28	4:10pm	X		Making left turn – Southwest	Crossing with signal	X			Driver inexperience, View obstructed/ limited
	2017	1/5	2:50pm	X		Making right turn – North	Crossing with signal	X		X	Failure to yield R.o.W.
	2018	6/11	7:50pm	X		Going straight – North	Crossing, no signal, marked xwalk		X		
		7/10	6:06pm	X		Making left turn – West	Crossing with signal	X			View obstructed, limited

164TH STREET AND JAMAICA AVENUE

Based on the review of the crash history at the intersection of 164th Street and Jamaica Avenue, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded crashes. The intersection is signalized and provides three high visibility crosswalks. In addition, countdown timers are present on all three crosswalks. In terms of project-generated activity, this intersection would experience incremental peak hour volume increases of approximately 40 or fewer vehicle trips and 25 or fewer pedestrian trips at any crosswalk during each of the analysis peak hours. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of these crashes. Additional safety measures, such as the installation of yield to pedestrian signs along the southbound 164th Street approach, could be implemented to further improve safety at this intersection.

165TH STREET AND JAMAICA AVENUE

Based on the review of the crash history at the intersection of 165th Street and Jamaica Avenue, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded crashes. The intersection is signalized and provides three high visibility crosswalks. In addition, countdown timers are present on all three crosswalks and yield to pedestrian signage is installed along the northbound 165th Street approach. In terms of project-generated activity, this intersection would experience incremental peak hour volume increases of approximately 30 or fewer vehicle trips and 25 or fewer pedestrian trips at any crosswalk during each of the analysis peak hours. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of these crashes.

168TH STREET AND JAMAICA AVENUE

Based on the review of the crash history at the intersection of 168th Street and Jamaica Avenue, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded crashes. The intersection is signalized and provides four high visibility crosswalks. In addition, countdown timers are present on all four crosswalks. In terms of project-generated activity, this intersection would experience incremental peak hour volume increases of approximately 35 or fewer vehicle trips and 25 or fewer pedestrian trips at any crosswalk during each of the analysis peak hours. Therefore, the proposed project is not anticipated to exacerbate any of the current causes of these crashes. Additional safety measures, such as the installation of yield to pedestrian signs along the northbound, eastbound, and westbound approaches, could be implemented to further improve safety at this intersection. ✷

A. INTRODUCTION

The proposed project would include the construction of a new five-story 801-seat Public School (P.S.) located at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens. The potential for air quality impacts associated with the proposed project is assessed in this attachment.

The maximum projected hourly incremental traffic volumes generated by the proposed project would not exceed the carbon monoxide (CO) screening threshold defined in the 2020 *City Environmental Quality Review (CEQR) Technical Manual* (170 peak hour vehicle trips at an intersection in the study area). The incremental traffic volumes would also not exceed the particulate matter (PM) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, no mobile source analysis was required.

Since the proposed project would include fossil fuel-fired heat and water systems, a stationary source analysis was conducted to evaluate the potential impact from these sources on air quality. As discussed in detail below, the proposed project would not result in any significant adverse impacts on air quality.

In addition to emissions from the proposed project's stationary sources, the potential for emissions from existing large or major sources to impact air quality at the project site was assessed.

The proposed high school would include science laboratories. Therefore, this chapter examines the expected use of potentially hazardous materials in the proposed laboratories, and the procedures and systems that would be employed in the proposed laboratories to ensure the safety of staff and the surrounding community in the event of a chemical spill in one of the proposed laboratories.

B. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

HEAT AND HOT WATER SYSTEMS

Stationary source analyses were conducted using the methodology described in the *CEQR Technical Manual* to assess air quality impacts associated with emissions from the proposed project's heat and hot water systems. An initial screening analysis was undertaken using the methodology described in Chapter 17, Section 322.1 of the *CEQR Technical Manual.* However, since the screening analysis of the proposed project's heating and hot water systems did not pass, further analysis was performed using the refined American meteorological Society (AMS) / U.S. Environmental Protection Agency (EPA) Regulatory Model (AERMOD) dispersion model.[1]

[1] EPA, *User's Guide for the AMS/EPA Regulatory Model (AERMOD)*. 454/B-16-011, December 2016.

AERMOD ANALYSIS

AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources and source types. AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatment of the boundary layer theory and understanding of turbulence and dispersion, and includes handling of the plume interaction with terrain. AERMOD is EPA's preferred regulatory stationary source model.

AERMOD calculates pollutant concentrations from simulated sources (e.g., exhaust stacks) based on hourly meteorological data and surface characteristics, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analysis of potential impacts from exhaust stacks assumed stack tip downwash, urban dispersion and surface roughness length, and elimination of calms.

AERMOD incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithm, which is designed to predict concentrations in the "cavity region" (i.e., the area around a structure which under certain conditions may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). AERMOD also incorporates the algorithms from the PRIME model and BPIPPRM was used to determine the projected building dimensions for modeling with the building downwash algorithm enabled. The modeling of plume downwash accounts for all obstructions within a radius equal to five obstruction heights of the stack.

The analysis was prepared both with and without downwash in order to assess the worst-case impacts at elevated locations close to the height of the source, which would occur without downwash, as well as the worst-case impacts at lower elevations and ground level, which would occur with downwash, consistent with the *CEQR Technical Manual* guidance.

Potential 1-hour average NO_2 concentrations, added to representative background concentrations in the area, were compared with the NAAQS. Potential 24-hour and annual average incremental concentrations of $PM_{2.5}$ were compared with the $PM_{2.5}$ *de minimis* criteria defined in the *CEQR Technical Manual*. For the analysis of the 1-hour average NO_2 concentration from the building's heating and hot water systems, AERMOD's Plume Volume Molar Ratio Method (PVMRM) module was used to analyze chemical transformation within the model. PVMRM incorporates hourly background ozone concentrations to estimate NO_x transformation within the source plume. The model applied ozone concentrations measured in 2015–2019 at the nearest available New York State Department of Environmental Conservation (DEC) ozone monitoring station—the Queens College monitoring station in Queens. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust stack was assumed for boilers, which is considered representative.

Five years of surface meteorological data collected at John F Kennedy Airport (2015–2019) and concurrent upper air data collected at Brookhaven, New York were used in the analysis.

MODEL PARAMETERS FOR AERMOD ANALYSES

EMISSION RATES AND STACK PARAMETERS

The proposed project would utilize natural gas-fired heating and hot water systems with the exhaust stack(s) located on the roof of the building.

Annual emission rates for heating and hot water systems were calculated based on fuel consumption estimates, using energy intensity estimates based on type of development and size of the building (119,000 gsf) as recommended in the *CEQR Technical Manual*, and applying emission factors for natural gas-fired boilers.[2] Annual NO_2 concentrations from heating and hot water sources were estimated using a NO_2 to NO_x ratio of 0.75.[3] $PM_{2.5}$ emissions include both the filterable and condensable components. The short-term emission rates (24-hour and shorter) were calculated by scaling the annual emissions to account for a 100-day heating season.

The exhaust from the heat and hot water systems was assumed to be vented through a single stack located three feet above the roof of the building at a height of approximately 78 feet above grade. (The maximum building height including bulkhead is approximately 90 feet, as noted in other technical analyses.) To calculate the exhaust flow rate, the fuel consumption of the proposed project was multiplied by EPA's fuel factor for natural gas,[4] providing the exhaust flow rate at standard temperature; the flow rate was then corrected for the exhaust temperature, and exhaust velocity was calculated based on the stack diameter. Assumptions for stack diameter and exhaust temperature for the proposed systems were obtained from a survey of boiler exhaust data provided by New York City Department of Environmental Protection (DEP),[5] and were used to calculate the exhaust velocity.

The emission rates and exhaust stack parameters used in the modeling analyses are presented in **Table 10-1**.

Table 10-1
Exhaust Stack Parameters and Emission Rates

Stack Parameter	Value
Stack Height (feet)	78
Stack Diameter (feet)	2 (1)
Exhaust Velocity (feet/second)	4.2(1)
Exhaust Temperature (degrees Fahrenheit)	307.8(1)
Emission Rate (grams/second)	
NO_2 (1-hour average)	0.037
NO_2 (Annual average)	0.010
$PM_{2.5}$ (24-hour average)	0.003
$PM_{2.5}$ (Annual average)	0.001
Note: 1. Stack parameter assumptions were obtained from a survey of boiler exhaust data provided by DEP.	

BACKGROUND CONCENTRATIONS

To estimate the maximum expected pollutant concentration at a given location (receptor), the predicted impacts must be added to a background value that accounts for existing pollutant concentrations from other sources that are not directly accounted for in the model (see **Table 10-2)**.

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2 EPA. Compilation of Air Pollutant Emission Factors AP-42. 5th Ed., V. I, Ch. 1.4. September, 1998.

3 EPA. Guideline on Air Quality Models 40 CFR part 51 Appendix W, Section 5.2.4.

4 EPA. *Standards of Performance for New Stationary Sources.* 40 CFR Chapter I Subchapter C Part 60. Appendix A-7, Table 19-2. 2013.

5 DEP. *Boiler Database*. Received August 11, 2017.

Table 10-2
Maximum Background Pollutant Concentrations

Pollutant	Average Period	Location	Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	1-hour	Queens College, Queens	103.8	188
	Annual	Queens College, Queens	28.7	100
$PM_{2.5}$	24-hour	Queens College, Queens	18.1	35
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2015–2019.				

Total 1-hour NO_2 concentrations were refined following a more detailed approach (EPA "Tier 3"). The methodology used to determine the total 1-hour NO_2 concentrations from the facility was based on adding the monitored background to modeled concentrations, as follows: hourly modeled concentrations from the boilers were first added to the seasonal hourly background monitored concentrations; then the highest combined daily 1-hour NO_2 concentration was determined at each location and the 98th percentile daily 1-hour maximum concentration for each modeled year was calculated within the AERMOD model; finally the 98th percentile concentrations were averaged over the latest five years.

$PM_{2.5}$ impacts are assessed on an incremental basis and compared with the $PM_{2.5}$ *de minimis* criteria. The $PM_{2.5}$ 24-hour average background concentration based on the 98th percentile concentration, averaged over the years 2017-2019, was used to establish the *de minimis* value of 8.5 ug/m^3. $PM_{2.5}$ annual average impacts are compared to the $PM_{2.5}$ *de minimis* criteria without considering the annual background. Therefore, the annual $PM_{2.5}$ background concentration is not presented in the table.

RECEPTOR PLACEMENT

For the AERMOD analysis, discrete receptors were modeled along existing and proposed building façades to represent potentially sensitive locations such as operable windows and intake vents. Rows of receptors at spaced intervals on the modeled buildings were analyzed at multiple elevations.

MAJOR OR LARGE STATIONARY EMISSION SOURCES

The *CEQR Technical Manual* requires an analysis of projects that may result in a significant adverse impact due to certain types of new uses located near a "large" or "major" emissions source. Major sources are defined as those located at facilities that have a Title V or Prevention of Significant Deterioration air permit, while large sources are defined as those located at facilities that require a State Facility Permit. To assess the potential effects of these existing sources on the projected and potential development sites, a review of existing permitted facilities was conducted. Sources of information reviewed included the DEC Title V and State Facility Permit websites. The review of major- and large-sources permits[6] found no such facilities within 1,000 feet of the project site. Therefore, no additional analysis is required, and no significant adverse impacts would occur on the project site for major or large stationary sources.

[6] DEC. *Access to DEC Air Permits*. http://www.dec.ny.gov/chemical/32249.html. Accessed December 14, 2020.

CHEMICAL SPILL ANALYSIS

Emissions from the proposed public high school building's fume hood exhaust system were evaluated, in the event of an accidental chemical spill in one of the laboratories. Impacts were evaluated using information, procedures, and methodologies described in the *CEQR Technical Manual*. Maximum concentrations were compared to the short-term exposure levels (STELs) or to the ceiling levels recommended by the U.S. Occupational Safety and Health Administration (OSHA) for each chemical examined.

The following section details the expected usage of potentially hazardous chemicals, as well as the ventilation system that would be employed at the public high schools to ensure the safety of the students and staff and the surrounding community in the event of an accidental laboratory chemical spill in the science laboratories. Two quantitative analyses employing mathematical modeling were prepared to determine potential impacts at (1) operable windows and air intakes in nearby buildings and at nearby places of public access; and (2) the school itself due to recirculation into air intake systems, windows, and open air terraces.

LABORATORY FUME HOOD EXHAUSTS

All laboratories in which hazardous chemicals are used would be equipped with fume hoods. Fume hoods are workstation enclosures that are maintained under negative pressure and continuously vented to the outside when work is taking place. Their function is to protect teachers, staff, and students from potentially harmful fumes. By providing an exhaust from laboratory rooms, they also prevent any fumes released within the laboratory from escaping into other areas of the building, or through windows to the outside.

Since design information is not yet available on the fume hood exhaust system, a set of conservative assumptions was used. The worst-case analysis assumed the fume hood exhausts would be combined and vented to the building roof through a single stack. Multiple locations of the fume hood exhaust were tested in order to determine the worst-case location. The minimum fume hood exhaust stack height was determined to be four feet above the building roof. An exhaust fan sufficient to maintain a minimum exit velocity of 1,500 feet per minute through a 12-inch stack discharge was also assumed.

CHEMICALS FOR ANALYSIS

An inventory of the types and quantities of typical chemicals that are likely to be used in a public school laboratory was used for the analysis. From the chemical inventory, 14 chemicals were selected for further examination, based on their toxicity and potential for air quality impacts. Common buffers, salts, enzymes, nucleotides, peptides, and other bio-chemicals were not considered in the analysis since they are not typically categorized as air pollutants. Nonvolatile chemicals (i.e., with a vapor pressure of less than 10 mm Hg) were excluded as well since they would largely not be released in a spill.

The hazardous chemicals selected are presented in **Table 10-3**. The vapor pressure shown for each chemical is a measure of its volatility (tendency to evaporate) or to form vapors, which is a critical parameter in determining potential airborne impacts from chemical spills. Exposure standards are safety- and health-based standards indicative of the chemical's toxicity—substances with higher toxicity have lower exposure standards. These include OSHA's permissible exposure limit (PEL), National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit

(REL) and/or OSHA's STEL, ceiling, and immediately dangerous to life or health (IDLH) values. For all chemicals, the lowest value was chosen as the threshold to determine potential impacts.

Table 10-3
Expected Hazardous Materials in the Proposed School Laboratories

Chemical [CAS #]	Vapor Pressure mm Hg	PEL PPM	STEL PPM	REL PPM	IDLH PPM	Ceiling PPM
Acetone [67-64-1]	180	1,000	–	250	2,500	--
Allyl Alcohol [107-18-6]	17	2	4	2	20	--
Benzene [71-43-2]	75	1	1	--	500	–
Cyclohexene [110-83-8]	67	300	–	300	2,000	--
Ether [60-29-7]	442	400	–	--	1,900	–
Ethyl Acetate [141-78-6]	76	400	–	400	1,900	–
Ethyl Alcohol [64-17-5]	44	1,000	–	1,000	3,300	--
Isopropyl Alcohol [67-63-0]	33	400	500	400	2,000	--
Methyl Alcohol [67-56-1]	96	200	250	200	6,000	--
Nitric Acid [7697-37-2]	48	2	4	2	25	--
n-Butyl Acetate [123-86-4]	10	150	200	150	1,700	--
Petroleum distillates (Naphtha) [80002-05-9]	40	500	–	86	1,100	445
t-Butyl Alcohol [76-65-0]	31	100	–	100	1,600	-
Toluene [108-88-3]	21	100	150	100	500	300

Notes:
PEL: Permissible Exposure Limit, Time Weighted Average (TWA) for up to an 8-hour workday during a 40-hour workweek; set by OSHA
STEL: Short-Term Exposure Limit, a 15-minute TWA exposure that should not be exceeded at any time during a workday.
IDLH: Immediately Dangerous to Life or Health.
REL: Recommended Exposure Limit, TWA for up to a 10-hour workday during a 40-hour workweek; set by NIOSH.
Ceiling: Level set by NIOSH or OSHA not to be exceeded in any working exposure
PPM: parts per million.
Where a hyphen (-) appears there is no recommended corresponding guideline value.

Source: *NIOSH Pocket Guide to Chemical Hazards*. September 2007.

ESTIMATES OF WORST-CASE EMISSION RATES

The dispersion of hazardous chemicals from a chemical spill within one of the proposed school laboratories was analyzed to assess the potential for exposure of the general public, and of students and staff within the school to hazardous vapors in the event of an accident. Evaporation rates for volatile hazardous chemicals expected to be used in the proposed laboratory were estimated using the model developed by the Shell Development Company.[7] The Shell model, which was developed specifically to assess air quality impacts from chemical spills, calculates evaporation rates based on physical properties of the compound, temperature, and rate of air flow over the spill surface. Room temperature conditions of 20°C and an air-flow rate of 0.5 meters per second were assumed for calculating evaporation rates.

Based on the relative STELs and the vapor pressures of the chemicals listed in **Table 10-3**, the most potentially hazardous chemicals, shown in **Table 10-4**, were selected for the "worst-case" spill

[7] Fleischer, M.T. An Evaporation/Air Dispersion Model for Chemical Spills on Land. Shell Development Company. December 1980.

analysis. Besides the relative toxicities, other factors such as molecular weight, container size, and frequency of use were also considered. Chemicals with high vapor pressures evaporate most rapidly. The chemicals selected also have the lowest STEL. Since the chemicals selected for detailed analysis are most likely to have a relatively higher emission rate and the lowest exposure standards, if the analysis of these chemicals results in no significant adverse air quality impacts, it would indicate that the other chemicals listed in **Table 10-3** would also not present any significant potential impacts.

Table 10-4
Chemicals Selected for Worst-Case Spill Analysis

Chemical	Quantity (liters)	Evaporation Rate (gram/meter^2/sec)	Emission Rate* (gram/sec)
Allyl Alcohol	0.08	0.07	0.08
Benzene	0.42	0.36	0.41
Nitric Acid	0.18	0.27	0.30

Note: * Average emission rate.

The analysis conservatively assumes that a chemical spill in a fume hood would extend to an area of 12 square feet (sf) (approximately 1.11 square meters). The emission rates were determined using the evaporation rates and assuming this maximum spill area. For modeling purposes, the emission rates shown in **Table 10-4** are assumed to continue for a 15-minute time period after which the spill would be contained. The vapor from the spill would be drawn into the fume hood exhaust system and released into the atmosphere via the roof exhaust fans. The high volume of air drawn through this system provides a high degree of dilution for hazardous fumes before they are released above the roof. The exhaust height of the fan would be at an elevation of three feet above the building roof.

DISPERSION MODELING—RECIRCULATION IN THE LABORATORY BUILDING INTAKES

The potential for recirculation of the fume hood emissions back into the proposed laboratory building air intakes was assessed using the Wilson method.[8] This empirical procedure, which has been verified by both wind-tunnel and full-scale testing, is a refinement of the 1981 *ASHRAE Handbook* procedure, and takes into account such factors as plume momentum, stack-tip downwash, and cavity recirculation effects. The procedure determines the worst-case, absolute minimum dilution between exhaust vent and air intake. Three separate effects determine the eventual dilution: internal system dilution, obtained by combining exhaust streams (i.e., mixing in plenum chambers of multiple exhaust streams, and introducing fresh air supplied from roof intakes); wind dilution, dependent on the distance from vent to intake and the exit velocity; and dilution from the stack, caused by stack height and plume rise from vertical exhaust velocity. The critical wind speed for worst-case dilution is dependent on the exit velocity, the distance from vent to intake, and the cross-sectional area of the exhaust stack.

DISPERSION MODELING—DISPERSION IN THE SURROUNDING AREA

Maximum concentrations at elevated receptors downwind of the fume exhausts were estimated using the EPA AERMOD dispersion model.

[8] D.J. Wilson. A Design Procedure for Estimating Air Intake Contamination from Nearby Exhaust Vents, ASHRAE TRAS 89, Part 2A, pp. 136-152, 1983.

Concentrations were evaluated at nearby buildings and publicly accessible areas. This included locations along the façades and roof of the buildings, operable windows, intake vents, and otherwise accessible locations. Multiple elevations were analyzed at spaced intervals on the buildings.

The power law relationship was used to convert the calculated 1-hour average maximum concentrations to short-term 15-minute averages. The 15-minute average concentrations were then compared to the STELs or to the ceiling levels for the chemicals examined.

C. PROBABLE IMPACTS OF THE PROPOSED PROJECT

HEAT AND HOT WATER SYSTEMS

The results of the refined heating and hot water systems analysis for one-hour and annual average NO_2 and 24-hour and annual average $PM_{2.5}$ concentration are presented in **Table 10-5**. As shown in the table, all predicted pollutant concentrations are less than their applicable impact criteria. Therefore, there would be no potential for significant adverse air quality impacts from the proposed project's heating and hot water systems.

Table 10-5
Maximum Modeled Pollutant Concentrations (µg/m³)

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	NAAQS / *De Minimis* Criterion
NO_2	1-hour	178.1 (1)	N/A	178.1	188 (2)
	Annual	0.99 (3)	28.7	29.7	100 (2)
$PM_{2.5}$	24-hour	3.56	N/A	N/A	8.5(4)
	Annual	0.13	N/A	N/A	0.3 (5)

Notes:

N/A – Not Applicable

1. Reported concentration is the maximum total 98th percentile concentration at any receptor using seasonal-hourly background concentrations.
2. NAAQS.
3. Annual NO_2 concentrations from heating and hot water sources were estimated using a NO_2 /NO_x ratio of 0.75, based on EPA modeling guidance.
4. $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m³
5. $PM_{2.5}$ *de minimis* criteria—annual (discrete receptor)

CHEMICAL SPILL ANALYSIS

RECIRCULATION IN LABORATORY BUILDING INTAKES

The recirculation analysis indicates that the minimum potential dilution factor between the fan exhausts and the nearest sensitive receptor is over 472 (i.e., pollutant concentrations at the nearest intake to the exhaust fan would be 472 times less than the concentration at the fan exhaust).

The results of the recirculation analysis are presented in **Table 10-6**. The results indicate that a spill in a fume hood as described above would produce a maximum concentration at the nearest intake location below the corresponding STELs or ceiling values set by OSHA and/or NIOSH for each of the chemicals analyzed. Consequently, it can be concluded that no significant impact would be expected due to recirculation of fume hood emissions back into the proposed public high school building's air intakes in the event of a chemical spill.

Table 10-6
Fume Hood Recirculation Analysis
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.19
Benzene	1	0.74
Nitric Acid	2	0.68
Note: * 15-Minute average emission rate.		

DISPERSION IN SURROUNDING AREA

The results of the analysis of potential emissions from the fume hood exhaust system in the surrounding area are shown in **Table 10-7**. As shown in the table, the maximum predicted concentrations at elevated receptors downwind of the fume hood exhausts were determined to be below the STEL/OSHA levels. The results of the dispersion analysis demonstrate that, assuming a minimum exhaust stack height of four feet above the building roof, there would be no significant adverse impacts from the exhaust system of the proposed public high school laboratories on the proposed project or the surrounding community.

Table 10-7
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Allyl Alcohol	2	0.009
Benzene	1	0.484
Nitric Acid	2	0.032
Note: * 15-Minute average emission rate.		

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Chapter 11: Noise

A. INTRODUCTION

This chapter considers the potential for the proposed project to result in significant adverse noise impacts. According to the guidelines established in the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, an initial noise impact screening considers whether a proposed action would generate any mobile or stationary source noise, or be located in an area with high ambient noise levels. A noise analysis examines an action for its potential effects on sensitive noise receptors, and the effects on the interior noise levels of residential, commercial, and community facility uses.

The number of vehicle trips generated by the proposed addition would be lower than the threshold that would require any detailed analysis. Consequently, it is not expected that the proposed school expansion would generate sufficient traffic to have the potential to cause significant increases in noise levels (i.e., double of noise passenger-car-equivalents [Noise PCEs]).

The noise analysis for the proposed school consisted of two parts: an analysis to determine whether use of the proposed at-grade play yard would have the potential to result in significant noise impacts, and an analysis to determine the level of building attenuation necessary to ensure that the proposed school's interior noise levels would satisfy applicable CEQR interior noise level criteria.

B. ACOUSTICAL FUNDAMENTALS

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called "decibels" ("dB"). The particular character of the sound that we hear (a whistle compared with a French horn, for example) is determined by the speed, or "frequency," at which the air pressure fluctuates, or "oscillates." Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz ("Hz"). People can hear over a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily discernable and therefore more intrusive than many of the lower frequencies (e.g., the lower notes on the French horn).

"A"-WEIGHTED SOUND LEVEL (DBA)

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in **Table 11-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, background noise at 50 dBA is perceived as twice as loud as at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable.

Table 11-1
Noise Levels of Common Sources

Sound Source	SPL (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50–60
Quiet Suburban Area at Night	40–50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0
Source: 2020 *CEQR Technical Manual*	

ABILITY TO PERCEIVE CHANGES IN NOISE LEVELS

The average ability of an individual to perceive changes in noise levels is well-documented (see **Table 11-2**). Generally, changes in noise levels of less than 3 dBA are barely perceptible to most listeners, whereas changes in noise levels of 10 dBA are normally perceived as doubling (or halving) of noise loudness. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 11-2
Average Ability to Perceive Changes in Noise Levels

Change (dBA)	Human Perception of Sound
2–3	Barely perceptible
5	Readily noticeable
10	A doubling or halving of the loudness of sound
20	A "dramatic change"
40	Difference between a faintly audible sound and a very loud sound
Source: Bolt Beranek and Neuman, Inc., *Fundamentals and Abatement of Highway Traffic Noise*, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.	

SOUND LEVEL DESCRIPTORS

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise that fluctuates over extended periods have been developed. One way is to describe the fluctuating sound heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same

sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus, the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

For purposes of the proposed project, the maximum 1-hour equivalent sound level ($L_{eq(1)}$) has been selected as the noise descriptor to be used in this noise impact evaluation. $L_{eq(1)}$ is the noise descriptor recommended for use in the *CEQR Technical Manual* for vehicular traffic and construction noise impact evaluation, and is used to provide an indication of highest expected sound levels. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for City environmental impact review classification.

C. NOISE STANDARDS AND CRITERIA

NEW YORK CEQR NOISE CRITERIA

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 11-3**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

The *CEQR Technical Manual* also defines attenuation requirements for buildings based on exterior noise level (see **Table 11-4**). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for classroom uses and 50 dBA or lower for office or administrative uses and are determined based on exterior $L_{10(1)}$ noise levels.

For purposes of impact assessment, this report will utilize a relative noise impact criteria which considers project-related increases in $L_{eq(1)}$ noise levels over future conditions without the project of greater than 5.0 dBA as significant impacts. The 5.0 dBA relative criteria is consistent with increases in noise levels that the public considers noticeable.

Table 11-3
Noise Exposure Guidelines For Use in City Environmental Impact Review

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

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more; (ii) *CEQR Technical Manual* noise criteria for train noise are similar to the above aircraft noise standards: the noise category for train noise is found by taking the L_{dn} value for such train noise to be an L_{dn} (L_{dn} contour) value.

Table Notes:

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

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

3 One may use FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

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

Source: New York City Department of Environmental Protection (adopted policy 1983).

Table 11-4
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level With the proposed project	70 < $L_{10} \leq$ 73	73 < $L_{10} \leq$ 76	76 < $L_{10} \leq$ 78	78 < $L_{10} \leq$ 80	80 < L_{10}
Attenuation[A]	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	36 + (L_{10} – 80)[B] dB(A)

Notes:

A The above composite window-wall attenuation values are for classroom uses. Office/administrative uses would be 5 dB(A) less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.

B Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dB(A).

Source: New York City Department of Environmental Protection.

D. NOISE PREDICTION METHODOLOGY

SCHOOL PLAY YARD NOISE

Table 11-5 shows the maximum hourly playground boundary noise levels for the two time periods analyzed. These values are based upon measurements made at a series of New York City school playgrounds for the New York City School Construction Authority (SCA).[1]

Table 11-5
Playground Boundary Noise $L_{eq(1)}$ Noise Levels (dBA)

Early Childhood	Elementary Schools	Intermediate Schools	High Schools
71.5	71.4	71.0	68.2
Source: 2020 *CEQR Technical Manual Appendix: Noise*			

Geometric spreading and the consequent dissipation of sound energy with increasing distance from the playground decreases noise levels at varying distances from the playground boundary. Based upon measurements and acoustical principles, hourly noise levels were assumed to decrease by the following values at the specified distances from the playground boundary: 4.8 dBA at 20 feet, 6.8 dBA at 30 feet, and 9.1 dBA at 40 feet. For all distances between 40 and 300 feet, a 4.5-dBA drop-off per doubling of distances from the playground boundary was assumed.

E. EXISTING NOISE LEVELS

SITE DESCRIPTION

The project site is located at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens. The proposed development, located on the block bound by Hillside Avenue to the north, Merrick Boulevard to the east, 88th Avenue to the south, and 165th Street to the west, includes the construction of a new five-story high school and outdoor play yard.

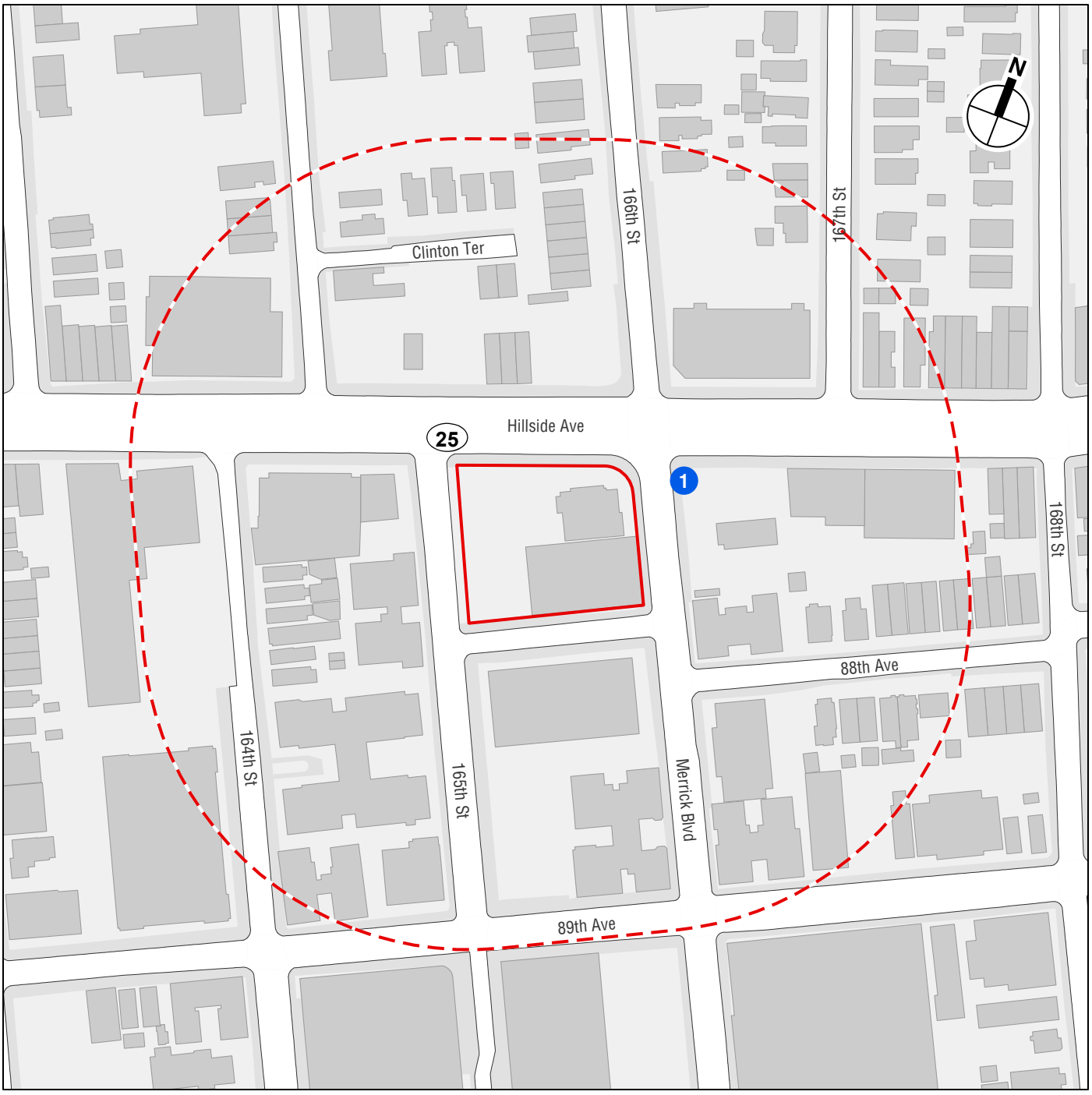
SELECTION OF NOISE MONITORING LOCATIONS

In general, the levels of existing noise within the Project Area are primarily influenced by the amount of vehicular traffic on the immediately adjacent roadway or nearby roadways. Measurements of existing noise were determined not to be representative of typical noise exposure due to atypical conditions for vehicular and pedestrian/cyclist traffic, goods movement, and transit use as a result of the COVID-19 pandemic. As an alternative, measurements of noise levels previously conducted near the project site were used to represent existing noise levels.

AKRF identified a measurement location adjacent to the project site at which noise levels were previously measured as part of the 2007 Downtown Jamaica Redevelopment Plan Environmental Impact Statement (EIS). This measurement location at the intersection of Hillside Avenue and 166th Street/Merrick Boulevard (Noise Receptor Site 14 from the Downtown Jamaica Redevelopment Plan EIS) is shown in **Figure 11-1**. This receptor provides an effective representation of existing ambient noise levels at the project site at the time the measurements were conducted. It is expected that measured noise levels from this monitoring location apply to the project site.

[1] SCA Playground Noise Study, AKRF, Inc., October 23, 1992.

1.4.21



0 400 FEET

Study Area (400-ft perimeter)

Project Site

1 *Noise Receptor*

Noise Receptor Locations

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 11-1

ESTABLISHMENT OF EXISTING CONDITION NOISE LEVELS

DOWNTOWN JAMAICA REDEVELOPMENT PLAN EIS NOISE DATA

As part of the noise analysis for the Downtown Jamaica Redevelopment Plan EIS, noise measurements were conducted at 93 sites. At the receptor sites, 20-minute duration noise measurements were conducted during typical weekday AM (7:15 AM–9:15 AM), midday (12:00 PM–2:00 PM), and PM (4:00 PM–6:00 PM) peak periods. Measurements were conducted between Tuesday and Thursday on weeks when New York City Public Schools were in session as recommended by the *CEQR Technical Manual*. Measurements were performed using Class 1 Sound Level Meter (SLM) instruments according to ANSI Standard S1.4-1983 (R2006). The SLMs had laboratory calibration dates within one year of the date of the measurements. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005. All noise measurement locations were located approximately 5 feet above grade. Traffic on adjacent roadways were counted concurrently with the noise measurements.

Of the 93 Downtown Jamaica Redevelopment Plan EIS measurement locations, one measurement site is located adjacent to the proposed project site. The measured noise levels at this location are summarized in **Table 11-6**.

Table 11-6
Existing Noise Levels (dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Hillside Avenue and 166th Street (FEIS Site 14)	AM	73.5	82.1	77.0	71.3	63.9
		MD	71.9	81.9	74.5	68.6	61.5
		PM	71.6	81.0	74.8	69.0	65.1
Notes: Field measurements were performed by AKRF, Inc. in November 2006							

Vehicular traffic noise on Hillside Avenue was the dominant noise source. Measured levels were moderate to relatively high and reflect the level of vehicular activity on the adjacent roadways. In terms of the CEQR criteria, the existing noise levels are categorized as "marginally unacceptable."

F. NOISE FROM THE SCHOOL PLAY YARD

An at-grade play yard is proposed along the southern edge of the project site adjacent to 88th Avenue. The nearest sensitive receptors are the proposed adjacent classrooms and the residential buildings located across 165th Street and Merrick Boulevard with direct line of sight to the play yard.

Using the methodology previously described, noise levels with the at-grade play yard were calculated at the classrooms of the proposed school and the nearby residences. Measured existing noise levels near these locations were in the mid-to-high 70s dBA, and would be expected to remain relatively unchanged in the future without the proposed project. The results of the calculated noise levels are shown in **Table 11-7** (see **Appendix B** for details). Noise levels from the playground are not expected to result in a significant impact. The maximum predicted increase in $L_{eq(1)}$ noise level would be 0.3 dBA when the school playground is being used, which would not be noticeable.

Table 11-7
Noise Levels due to School Playground (dBA)

Location	Time	Existing/No Build L_{eq}	Playground L_{eq}	Total L_{eq}	Change
87-84 165th Street (residence)	AM	73.5	68.2	73.7	0.2
	MD	71.9	68.2	72.2	0.3
	PM	71.6	68.2	71.9	0.3
16605 88th Avenue (residence)	AM	73.5	68.2	73.7	0.2
	MD	71.9	68.2	72.2	0.3
	PM	71.6	68.2	71.9	0.3

G. NOISE ATTENUATION MEASURES

As shown in **Table 11-4**, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for classroom uses or 50 dBA or lower for office or administrative uses, and are determined based on exterior $L_{10(1)}$ noise levels. The measured exterior $L_{10(1)}$ noise levels at the project site and noise levels from the SCA Playground Noise Study were used to determine the building attenuation values for the school façades. The maximum exterior $L_{10(1)}$ noise levels at the proposed building resulting from vehicular traffic on adjacent roadways or the proposed school playground would be 77.0 dBA. Based on this level of noise exposure, a requirement for 33 dBA window/wall attenuation and an alternate means of ventilation would be sufficient to provide interior noise levels that be considered acceptable for classroom use according to *CEQR Technical Manual* guidelines.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade consists of wall, glazing, and any vents or louvers associated with the building mechanical systems in various ratios of area. The proposed design for the building includes acoustically rated windows and central air conditioning (a means of alternate ventilation). The proposed building's façades, including these elements, would be designed to provide composite window/wall attenuation greater than or equal 33 dBA, along with an alternative means of ventilation for all academic uses.

H. MECHANICAL SYSTEMS

The building mechanical system (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings Code) and to avoid producing levels that would result in any significant increase in ambient noise levels. ✷

Chapter 12: Soil and Groundwater Conditions

A. INTRODUCTION

The approximately 38,800 square-foot site is improved with two vacant, two-story commercial buildings, landscaping, and asphalt-paved parking areas. A Phase I Environmental Site Assessment (ESA) of the Site was completed by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) on behalf of the New York City School Construction Authority (NYCSCA) in February 2020. The main objective of the Phase I ESA was to identify the presence or likely presence, use, or release of hazardous substances or petroleum products, which are defined in American Society of Testing and Materials (ASTM) Standard Practice E 1527 13 as recognized environmental conditions (RECs). In addition, other environmental issues or concerns such as radon, methane, asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB)-containing equipment were evaluated. The Phase I ESA included a site inspection, a review of the existing data on geology and hydrology of the area, interviews, and a review of historical maps, federal, state, and local agency records, and other documents to assess past and current uses of the site and adjacent areas.

The Phase I ESA identified on-site RECs associated with the historical use of the site as an undertaker/funeral home, tire shop, and automotive sales lot, and the potential presence of historic fill of unknown origin, buried structures, and demolition debris associated with the development and demolition of several former on-site buildings. Off-site RECs include the presence of automotive sales and service, filling stations, dry cleaners, hazardous waste generators, spills/leaking underground storage tanks, petroleum bulk storage, dry cleaners, E-Designation sites, historical automotive repair facilities, and historical dry cleaners. Environmental concerns include suspect ACM, LBP, and PCB-containing materials within the existing building, suspect buried structures/debris, and in buried fill material; and the potential for mold growth due to water intrusion.

To better understand the degree to which these environmental conditions may have impacted the site, a Phase II Environmental Site Investigation (ESI) was completed in March 2020.

EXISTING CONDITIONS

The approximately 38,800 square-foot site is improved with two vacant, two-story commercial buildings, landscaping, and asphalt-paved parking areas.

The site lots were first improved between 1901 and 1907 with five dwellings and several sheds/garages. One of these former dwellings comprises a portion of the former funeral home building that currently occupies lot 41. An addition was constructed onto the southern part of the building circa 1951 to 1961. The remaining dwellings initially developed at the site were demolished circa 1942 to 1967. A single-story commercial building was constructed on lot 49 circa 1934, which was demolished and replaced with the current two-story office building circa 1967. Circa 1955 to 1965, lot 39 was used as an automotive sales lot, trampoline center, and restaurant; and circa 1963 to approximately 2005, lot 41 was used as a funeral home.

The site is bordered to the north by Hillside Avenue and an underground section of the NYC Metropolitan Transit Authority (MTA) F subway line, followed by a gasoline filling station, multiple two-story commercial and residential buildings, and a used car sales lot; to the east by Merrick Boulevard followed by a gasoline filling station, automotive repair shop, and a used car sales lot; to the south by 88th Avenue followed by a ten-story office building with a parking garage; and to the west by 165th Street followed by a ten-story hotel and a six-story multifamily residential building.

Based on the findings of the Phase I ESA, a Phase II ESI was conducted at the site that included a geophysical survey and collection and laboratory analysis of soil, groundwater, and soil vapor/sub-slab vapor samples.

Historic fill (i.e., brown, black, and reddish-brown sands with traces of silt and gravel, brick fragments, wood, and coal slag) was observed in each soil boring to maximum depths of 8 to 9 feet below ground surface (bgs). The subsurface below the identified historic fill material consisted of interbedded layers of medium to fine sand with trace amounts of silt, gravel, and clay. Groundwater was encountered at depths ranging from 39 to 42 feet bgs.

A review of the soil vapor sample analytical results indicated that several volatile organic compounds (VOCs) were detected in soil vapor at concentrations above the range of published background levels and/or air guideline values published by the New York State Department of Health (NYSDOH). The presence of these VOCs in soil vapor is attributed to off-site sources.

A review of soil sample analytical results indicated that one pesticide and several semivolatile organic compounds (SVOCs) and metals were detected at concentrations above applicable New York State Department of Environmental Conservation (NYSDEC) Soil Cleanup Objectives. In addition, one VOC and several SVOCs and one metal were detected in groundwater in excess of their applicable comparison criteria. The presence of SVOCs and metals in soil and groundwater is attributed to the presence of historic fill material at the site and natural background conditions, respectively. The presence of the VOC in groundwater can be attributed to off-site sources.

B. FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the project, the project site is expected to remain in its current condition until the site is redeveloped.

C. PROBABLE IMPACTS OF THE PROPOSED PROJECT

The project would not result in impacts from contaminated media and building materials. A soil vapor barrier would be incorporated into the new building design in accordance with NYCSCA standard practice. Material excavated from the site would be further characterized to identify material handling, reuse, and/or disposal requirements. Two feet of environmentally clean fill would be placed over all exposed soil, including landscaped areas. Any dewatering required during construction would be performed in accordance with applicable local, state and federal regulations and minimized to mitigate potential influx of contaminated water from off-site sources toward the site. Suspect ACM, LBP, and PCB-containing material would be identified prior to demolition of the existing structures and properly managed during such activities. In addition, to minimize the potential for exposure by construction workers and the surrounding public, standard industry practices, including appropriate health and safety measures, would be utilized. ✷

A. SCREENING ANALYSIS

The 2020 *City Environmental Quality Review (CEQR) Technical Manual* outlines the following guidelines for assessments of water and sewer infrastructure.

- Water Supply: a preliminary water supply analysis should be conducted only for actions that would have exceptionally large demand for water, such as power plants, very large cooling systems, or large developments (e.g., those that use more than 1 million gallons per day [mgd]). In addition, actions located at the extremities of the water distribution system should be analyzed (such as the Rockaway Peninsula and Coney Island).
- Wastewater Conveyance and Treatment: in combined sewer areas, generally only projects with very large flows (e.g., 400 residential units or 150,000 sf of commercial and/or community facility space or more in the Bronx, Brooklyn, Staten Island, or Queens) could have the potential for significant impacts on sewage treatment and should be analyzed. Any development that is located within a specific drainage including the Gowanus Canal and involve development where the impervious surface would increase should also be analyzed.
- Stormwater Management: an assessment of stormwater is appropriate for projects that result in certain industrial activities; that would be served by a separate storm system, projects located in partially sewered or unsewered areas; and projects that involve construction of a new stormwater outfall.

The proposed project would generate a small demand for water (approximately 28,240 gallons per day) and generate approximately 8,010 gallons per day of sanitary wastewater[1]. It would not increase the amount of impervious surface on the project site. Therefore, in accordance with *CEQR Technical Manual* guidelines, no further analysis is warranted, and the proposed project would not result in any significant adverse impacts to water and sewer infrastructure. ✷

[1] 801 students x 10 gallons per day (gpd) = 8,010 + (0.17 x 119,000 gsf air conditioning) = 28,240 gallons. 801 students x 10 gpd = 8,010 gpd.

Chapter 14: Solid Waste and Sanitation Services

A. SCREENING ANALYSIS

The 2020 *City Environmental Quality Review (CEQR) Technical Manual* states that few projects generate substantial amounts of solid waste (50 tons per week or more) that would result in a significant adverse impact.

The proposed project would result in the construction of a five-story, 119,000-gsf high school facility. Based on Table 14-1 in the *CEQR Technical Manual*, the proposed project would generate well under the 50 tons per week or more CEQR threshold that would warrant further analysis. Therefore, the proposed project would not result in any significant adverse impacts to solid waste and sanitation services, and no further analysis is required. ✷

Chapter 15: Energy

A. SCREENING ANALYSIS

According to the 2020 *City Environmental Quality Review (CEQR) Technical Manual*, a detailed assessment of energy impacts is only required for projects that would significantly affect the transmission or generation of energy or that would result in substantial consumption of energy.

The proposed project is not expected to generate a substantial new demand for energy and would not affect the transmission or generation of energy. The proposed project is expected to consume 29,833,300 thousand British Thermal Units (MBtu's), calculated by multiplying the square footage of the project (119,000 sf) by a rate of 250.7 MBtu/sf, the institutional rate provided by *CEQR Technical Manual* Table 15-1. Therefore, the proposed project would not result in significant adverse impacts to energy supply or consumption, and no further analysis is warranted. ✷

Chapter 16: Greenhouse Gas Emissions and Climate Change

A. SCREENING ANALYSIS

An assessment of a project's greenhouse gas (GHG) emissions and its consistency with the City's policy to reduce GHG emissions is typically required only if warranted by specific characteristics of the project. The 2020 *City Environmental Quality Review (CEQR) Technical Manual* recommends that a GHG consistency assessment be undertaken for any project preparing an environmental impact statement expected to result in 350,000 square feet or more of development and other energy-intense projects (such as projects including power generation or significantly affecting the City's solid waste management system). Construction of new buildings with less than 350,000 square feet are not expected to result in significant emissions of GHG.

Furthermore in 2019, the New York City Council enacted Local Law 97 of 2019—the Climate Mobilization Act. The City has established annual building emission limits beginning in 2024 for most buildings that exceed 25,000 gsf (excluding electricity/steam generation facilities, rent-regulated accommodations, places of public worship, and city-owned properties). For buildings not covered under the GHG emissions limits, owners may either demonstrate compliance with the current limits or implement specified energy conservation measures where applicable. In order to demonstrate compliance with the limits, the owner of a building would be required to submit annual reports of anticipated GHG emissions.

The proposed project does not meet any of these thresholds for analysis, and therefore a GHG consistency assessment is not warranted and it is anticipated that the proposed project would not result in any significant greenhouse gas emission impacts. ✷

Chapter 17: Public Health

A. SCREENING ANALYSIS

Public health is the organized effort of society to protect and improve the health and well-being of the population through monitoring; assessment and surveillance; health promotion; prevention of disease, injury, disorder, disability, and premature death; and reducing inequalities in health status. According to the guidelines of the *CEQR Technical Manual*, a public health assessment may be warranted if an unmitigated significant adverse impact is identified in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. As described in Chapter 10, "Air Quality," Chapter 11, "Noise," Chapter 12, "Soil and Groundwater," and Chapter 13, "Water and Sewer Infrastructure" of this EAF, no unmitigated significant adverse impacts in these technical areas would occur with the proposed project. Therefore, a public health assessment not warranted, and the project is not expected to result in any significant adverse impacts to public health. ✷

Chapter 18: Neighborhood Character

A. SCREENING ANALYSIS

Neighborhood character is determined by a number of factors, including land use, socioeconomic conditions, open space, historic and cultural resources, urban design, visual resources, shadows, transportation, and noise. According to the guidelines of the *CEQR Technical Manual*, an assessment of neighborhood character is generally needed when a proposed project has the potential to result in significant adverse impacts in one of the technical areas presented above, or when a project may have moderate effects on several of the elements that define a neighborhood's character. As described in Chapter 2, "Land Use, Zoning, and Community Character" the 400-foot study area is primarily residential, residential with ground floor retail along Hillside Avenue, and institutional (including P.S. 349—the Queens School for Leadership and Excellence—and the Jamaica Main Post Office). Based on the analyses presented in Chapter 2, "Land Use, Zoning, and Community Character," Chapter 3, "Socioeconomic Conditions," Chapter 4, "Open Space," Chapter 5, "Shadows," Chapter 6, "Historic and Cultural Resources," Chapter 7, "Urban Design and Visual Resources," and Chapter 11, "Noise," no significant adverse impacts to these analysis areas would occur with the proposed project. Although the proposed project may result in traffic impacts at two intersections (Hillside Avenue and 165th Street (East) and Hillside Avenue and 166th Street/Merrick) that could not be mitigated with signal timing changes (as described in Chapter 10, "Transportation"), these traffic impacts would not contribute to a combination of moderate effects to several elements that may cumulatively affect neighborhood character as defined by CEQR. Therefore, a detailed assessment of neighborhood character is not required, and the proposed project is not expected to result in any significant adverse impacts to neighborhood character. ✷

Chapter 19: Construction Impacts

A. INTRODUCTION

Construction activities, although temporary in nature, can sometimes result in significant adverse environmental impacts. This chapter summarizes the construction plan for the proposed project and assesses the potential for construction-period impacts. The stages of construction and their associated activities and equipment are described first, followed by the types of impacts likely to occur. The assessment also describes methods that may be employed to minimize construction-period impacts.

As described below, the analysis concludes that the proposed project would not result in extensive construction-related effects with respect to any of the analysis areas of concern. Therefore, no significant adverse impacts are expected to occur as a result of construction.

B. DESCRIPTION OF CONSTRUCTION ACTIVITIES

It is anticipated that construction of the proposed project would require a total of approximately 34 months to complete, although the major external construction activities are expected to be completed in less than 24 months. Based on current plans, construction would begin in 2023 and be completed in 2026. A breakdown of the anticipated construction program is shown below in **Table 19-1**.

Table 19-1
On-Site Construction Activities

Construction Activity	Months of Construction
Demolition of existing structures	4 Months
Excavation and Foundation	3 Months
Superstructure and Exterior Work	8 Months
Interior Construction and Fit-out	10 Months
Exterior Finishing and Landscaping	3 Months
Construction of Play Yard	6 Months
Total	**34 Months**

Source: New York City School Construction Authority (NYCSCA).

Construction would begin with the fencing and screening of the site, followed by demolition, excavation, and grading. The project would require removal of the existing structures. Any debris would be sorted prior to being disposed at landfills to maximize recycling opportunities. Soil would be excavated from the project site and removed by truck to a licensed landfill or recycling facility. If soil containing petroleum or other contaminated materials is discovered during excavation activities, it would be segregated and disposed of in accordance with all applicable federal, state, and local regulations and guidelines. Additionally, all material that needs to be removed from the site would be disposed of in accordance with applicable requirements. Piles

would be driven, as necessary, to support the building, and pile caps would be formed and concrete poured to build the foundations for the building.

Next, the project's structural frame and exterior façade would be erected. Construction of the exterior enclosure, or "shell" of the building would include construction of the building's framework (installation of beams and columns), floor decks, façade (exterior walls and cladding), and roof construction. In the final year of construction, interior finishing would proceed, including electrical work, plumbing, wall and ceiling construction, painting, floor work, and other finishing items along with the completion of the remaining exterior work, such as utility and façade work. During this time, most work would occur inside, and operation of heavy on-site equipment would be infrequent. As construction nears completion on the interior of the project, final site work would commence and would include construction of the play areas and any landscaping.

The estimated average number of workers on site by phase would be 40 workers for mobilization, clearing, excavation and foundation; 50 workers for superstructure and exterior work; 80 workers for interior construction and fit-out; and 30 workers for exterior finishing and landscaping.

Typical equipment used for site clearing, excavation, and foundation work would include excavators, bulldozers, backhoes, compaction equipment, tractors, jackhammers, and concrete pumping trucks. Other equipment that would be used include hoist complexes, dump trucks and loaders, concrete trucks, and back hoes. Trucks would deliver concrete and other building materials, and remove excavated material as well as demolition and construction debris. The construction equipment likely to be used during erection of the superstructure would include compressors, cranes, derricks, hoists, bending jigs, and welding machines. During façade and roof construction, hoists may continue to be used. Trucks would remain in use for material supply and construction waste removal. It is anticipated that trucks would access the site from 165th Street, Merrick Boulevard, and 88th Avenue, as necessary.

The majority of construction activities would take place Monday through Friday, although if necessary, the delivery or installation of certain equipment could occur on weekend days. Hours of construction are regulated by the New York City Department of Buildings (DOB) and apply in all areas of the City. These requirements are reflected in the collective bargaining agreements with major construction trade unions. In accordance with those regulations, almost all work could occur between 7 AM and 6 PM on weekdays, although some workers would arrive and begin to prepare work areas before 7 AM. Occasionally, Saturday or overtime hours would be required to complete time-sensitive tasks. Weekend work requires a permit from the DOB and, in certain instances, approval of a noise mitigation plan from the New York City Department of Environmental Protection (NYCDEP) under the City's Noise Code. The New York City Noise Control Code, as amended in December 2005 and effective July 1, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7 AM and 6 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6 PM and 7 AM and on weekends) may be permitted only to accommodate: (1) emergency conditions, (2) public safety, (3) construction projects by or on behalf of City agencies, (4) construction activities with minimal noise impacts, and (5) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts and/or financial considerations. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7 AM, and ending with site cleanup at 5 PM. Movement of certain oversized materials, to comply

with the requirements of the New York City Department of Transportation (NYCDOT), would occur at night.

Much of the proposed project's construction staging would occur within the project site, thereby limiting any effects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the surrounding streets and sidewalks.

C. POTENTIAL EFFECTS DURING CONSTRUCTION

As with most development in New York City, construction of the proposed project may be disruptive to the surrounding area for limited periods of time throughout the construction period. The following analyses describe the proposed project's temporary effects on transportation systems, air quality, noise, historic resources, hazardous materials, natural resources, land use and neighborhood character, socioeconomic conditions, community facilities, open space, and infrastructure, as well as the economic benefits associated with the construction.

TRANSPORTATION

As described in the *City Environmental Quality Review (CEQR) Technical Manual*, construction activities may affect several elements of the transportation system, including traffic, transit, pedestrians, and parking. A transportation analysis of construction activities is predicated upon the duration, intensity, complexity, and/or location of construction activity.

As described above, most of the proposed project's construction staging would occur within the project site, thereby limiting any effects on surrounding roadways and pedestrian elements. However, certain construction activities may require the temporary closing, narrowing, or otherwise impeding of the street and or/the sidewalks adjacent to the project site (Hillside Avenue, 165th Street, Merrick Boulevard, and 88th Avenue). To manage the access and egress of vehicles to and from the project site—specifically, construction-related deliveries—flaggers are expected to be used during construction to control and access and movement of trucks.

Construction-related closures are anticipated to be the type of routine closure typically addressed by a permit and pedestrian access plan required by NYCDOT's Office of Construction Mitigation and Coordination (OCMC) at the time of closure(s). The SCA would develop a Work Zone Traffic Control Plan (WZTCP) and consult with NYCDOT's OCMC to ensure that access is maintained to nearby residences and businesses at all times. For pedestrian control purposes, flaggers will be employed at intersections and pedestrian walkways as needed, to provide guidance to pedestrians and to alert or slow down the traffic. Given that the typical construction peak hours would occur outside of the commuting peak hours, it is anticipated that any temporary traffic disruptions in the surrounding area would not be substantial.

Throughout the construction process, construction workers would travel to and from the site by personal vehicle or the numerous public transit options in the area. Given that construction worker commuting trips generally occur during off-peak hours, and that there would not be a substantial number of construction workers at the project site on any given day, the construction worker trips are not expected to result in significant adverse impacts to the area's traffic operations, parking supply and utilization, bus loading, or subway station conditions. Therefore, the proposed project's construction activities are not expected to result in significant adverse transportation impacts.

AIR QUALITY AND NOISE

Air quality and noise impacts can be generated by construction vehicles and delivery vehicles traveling to and from a site, as well as by stationary equipment used for on-site construction activities. According to the *CEQR Technical Manual*, an assessment of air quality or noise impacts from construction vehicles is warranted only when quantified transportation analysis is needed for construction activities. As described above, the proposed project's construction activities are not anticipated to result in extended impacts to any transportation systems requiring quantified analysis, and therefore, an assessment of air quality or noise impacts from construction vehicles is not warranted.

With regard to the air quality and noise impacts of other construction activities, such as demolition, the *CEQR Technical Manual* suggests that potential impacts should be analyzed only when construction activities would affect a sensitive receptor over a long period of time. Construction duration as defined by the *CEQR Technical Manual* is broken down into short-term (less than two years) and long-term (two or more years). As described above, the proposed project's major external construction activities, which have the greatest potential for air quality and noise impacts, would be short-term in nature (lasting less than two years). Since the proposed project would not cause noisy and/or diesel-powered construction equipment to be operating within 1,500 feet of a receptor for a period of time exceeding two years, significant adverse air quality and noise impacts are not anticipated, and quantified analyses are not warranted. The following sections qualitatively discuss the likely effects of on-site construction activities on air quality and noise, and describe measures to minimize construction-period impacts.

STATIONARY SOURCE AIR QUALITY IMPACTS

Most construction engines are diesel-powered, and produce relatively high levels of sulfur oxides (SO_2), nitrogen oxides (NO_X) and particulate matter ($PM_{2.5}$ and PM_{10}). Construction activities also emit fugitive dust.

Technologies have been developed to substantially reduce SO_2 and PM emissions. These include ultra-low-sulfur diesel fuel (ULSD), diesel particulate filters (DPFs), and cleaner engines (Tier 2 or better). These technologies have become more readily available in New York City as they are required for large, ongoing public projects. The construction activities will be subject to New York City Local Law 77, which would require the use of best available technology (BAT) for equipment at that time of construction.[1] Based on estimates calculated for construction of other projects, the diesel particulate emission reduction measures can reduce emissions by more than 93 percent, on average, as compared with construction emissions without such controls.

Furthermore, as early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification). It is expected that the SCA would employ best available technologies and utilize ULSD fuel for construction equipment and vehicles, following the requirements for New York City sponsored projects.

[1] New York City Administrative Code § 24-163.3, adopted December 22, 2003, also known as Local Law 77, requires that any diesel-powered non-road engine with a power output of 50 hp or greater that is owned by, operated by or on behalf of, or leased by a city agency shall be powered by ULSD, and utilize BAT for reducing the emission of pollutants, primarily particulate matter and secondarily nitrogen oxides. NYCDEP is charged with defining and periodically updating the definition of BAT.

All necessary measures would be implemented to ensure that the New York City Air Pollution Control Code regulating construction-related dust emissions is followed. Appropriate fugitive dust control measures would be employed and would include:

- Watering trucks and excavation equipment prior to exiting the site;
- Watering the areas surrounding the site (sidewalks, streets, etc.) at the end of every work day;
- Watering truck routes within the site as needed or, in cases where a route would remain in the same place for an extended duration, stabilizing, covering with gravel, or temporarily paving the route to avoid the resuspension of dust;
- Equipping all trucks hauling loose material with tight fitting tailgates and covering the load prior to leaving the site;
- Using closed chutes leading to covered bins for material drops during demolition;
- Enforcing an on-site vehicular speed limit of 5 mph;
- Using water sprays for all excavation, demolition, and transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air; and
- Watering or covering loose materials, or stabilizing them with a biodegradable suppressing agent.

To reduce the resulting concentration increments at sensitive receptors (i.e., nearby residential buildings) large emissions sources and activities, such as concrete trucks and pumps, would be located away from sensitive receptors to the extent practicable. Additional measures would be taken in accordance with applicable laws, regulations, and building codes. These include the restriction of on-site vehicle idle time to three minutes for all vehicles not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks).

Under both New York State Environmental Quality Review Act (SEQRA) and CEQR requirements, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. Guidelines for assessing potential impacts from NO_X, CO, and $PM_{2.5}$ are discussed in Chapter 10, "Air Quality." While it is possible that the construction activities may exceed certain thresholds used for assessing the potential for significant adverse air quality impacts, any exceedance would be limited in extent, duration, and severity. Based on the limited duration of these potential exceedances of threshold values, there would be no potential for significant adverse impacts from construction activities.

STATIONARY SOURCE NOISE IMPACTS

Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations.

A wide variety of measures can be used to minimize construction noise and reduce potential noise impacts. A noise mitigation plan is required as part of the New York City Noise Control Code, and would include source controls, path controls, and receptor controls.

In terms of source controls (i.e., reducing noise levels at the source or during most sensitive time periods), the following measures for construction would be implemented:

- The contractors would use equipment that meets the sound level standards for equipment (specified in Subchapter 5 of the New York City Noise Control Code) from the start of construction activities and use a wide range of equipment, including construction trucks that produce lower noise levels than typical construction equipment.
- Where feasible, the project sponsors would use construction procedures and equipment (such as generators, concrete trucks, delivery trucks, and trailers) that are quieter than that required by the New York City Noise Control Code.
- As early in the construction period as practicable, diesel-powered equipment would be replaced with electrical-powered equipment, such as electric scissor lifts and electric articulating forklifts (i.e., early electrification).
- All contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

In terms of path controls (e.g., placement of equipment and implementation of barriers between equipment and sensitive receptors), the following measures for construction would be implemented:

- Perimeter noise barriers would be constructed that satisfy New York City Noise Control Code requirements.
- To the extent feasible, noisy equipment, such as generators, cranes, trailers, concrete pumps, concrete trucks, and dump trucks, would be located away from and shielded from sensitive receptor locations.

For impact determination purposes, significant adverse noise impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations (i.e., nearby residential buildings) would be greater than the impact criteria suggested in the *CEQR Technical Manual* for two consecutive years or more. The impact criteria are explained in detail in Chapter 11, "Noise." While increases exceeding the CEQR impact criteria for two years or less may be noisy and intrusive, they are not considered to be significant adverse noise impacts. Sensitive receptors in the immediate vicinity of the project site generally contain double-glazed windows and/or alternative ventilation (i.e., air conditioning), which would greatly reduce interior noise levels compared with exterior noise levels and may result in interior noise levels of 45 dBA or less. In addition, except under special circumstances night work is not expected, and any exceedances of the CEQR criteria at sensitive locations would occur during day. Therefore, no long-term, significant adverse noise impacts are expected from construction activities.

HISTORIC AND CULTURAL RESOURCES

The study area includes one known architectural resource, and no potential architectural resources were identified within the study area. The Jamaica Main Post Office is listed on the State and National Registers of Historic Places (S/NR-listed). The Jamaica Main Post Office is located on the northwest corner of 164th Street and 89th Avenue, approximately 320 feet southwest of the project site. No adverse construction-related impacts on architectural resources are expected as a result of the proposed project.

As described in Chapter 6, "Historic and Cultural Resources," AKRF prepared a disturbance memorandum/preliminary archaeological assessment to examine the land use and development history of the project site to determine whether additional would be required to clarify the site's potential to contain archaeological resources. The assessment concluded that the project site is not sensitive for archaeological resources dating to either the precontact or historic periods and

determined that no additional archaeological analysis is warranted. The proposed project would not result in significant adverse impacts on archaeological resources.

SOIL AND GROUNDWATER CONDITIONS

Chapter 12, "Soil and Groundwater Conditions," describes the findings of the Phase I Environmental Site Assessments (ESAs) and the Phase II Environmental Site Investigation (ESI) that were conducted for the project site.

Excavation activities could disturb hazardous materials and increase pathways for human exposure. The SCA and/or its contractors would develop management plans (e.g., soil management plan, groundwater management plan, construction health and safety plan, etc.) to address any hazardous materials that may be encountered during construction of the school. The management plans prepared or reviewed by SCA would include measures to protect the health and safety of construction workers, school staff and students, and the public in general during construction and at the time of occupancy. Specific measures that would be implemented to avoid impacts are as follows:

- Procedures would be developed for managing any potential underground storage tanks and any encountered contamination (including procedures for stockpiling and off-site transportation and disposal) and appropriate health and safety procedures including the need for dust and organic vapor monitoring.
- Any unregistered tanks discovered prior to or during demolition activities would be registered with the New York State Department of Environmental Conservation (NYSDEC). If applicable, spill reporting would be conducted, and contaminated soil/groundwater handled and disposed of in accordance with applicable requirements.
- As a preventative measure, a soil vapor barrier and a sub-slab depressurization system would be installed below the proposed school building to prevent potential soil vapor intrusion into the building. For areas of the project site where exposed soils may exist after building construction (i.e., landscaped areas), a 24-inch thick layer of environmentally clean fill would be placed over the soils.
- Any excavated soil requiring off-site disposal would be managed in accordance with applicable requirements, and, as necessary, tested in accordance with the requirements of the intended receiving facility. Transportation of all material leaving the site would be in accordance with applicable requirements covering licensing of haulers and trucks, placarding, truck routes, manifesting, etc.

In addition, to minimize the potential for construction workers' exposure, standard industry practices, including appropriate health and safety measures, will be utilized.

NATURAL RESOURCES

The proposed project's construction activities are not expected to affect natural resources in the project area. Therefore, there would be no significant adverse impacts to natural resources from construction, and no further assessment is warranted.

LAND USE AND COMMUNITY CHARACTER

As is typical with construction projects, during periods of peak construction activity there would be some disruption, predominantly noise, to the nearby area. There would be construction trucks

and construction workers coming to the site. There would also be noise, sometimes intrusive, from site clearing and building construction as well as trucks and other vehicles backing, loading, and unloading.

The area surrounding the project site is predominantly residential. There would be periods during which construction activities would be more obtrusive than what is typical in a residential area; however, those periods of time would be limited, and would not result in significant or long-term adverse impacts on the local land use patterns or character of the nearby area.

SOCIOECONOMIC CONDITIONS

The *CEQR Technical Manual* suggests that if a project entails construction of a long duration that could affect the access to and therefore viability of a number of businesses, and the failure of those businesses has the potential to affect neighborhood character, then a preliminary assessment for construction impacts on socioeconomic conditions should be conducted. The proposed project would not have such effects. There are no commercial businesses at locations where construction activities could result in the temporary closing, narrowing, or otherwise impeding of roadways and sidewalks. The proposed project's construction activities would not impede access to any businesses, and therefore would not have any significant adverse impacts on socioeconomic conditions.

The proposed project's construction would create direct benefits resulting from expenditures on labor, materials, and services, as well as indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes.

COMMUNITY FACILITIES AND SERVICES

According to the *CEQR Technical Manual*, a construction impact assessment should be conducted for any community facility that would be directly affected by construction (e.g., if construction would disrupt services provided at the facility or close the facility temporarily). Construction associated with the proposed project would not have the potential to disrupt services or temporarily close any community facility. Therefore, the proposed project's construction activities would not have direct effects on community facilities, and no further analysis is warranted.

OPEN SPACE

According to the *CEQR Technical Manual*, a construction impacts analysis for open space should be conducted if an open space resource would be used for an extended period of time for construction-related activities, such as construction staging, or if access to the open space would be impeded for an extended period during construction activities. The proposed project would not have such effects. The proposed project's construction activities would not require the use of public open space, nor would construction affect access to or from a public open space. Therefore, there would be no significant adverse impacts to open space resources from construction, and no further assessment is warranted.

INFRASTRUCTURE

Prior to the start of construction, all utilities that may be present on site and that may be affected by construction activities would be relocated in accordance with all applicable New York City regulations.

The proposed project would receive some combination of electric and gas service via extensions of the existing Con Edison distribution system. During the superstructure stage of construction, some sidewalk and on-street construction activities would be required to connect the proposed buildings to existing utility networks. This may require short-term sidewalk excavations ranging from approximately 50 to 150 feet in length. The construction activities that would be required to connect the proposed project to existing energy systems are part of Consolidated Edison's normal operations for providing services to new customers, and occur on a regular basis throughout the City. ✷

Appendix A

Proposed High School

165-18 Hillside Avenue (Block 9816, Lots 39, 41, and 49)

JAMAICA, QUEENS COUNTY, NEW YORK

Disturbance Memorandum and Preliminary Archaeological Assessment

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NOVEMBER 2020

A. INTRODUCTION

The New York City School Construction Authority (SCA) proposes to construct a new high school at 165-18 Hillside Avenue in the Jamaica Hills neighborhood of Queens (see **Figure 1**). The site is located on the block bounded by Hillside Avenue to the north, 165th Street to the west, 88th Avenue to the south, and Merrick Boulevard to the east (see **Figure 2**). The five-story school would occupy Block 9816, Lots 39, 41, and 49.

B. RESEARCH METHODOLOGY

In order to determine the extent to which archaeological resources within the proposed project site may have been disturbed, several primary and secondary sources were examined including historic maps, photographs, newspaper records, local histories, previous archaeological and environmental investigations, and the digital records of the New York City Department of Buildings (NYCDOB). This report includes information on previously identified archaeological sites in the vicinity of the project site.

C. CURRENT CONDITIONS

The project site is currently divided into three tax lots. Lot 41 is developed with a one- to two-story funeral home that is surrounded by a grassy lawn to the north and east and a paved parking lot to the southwest (see **Photographs 1** and **2**). Lot 39 is a paved parking lot (see **Photograph 3**). Lot 49 (87-82 to 97-84 Merrick Boulevard) is developed with a two-story (without basement) structure, built in 1967, that is identified on current Sanborn maps as a Drug and Alcohol treatment facility (see **Photograph 4**). The project site is bounded on the north by Hillside Avenue, underneath which runs the F train. Train ventilation shafts are visible at this location within the sidewalk.

D. ENVIRONMENTAL AND PHYSICAL SETTINGS

TOPOGRAPHY AND GEOLOGY

The Borough of Queens is located within a geographical region known as the Atlantic Coastal Plain Physiographic Province. The Atlantic Coastal Plain, which includes all of Long Island, tends to be associated with flat, gently sloping land (Isachsen, et al. 2000). The coastal plain deposits in the area of the project site are specifically associated with the Monmouth Group, the Marawan Group, and the Magothy Formation, a combination of silty clay and gravel dating to the Upper Cretaceous Period of the Mesozoic Era, which occurred between approximately 97 and 66 million years ago (Fisher, et al. 1980; Isachsen, et al. 2000). The surficial geology of the site is characterized by outwash sand and gravel (Cadwell 1989). This outwash was the result of massive glaciers retreating from the area toward the end of the Pleistocene era, 1.6 million years before present ("BP") to approximately 10,000 years BP. Four major glaciations affected New York City, culminating with the end of the Wisconsin period approximately 12,000 years ago. During the ice age, a glacial moraine bisected Long Island, running in a northeast-southwest direction through the center of what is now the borough of Queens (Isachsen, et al. 2000).

The 1889 U.S. Geological Survey (USGS) map of Brooklyn (see **Figure 3**) depicts the project site at the southern edge of the mass of hills marking the terminal moraine. The map depicts a contour line that shows an elevation of 60 feet above sea level through the center of the project site and indicates that the elevation rose to a height of 80 feet above sea level just north of Hillside Avenue. Current USGS maps depict a 70-foot contour line passing through the center of the site and suggest a similar slope up to the north and east. Lidar information published by USGS suggests that the site slopes up from an elevation of

62 feet above the North American Vertical Datum of 1988 (NAVD88) at the site's southwest corner to 68 feet NAVD88 at the northeast corner. The elevation of the site therefore appears to have remained fairly consistent since the late 19th century, although some landscape transformation associated with urban development appears to have occurred.

HYDROLOGY

The retreating glaciers left behind a trail of melting ice and water, which formed wetlands and small bodies of water across the region. Between 12,000 and 6,000 years BP, sea levels fluctuated and then rose rapidly, reaching their current levels by approximately 3,000 years ago (Geoarcheological Research Associates 2007). As seen on the 1889 USGS map (see **Figure 3**), the site was historically situated within 2,500 feet of at least eight small kettle ponds that were situated to the north in the vicinity of the moraine. A number of other small ponds and streams were located within a one-mile radius of the project site.

SOILS

The Web Soil Survey maintained by the U.S. Department of Agriculture's Natural Resources Conservation Service[1] indicates that soils within the project site are characterized as "Urban land-Outwash Substratum" (UoA). These soils are typically found in generally level (0 to 3 percent slopes), urban areas with an impervious surface, often asphalt. The typical soil profile for this complex includes approximately 20 inches of cemented material over gravely sand to depths of at least 72 inches.

PRECONTACT HISTORY OF THE PROJECT SITE

In general, Native American habitation sites are most often located in coastal areas with access to marine resources, near fresh water sources and areas of high elevation. The precontact occupants of the area surrounding the project site would have benefitted from the varied resources offered along the coastline of what is now Queens; however, areas of higher and more level elevation closer to fresh water resources would have been more ideal locations for the establishment of habitation sites.

Further indication of the potential presence of Native American activity near a project site is indicated by the number of precontact archaeological sites previously identified in the vicinity. Due to its proximity to other reported archaeological sites, the project site is situated within a generalized area of archaeological sensitivity as mapped by OPRHP in the New York State Cultural Information System (CRIS).[2] CRIS indicates that one such archaeological site has been reported within a one-mile radius of the project site, as shown in **Table 1**. The site, identified only as "traces of Native American occupation," was mapped by the New York State Museum (NYSM) based on reports made by early 20th century archaeologist Arthur C. Parker (Parker 1920). Bolton (1922) also indicates that a Native American trail ran in the vicinity of modern Jamaica Avenue two blocks to the south of the project site.

Table 1
Precontact Archaeological Sites in the Vicinity of the Project Site

Site Name/ Number	Site Type	Approximate Distance from Project Site	Additional Source Information
NYSM Site 4546	Traces of occupation	2,200 feet (.42 miles)	Parker 1920
Sources: The New York State Cultural Resources Information System (CRIS).			

[1] https://websoilsurvey.sc.egov.usda.gov/
[2] https://cris.parks.ny.gov/

HISTORIC PERIOD

The project site was historically situated within the historical town of Jamaica, which was largely centered on Jamaica Avenue. The project site remained just outside the developed town through the mid-19th century and remained undeveloped long after the urbanization of the neighborhood in the decades that followed. The 1852 Connor map depicts the site as within a large expanse of farmland with no roads in the immediate vicinity. A precursor to Hillside Avenue was constructed before the publication of the 1859 Walling map. This street is identified on the 1860 Higginson map as "Warwick Avenue" but is not shown on the 1860 Walling map. The 1872 Dripps map depicts the area between Warwick and Jamaica Avenues as divided into long, linear parcels. The 1873 Beers and 1875 Dripps maps continue to reflect these divisions and indicate that the project site was included within land owned by "Elbert A. Brinckerhoff." Hillside Avenue was located to the north of the project site, but the other streets surrounding the project site were not yet constructed (see **Figure 4)**. The Brinckerhoff house was located along the northern side of Jamaica Avenue. The 1891 Wolverton atlas depicts the site and the Brinckerhoff estate in similar conditions, and continuing to show the project site as undeveloped. The 1897 Sanborn map depicts houses on other properties in the vicinity of the project site. By that time, Merrick Boulevard—then known as Bergen Avenue—had been constructed to the east of the project site. The project site continues to be depicted as vacant on the 1901 Ullitz and 1904 Sanborn maps, both of which reflect the installation of municipal water and sewer lines within Hillside Avenue and Merrick Boulevard.

The 1909 Bromley atlas depicts three wood-frame houses on the project site, one each on what are now Lots 39, 41 (within the northeastern portion), and 49. The 1912 Sanborn map depicts the same buildings in greater detail and is the first to depict the construction of Bergen Court, now 88th Avenue, to the south of the project site. The development of these lots is described in greater detail below.

DEVELOPMENT ON LOT 39

The house on modern Lot 39 was constructed circa 1905, according to NYCDOB records. The 1912 Sanborn map identifies it as a two-and-a-half-story dwelling known as 422 Hillside Avenue. The 1926 Sanborn map indicates that a one-story garage was constructed in the building's rear yard, and the 1942 and 1951 Sanborn maps depict no additional changes to the property. NYCDOB records indicate that the house was demolished in 1952, and the property redeveloped with a used car lot in 1955. In 1961, it was described as having a "trampoline center" including 14 "jump units" and a shed, and by 1965 a one-story (with cellar) restaurant was recorded on the site. Property records accessed through the New York City Automated City Register Information System indicate that the City foreclosed on the property as a result of unpaid taxes in 1984, selling it to the adjacent funeral home in 1990. It is assumed that the building was demolished around that time as the lot became incorporated into the funeral home's parking lot.

DEVELOPMENT ON LOT 41: NORTHEASTERN PORTION

The house seen on Lot 41 on the 1909 Bromley atlas continues to stand on the property and is now occupied by the previously described funeral home. Records on file with NYCDOB indicate that it has been in use as a funeral parlor since the mid-1950s. NYCDOB records indicate that two "new building" permits were issued for the building, one in 1907 and the other in 1909. The 1907 permit allowed for the construction of a 2.5-story, 36-by-56-foot wood-frame house for a cost of $15,500 at the southwest corner of Hillside Avenue and Bergen Avenue (now Merrick Boulevard) (*Real Estate Record and Builder's Guide* 1907). The house was built by owner Oswald F. Rohe[1] of Jamaica and designed by architect W.K.

[1] The *Real Estate Record and Builder's Guide* (1907) identifies the owner of the house as "Oswald & Rohe," but this appears to be an error.

Benedict (ibid). In 1908, the *New York Times* described the new Rohe house, "the English architecture of which relieves the eye" (*New York Times* 1908:RE15). The 1912 Sanborn map depicts the Rohe house as 430 Hillside Avenue and indicates that it was a one- to two-story stuccoed dwelling. The house originally featured an extension to the west that is no longer extant. The 1909 new building permit may have been issued for the garage that is depicted on the map to the west of the house, within what is now the parking lot on Lot 41. Rohe was a prominent resident of Jamaica and in 1911, as his 8-year-old daughter, Phylis [sic], lay dying, the local mounted police stopped all traffic on Hillside Avenue in front of the Rohe house (*Daily Long Island Democrat* 1911). Rohe was a partner in Rohe and Brothers, a Manhattan-based wholesale pork dealer (*Long Island Daily Press* 1925). He died in the home in 1925 after a five-week illness (ibid). His wife, Lillie Elizabeth Bets Rohe, would continue to reside in the home until her death in 1950 (ibid; *New York Times* 1950).

DEVELOPMENT ON LOT 41: SOUTHWESTERN PORTION

The 1909 Bromley atlas depicts the southwestern portion of modern Lot 41 as the vacant rear yard of the wood-frame house that had been constructed on what is now Lot 49 (discussed below). By the publication of the 1912 Sanborn map, by which time Bergen Court had been constructed, the former rear yard had been subdivided and developed with three houses, two of which were located within what is now the southwestern portion of modern Lot 41. The map indicates that both were two-and-a-half-story stuccoed dwellings with one-story rear attachments and front and side porches. The building to the west was known as "B Bergen Court," and the one to the east, which had a store on the first floor, was "C Bergen Court." The 1925 Sanborn map indicates that a small garage had been constructed to the rear of each house, with the garage for the eastern home extending into Lot 49. The 1942 Sanborn map reflects the construction of 165th Street along the western side of the project site but suggests that the two houses on the southwestern portion of Lot 41 remained in the same condition; the 1951 Sanborn map suggests the same. The buildings were demolished in the second half of the 20th century, and the property was consolidated into the parking lot of the adjacent funeral home.

DEVELOPMENT ON LOT 49

As described previously, the 1909 Bromley atlas and the 1912 Sanborn map depict a two-and-a-half-story wood-frame house at the eastern end of Lot 49. The 1942 Sanborn indicates that the eastern two-thirds of the lot were redeveloped with a one-story industrial building. The western third may have been developed with a new two-and-a-half story dwelling, or the house formerly to the east relocated, as the two buildings share a similar footprint. The 1951 Sanborn map depicts this parcel in the same manner. NYCDOB records indicate that the lot was redeveloped with the existing structure in 1967.

SUMMARY OF DOCUMENTED DISTURBANCE

Large portions of the project site have been disturbed as a result of the construction and demolition of buildings, and several properties were developed more than once. Additional disturbance to shallower depths as a result of grading and paving would have occurred within portions of the parking lot on Lots 39 and 41.

CONCLUSIONS

Based on the preliminary research above, the following conclusions have been reached:

PRECONTACT SENSITIVITY

The precontact sensitivity of a project site in New York City is generally evaluated by the site's proximity to level slopes (less than 10 to 12 percent), watercourses, well-drained soils, and previously identified precontact archaeological sites (New York Archaeological Council 1994). Precontact archaeological sites are generally found at shallow depths, usually within 5 feet of the original ground surface. One precontact archaeological site has been identified within one mile of the project site. Furthermore, the site was in relatively close proximity to a number of small ponds and was on relatively level ground south of the hills off the terminal moraine. The site would therefore have been an attractive setting for a long- or short-term occupation site or resource processing location. However, given the development that has occurred on the site, including the construction and demolition of multiple buildings as well as the grading and paving performed on it, the project site is determined to have low sensitivity for archaeological resources.

HISTORIC SENSITIVITY

The project site was vacant until the first decade of the 20th century, when several houses were constructed. No map-documented structures were located on the site prior to the availability of water and sewer lines in the surrounding streetbeds. It is expected that the development and redevelopment of the three lots within the project site would have resulted in the disturbance of any shallow surface deposits associated with the historical occupation of the project site. The site is therefore determined to have no historic period archaeological sensitivity.

RECOMMENDATIONS

The project site has low sensitivity for precontact archaeological resources and no sensitivity for historic period archaeological resources. Therefore, no additional archaeological analysis is recommended.

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1918 *Atlas of the Borough of Queens, City of New York.* Manhattan and Brooklyn, New York: E. Belcher Hyde.

United States Geological Survey
1889 *New York: Brooklyn Sheet*. Washington, DC: United States Geological Survey.

Walling, H.F.
1859 *Topographical map of the counties of Kings and Queens, New York*. New York: W.E. and A.A. Baker.
1860 *Map of New York and its Environs*. New York: S.F. Tilden.

Wolverton, Chester
1891 *Atlas of Queens County, Long Island, New York*. New York: Chester Wolverton.

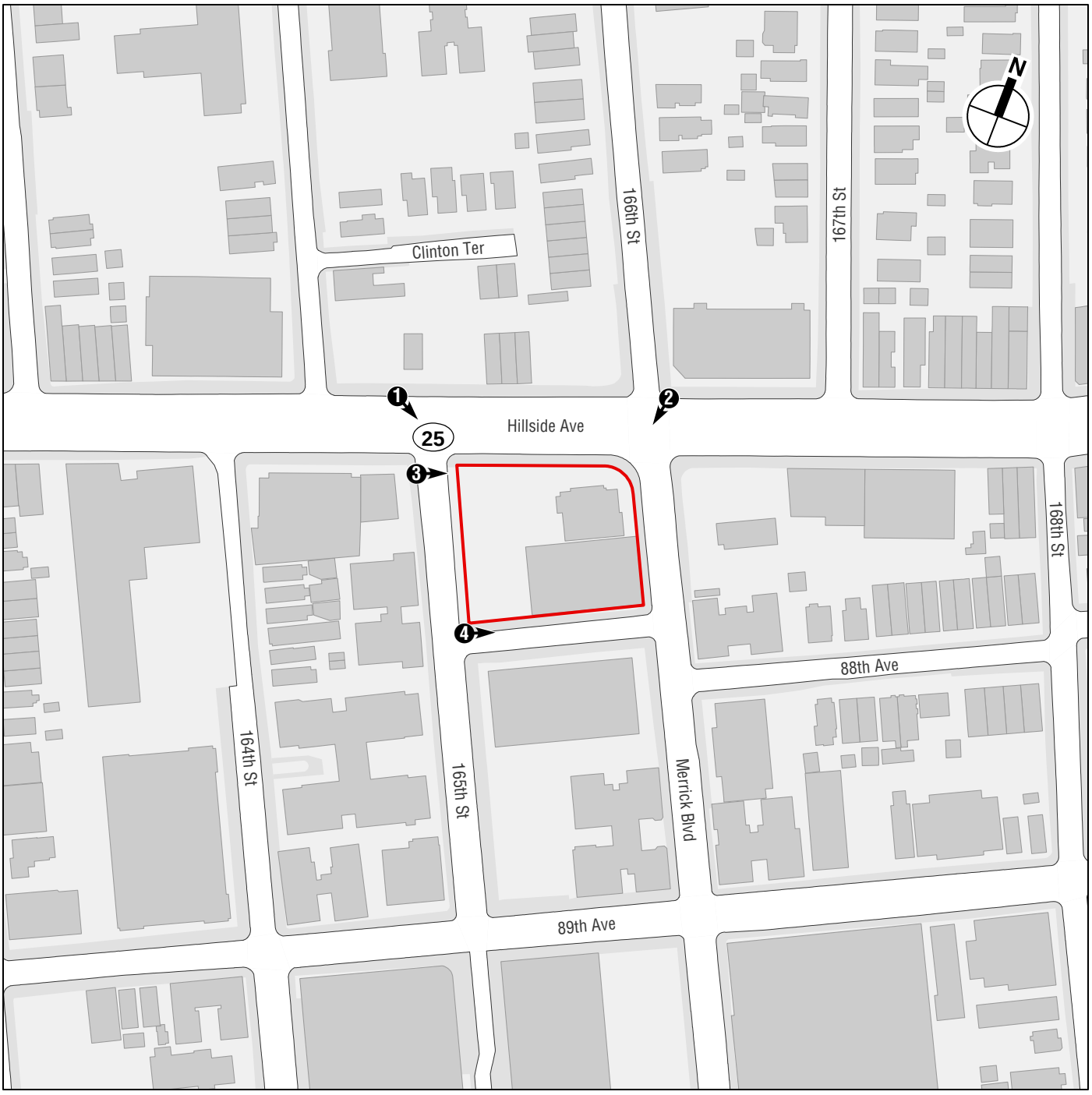
Approximate coordinates of Project Site:

USGS Topographic Map - Jamaica Quadrangle

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 1

4.1.20



0 200 FEET

Project Site

Photograph View Direction and Reference Number

Project Location

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 2

4.1.20

Project Site

1889 USGS Map

SCA 165-18 HILLSIDE AVENUE, QUEENS

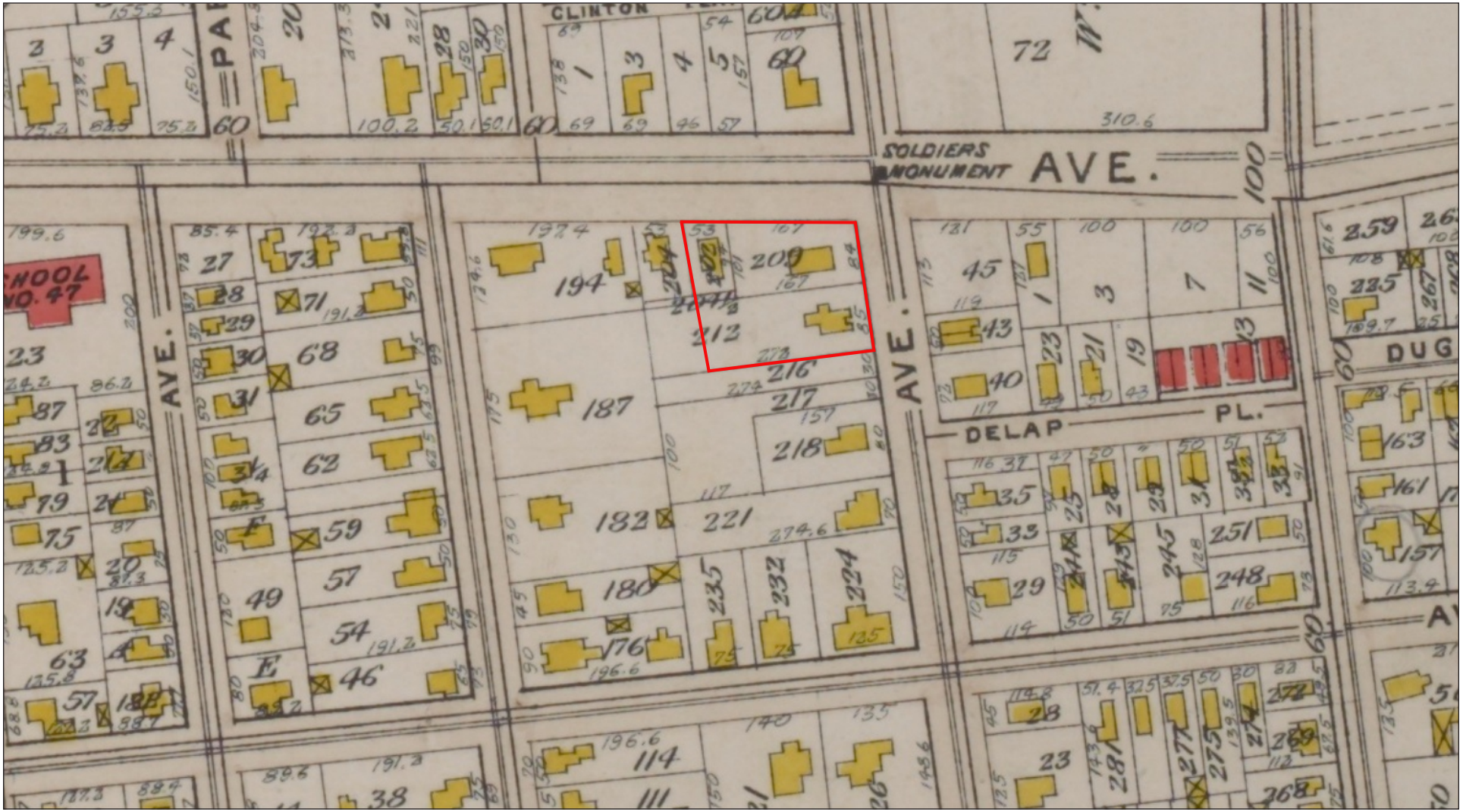
Figure 3

1876 Dripps Map

Figure 4

SCA 165-18 HILLSIDE AVENUE, QUEENS

4.1.20



1909 Bromley Atlas

SCA 165-18 HILLSIDE AVENUE, QUEENS

Figure 5

Looking southeast at the project site from the intersection of Hillside Avenue and 165th Street **1**

The funeral home on Lot 41, with Hillside Avenue in the foreground and Merrick Boulevard and the commercial building on Lot 49 at left **2**

Looking east from 165th Street across the parking lot on Lot 39 towards the funeral home on Lot 41, with Hillside Avenue on the left **3**

Looking east along 88th Avenue showing the parking lot in the southwest portion of Lot 41 at left and the building on Lot 49 in the background **4**

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

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Commissioner

June 08, 2021

Kelly Murphy
Director, Real Estate
NYC School Construction Authority
30-30 Thomson Avenue
Long Island City, NY 11101

Re: NYCSCA
New High School Construction
165-18 Hillside Ave, Queens, NY 11432
21PR03590

Dear Kelly Murphy:

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.

OPRHP has reviewed *Proposed High School, 165-18 Hillside Avenue (Block 9816, Lots 39, 41, and 49), Jamaica, Queens County, New York, Disturbance Memorandum and Preliminary Archaeological Assessment* (AKRF, November 2020).

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Philip A. Perazio, Historic Preservation Program Analyst - Archaeology Unit
Phone: 518-268-2175
e-mail: philip.perazio@parks.ny.gov via email only

cc: Elizabeth Meade and Jennifer Morris, AKRF; Tom Nielsen, NYCSCA

Appendix B

165-18 Hillside Avenue
Block 9816, Lots 39, 41, 49

Playground Noise Calculations

							Source							
							High School Playground							
Play Area	Receiver Location	Time	High School Playground $L_{eq(1)}$ at boundary	Exsiting Meas location	Existing $Leq_{(1)}$	Existing $L10_{(1)}$	Distance feet	Distance Attenuation dBA	Playground $L_{eq(1)}$ at Receptor	Total $L_{eq(1)}$ at Receptor	L10(1) Addition*	Total $L_{10(1)}$ at Receptor	Change	Impact?
At-grade Play Yard	165-18 Hillside Avenue (school)	AM (7-9 AM)	68.2	FEIS Site 14			0	0.0	68.2	68.2	3.0	71.2		
		MD (12-1 PM)	68.2				0	0.0	68.2	68.2	3.0	71.2		
		PM (5-6 PM)	68.2				0	0.0	68.2	68.2	3.0	71.2		
	Jamaica Seven Luxury Apartments at 87-84 165th Street (residence)	AM (7-9 AM)	68.2	FEIS Site 14	73.5	77.0	55	8.3	59.9	73.7	3.5	77.2	0.2	NO IMPACT
		MD (12-1 PM)	68.2		71.9	74.5	55	8.3	59.9	72.2	2.6	74.8	0.3	NO IMPACT
		PM (5-6 PM)	68.2		71.6	74.8	55	8.3	59.9	71.9	3.2	75.1	0.3	NO IMPACT
	16605 88th Avenue (residence)	AM (7-9 AM)	68.2	FEIS Site 14	73.5	77.0	55	8.3	59.9	73.7	3.5	77.2	0.2	NO IMPACT
		MD (12-1 PM)	68.2		71.9	74.5	55	8.3	59.9	72.2	2.6	74.8	0.3	NO IMPACT
		PM (5-6 PM)	68.2		71.6	74.8	55	8.3	59.9	71.9	3.2	75.1	0.3	NO IMPACT

* L10 addition was determined by adding the difference between the existing L10 and Leq, since traffic noise would be dominant