City Environmental Quality Review
ENVIRONMENTAL ASSESSMENT STATEMENT (EAS) FULL FORM

Please fill out and submit to the appropriate agency (see instructions)

Part I: GENERAL INFORMATION

PROJECT NAME Horace Mann School Expansion

1. *Reference Numbers*

CEQR REFERENCE NUMBER (to be assigned by lead agency)	BSA REFERENCE NUMBER (if applicable)
16DCP175X	
ULURP REFERENCE NUMBER (if applicable)	OTHER REFERENCE NUMBER(S) (if applicable)
M000617(A)ZAX	(*e.g.*, legislative intro, CAPA) P2016X0073

2a. *Lead Agency Information*			**2b. *Applicant Information***		
NAME OF LEAD AGENCY New York City Planning Commission			NAME OF APPLICANT Horace Mann School		
NAME OF LEAD AGENCY CONTACT PERSON Robert Dobruskin Director, Environmental Assessment and Review Division New York City Department of City Planning			NAME OF APPLICANT'S REPRESENTATIVE OR CONTACT PERSON Melanie Meyers, Esq. Fried, Frank, Harris, Shriver & Jacobson LLP		
ADDRESS 120 Broadway, 30th Floor			ADDRESS One New York Plaza		
CITY New York	STATE NY	ZIP 10271	CITY New York	STATE NY	ZIP 10004
TELEPHONE (212) 720-3423	EMAIL rdobrus@planning.nyc.gov		TELEPHONE (212) 859-8785	EMAIL melanie.meyers@friedfrank.com	

3. *Action Classification and Type*

SEQRA Classification

☐ UNLISTED ☒ TYPE I: Specify Category (see 6 NYCRR 617.4 and NYC Executive Order 91 of 1977, as amended): 6 NYCRR 617.4(b)(9)

Action Type (refer to Chapter 2, "Establishing the Analysis Framework" for guidance)

☒ LOCALIZED ACTION, SITE SPECIFIC ☐ LOCALIZED ACTION, SMALL AREA ☐ GENERIC ACTION

4. *Project Description*

The applicant, Horace Mann School, is seeking a minor modification to a previously-approved Large Scale Community Facility Development (LSCFD) to facilitate a 100,993-gross square foot (gsf) Use Group (UG) 3 expansion of its Upper School campus, located in the Fieldston section of Riverdale, the Bronx (Community District 8). The current LSCFD includes Block 5814, Lots 1401, 1462, 1463, 1465; Block 5806, Lot 681 (portion); and Block 5816, Lot 1701 (portion). With the Proposed Project, Block 5814, Lot 1102 would be added to the LSCFD. The expansion of the school would result in the construction of a new 58,550 gsf science center, a 32,943-gsf aquatics center, a new entry into the existing Prettyman Gymnasium from its east side of 4,500 gsf, new tennis courts, and a small maintenance building of 5,000 gsf. In addition, Horace Mann School proposes to improve access and connections between other existing Upper School buildings. See page 1a for more information.

Project Location

BOROUGH Bronx	COMMUNITY DISTRICT(S) 8	STREET ADDRESS 231 West 246th Street
TAX BLOCK(S) AND LOT(S) Project Area: Block 5814, Lots 1401, 1462, 1463, 1465, 1102; Block 5806, Lot 681 (portion); Block 5816, Lot 1701 (portion). Development Site: portion of Block 5814, Lot 1401.		ZIP CODE 10471

DESCRIPTION OF PROPERTY BY BOUNDING OR CROSS STREETS Project Area is bounded by Waldo Avenue, Tibbett Avenue, West 246th Street, and Broadway

EXISTING ZONING DISTRICT, INCLUDING SPECIAL ZONING DISTRICT DESIGNATION, IF ANY R1-2,R4,R6, C2-2,NA-2	ZONING SECTIONAL MAP NUMBER 1C, 1D

5. *Required Actions or Approvals* (check all that apply)

City Planning Commission: ☒ YES ☐ NO ☐ UNIFORM LAND USE REVIEW PROCEDURE (ULURP)

☐ CITY MAP AMENDMENT	☐ ZONING CERTIFICATION	☐ CONCESSION
☐ ZONING MAP AMENDMENT	☐ ZONING AUTHORIZATION	☐ UDAAP
☐ ZONING TEXT AMENDMENT	☐ ACQUISITION—REAL PROPERTY	☐ REVOCABLE CONSENT

Project Description

INTRODUCTION

The applicant, Horace Mann School, is seeking a minor modification to a previously-approved Large Scale Community Facility Development (LSCFD) from a previous authorization pursuant to Zoning Resolution Section 79-21, to facilitate a 100,993-gross square foot (gsf) Use Group (UG) 3 expansion of its Upper School campus, located in the Fieldston section of Riverdale, Bronx Community District 8. The expansion would result in the construction of (i) a new UG 3 science center of 58,550 gsf, (ii) a new UG 3 aquatics center of 32,943 gsf, (iii) a new UG 3 entry into the existing Prettyman Gymnasium from its east side of 4,500 gsf, and (iv) a new UG 3 maintenance building of 5,000-gsf. As part of the application, Horace Mann School proposes to relocate tennis courts and to improve access and connections between certain existing Upper School buildings, including the construction of new covered walkways between Prettyman Gymnasium and Fisher Hall, and between Pforzheimer Hall and Tillinghast Hall.

In conjunction with these improvements, Horace Mann School will also be renovating two existing buildings. Prettyman Gymnasium will undergo major interior renovations and limited exterior restoration work. Pforzheimer Hall will undergo interior renovations of its generic classrooms and lab spaces. Interior renovations for both would include upgrades to the engineering systems. These proposed renovations and improvements would not add or change the total gross square feet of the large scale community facility and are not part of the application for minor modification to the LSCFD.

The project would be constructed within Horace Mann's existing LSCFD (the "Project Area"), which generally extends east to Broadway, south past West 246th Street, west to Waldo Avenue, and north to West 251st Street (Bronx Block 5814, Lots 1401, 1462, 1463, 1465; Block 5806, Lots 681; and Block 5816, Lot 1701). The Horace Mann School campus also includes a portion of Block 5814, Lot 1102.[1] Together, the new buildings and improvements comprise the Proposed Project and their area forms the Development Site (see **Figures 1 through 10**). The Proposed Project would support Horace Mann School's ongoing efforts to upgrade, modernize, and beautify its Upper School, as set forth in its Master Plan. The Proposed Project is not intended to increase the overall student population[2]; rather it is a proposal to modernize the campus for the existing student population. The existing Horace Mann LSCFD includes the Upper School Campus (Block 5814, Lots 1401, 1462, 1463, 1465; the "Zoning Lot"[3]), the portion of the Lower School Campus with frontage on West 246th Street (portion of Block 5806, Lot 681), and Four Acres Field (Block 5816, Lots 1701, 1876, 1879), and was established by the New York City Planning Commission (CPC) in 2001 (Application No. N 000617 ZAX). At that time, CPC approved an authorization pursuant to Section 79-21 of the Zoning Resolution to permit the construction of a new theater, entry, and library (part of Tillinghast Hall) on the Upper School Campus without regard for front yard requirements, or height and setback regulations (the "Authorization"). As a condition of the authorization, CPC required that the buildings on the campus "be developed in size and arrangement substantially as proposed and in accordance with the dimensions and specifications" specified in the LSCFD Site Plan (see **Figure 7** and see **Appendix A** for the previously approved site plan). The Proposed Project would require a minor modification to the Authorization in order to update the LSCFD Site Plan and to adjust its boundary to include Block 5814, Lot 1102 within the LSCFD (see **Figure 7**).

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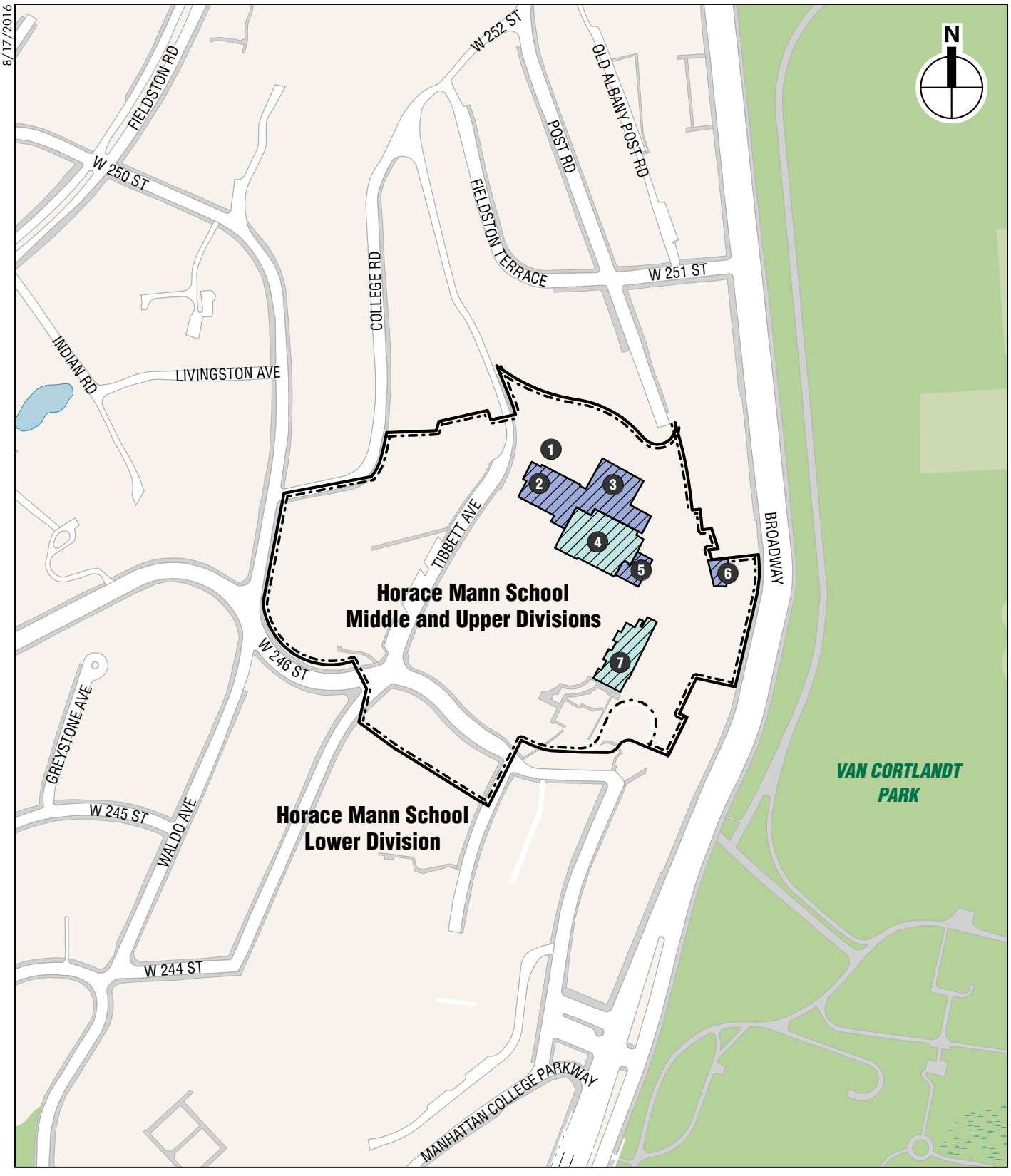
[1] Block 5814, Lot 1102 was previously a mapped portion of Post Road; it was demapped and purchased by Horace Mann from the City of New York in 2011.

[2] The Master Plan describes the School's mission, history, administration, enrollment, current facilities, and goals moving forward. The Master Plan also describes the planning process for the school, noting the previous studies into other building sites and construction options and costs, to achieve the School's goals. The Master Plan includes a description of the improvements contemplated as part of the Proposed Project, and describes how the Proposed Project has been designed to address the School's goals and needs. As stated in the Horace Mann School Master Plan dated August 2015, "Horace Mann School's enrollment over that last ten years has been relatively consistent…Moving forward, while (the) master planning process will enable (Horace Mann) to grow program offerings with expanded and enhanced campus facilities, (there is) no plan to increase enrollment."

[3] Block 5814, Lots 1401, 1462, 1463 and 1465 will be merged into a single zoning lot in conjunction with the Proposed Project. See **Figure 2**.



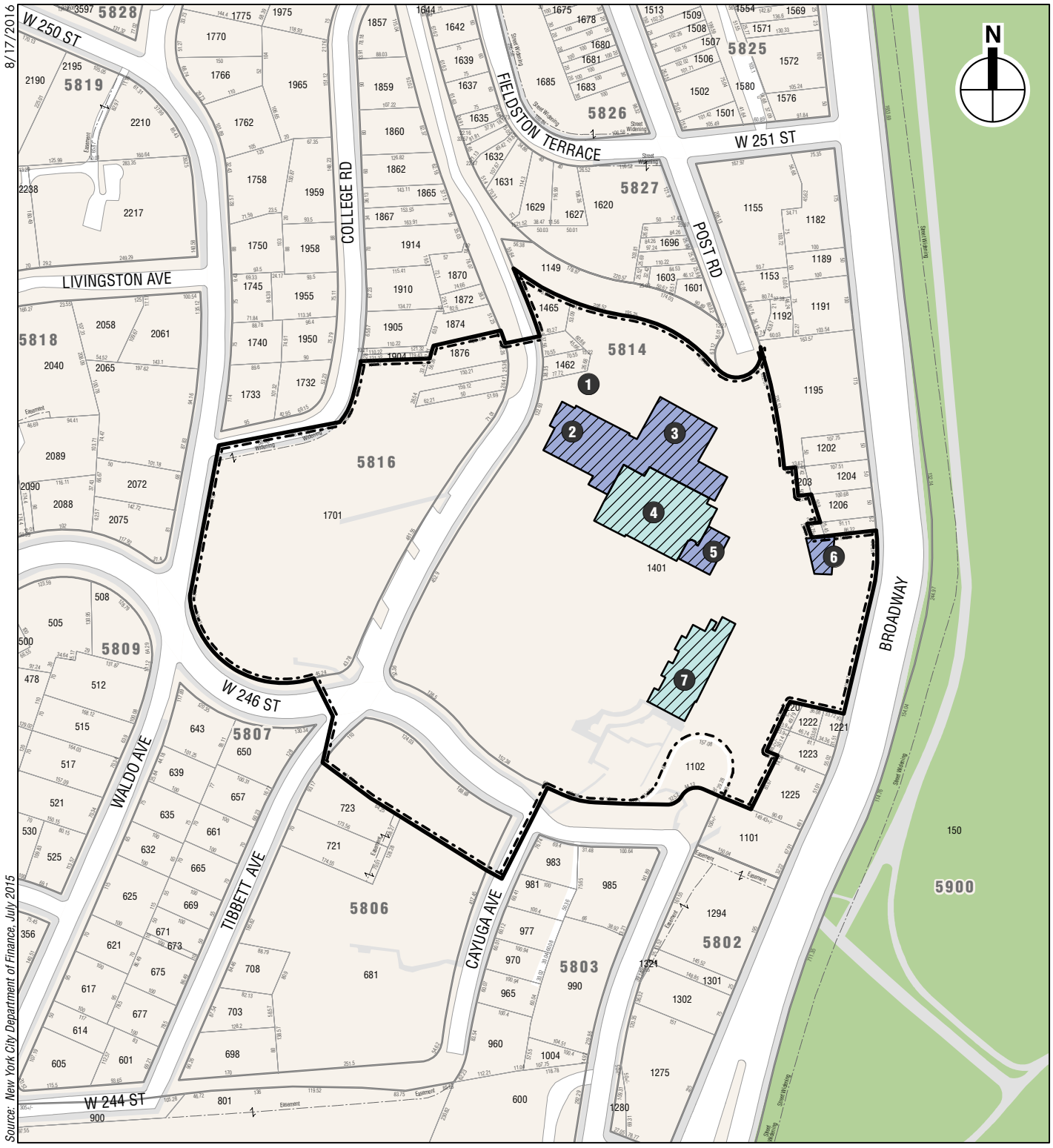
Proposed LSCFD Boundary
Existing LSCFD Boundary
Development Site
New Construction
Renovation

1 Tennis Courts
2 Science Building
3 Aquatics Center
4 Prettyman Gymnasium
5 Prettyman Vestibule
6 Maintenance Building
7 Pforzheimer Hall

0 400 FEET

HORACE MANN EXPANSION

Project Location
Figure 1



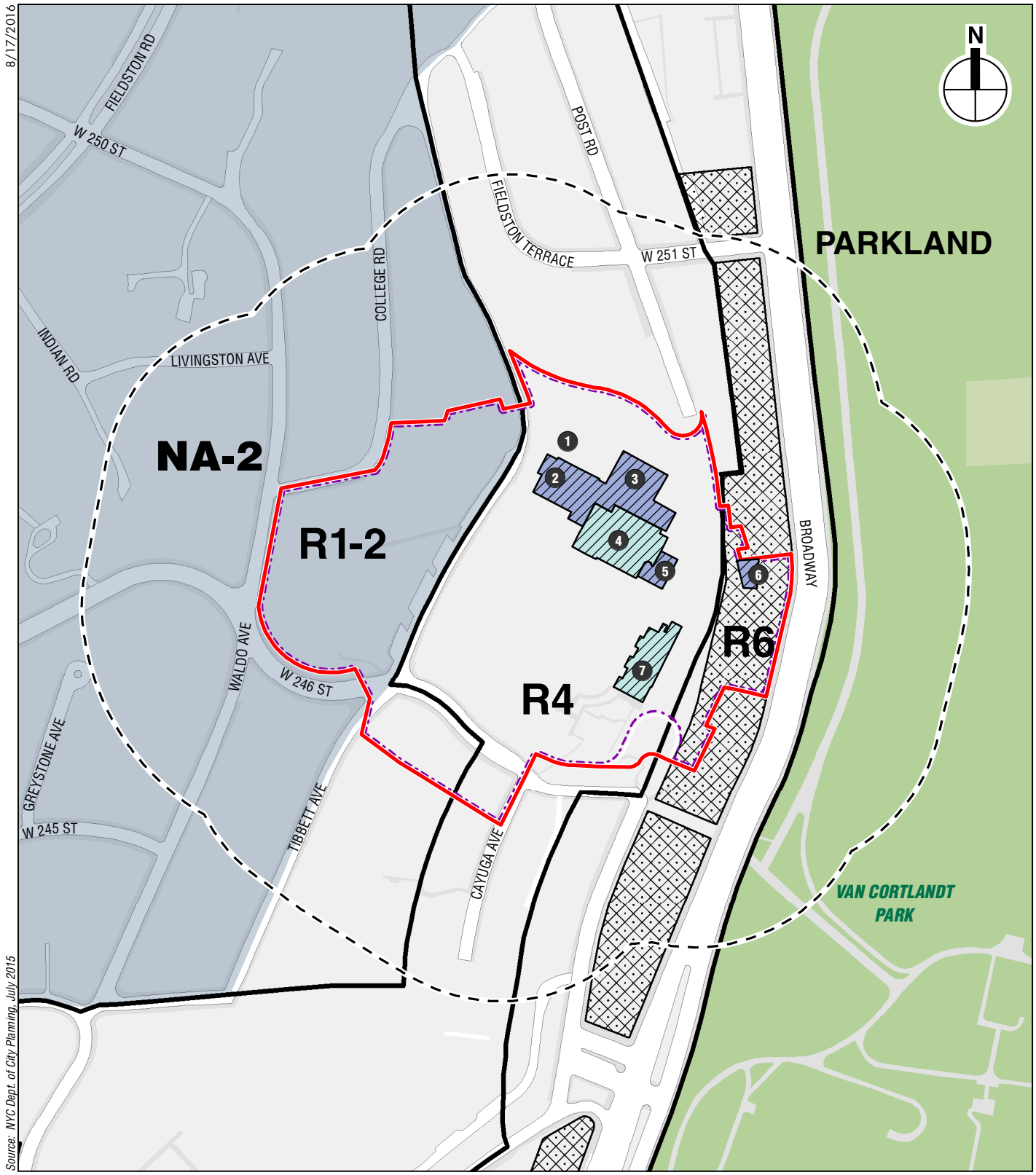
Proposed LSCFD Boundary
Existing LSCFD Boundary
Development Site
New Construction
Renovation
16124 *Tax Block Boundary*
Tax Lot Boundary

33 *Tax Lot Number*
~~33~~ *Condo Tax Lot Number*
C: 40 *Condo Flag/Condo Number*
Easement *Other Tax Boundary*
Possession Hooks

1 *Tennis Courts*
2 *Science Building*
3 *Aquatics Center*
4 *Prettyman Gymnasium*
5 *Prettyman Vestibule*
6 *Maintenance Building*
7 *Pforzheimer Hall*

HORACE MANN EXPANSION

Tax Map
Figure 2



Proposed LSCFD Boundary
Existing LSCFD Boundary
Study Area (400-foot boundary)
Development Site
New Construction
Renovation

Zoning Districts
Special Natural Area District (NA-2)

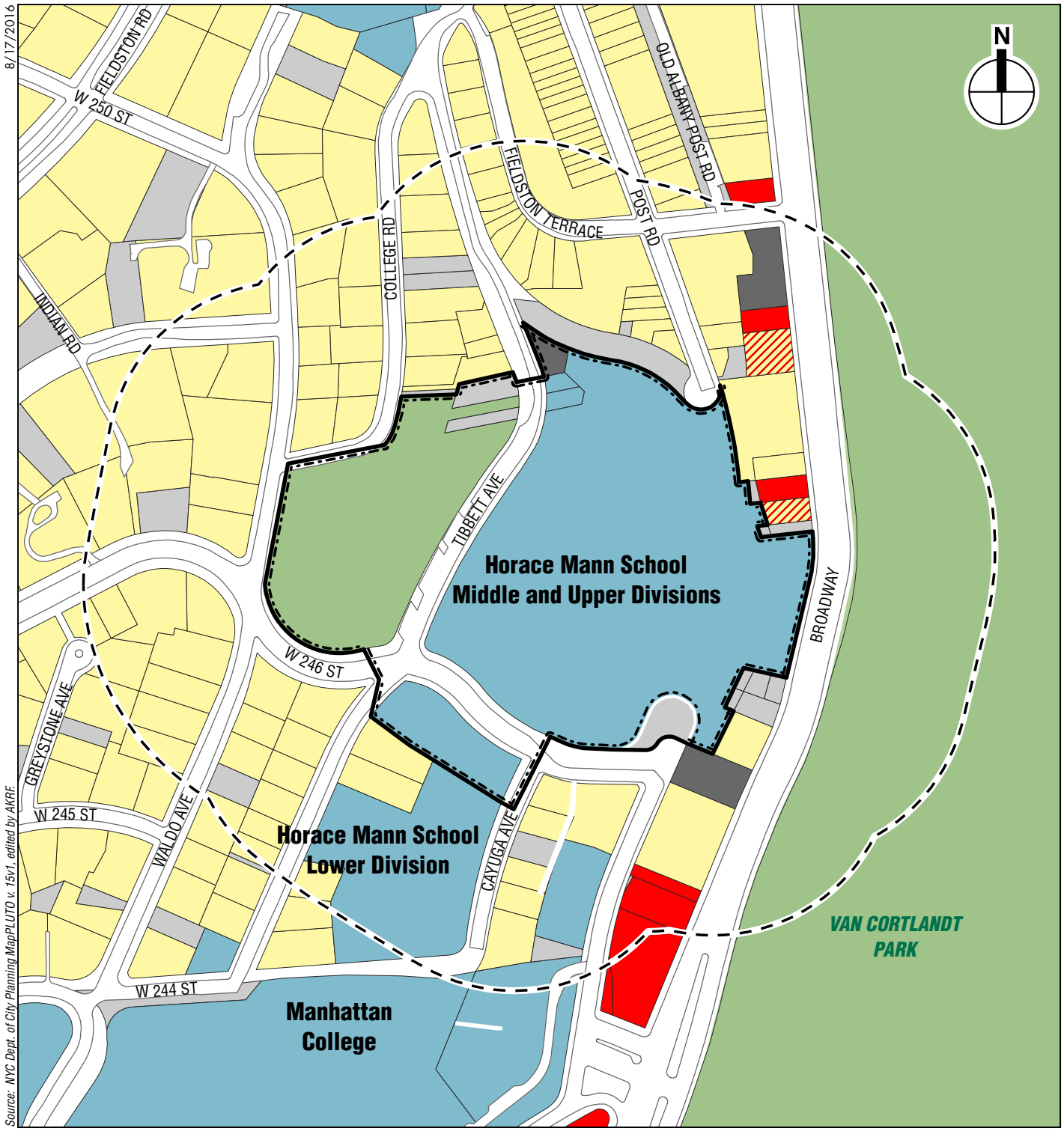
1. *Tennis Courts*
2. *Science Building*
3. *Aquatics Center*
4. *Prettyman Gymnasium*
5. *Prettyman Vestibule*
6. *Maintenance Building*
7. *Pforzheimer Hall*

C2-2 Commercial Overlay District

0 100 FEET

HORACE MANN EXPANSION

Zoning
Figure 3



Land Use
Figure 4

8/17/2016

Proposed LSCFD Boundary

Existing LSCFD Boundary

Photograph View Direction and Reference Number

0 200 FEET

HORACE MANN EXPANSION

Photograph Key for Project Area

Figure 5

Oblique view west of the front facades of Tillinghast Hall and the Theater Building **1**

View north from Tillinghast Hall of Pforzheimer Hall (far right), Fisher Hall (forground), and Prettyman Gym (far left) **2**

View of the Project Site
Figure 5a

Olique view of west facades of Pforzheimer Hall (far right), Fisher Hall (left) **3**

View of south façade of Prettyman Gym and playing field. The proposed Science Building would be located in the area left of the Gym **4**

View of the Project Site
Figure 5b

View east of Prettyman Gym and Fisher Hall **5**

View west from area between Fisherman Hall (left) and Prettyman Gym (right) where the proposed entrance vestibule would be located **6**

View of the Project Site
Figure 5c

View west of the parking area and tennis courts behind Prettyman Gym where proposed Pool Building would be located **7**

View south from the parking area towards the playing field and proposed location of the Science Building **8**

View of the Project Site
Figure 5d

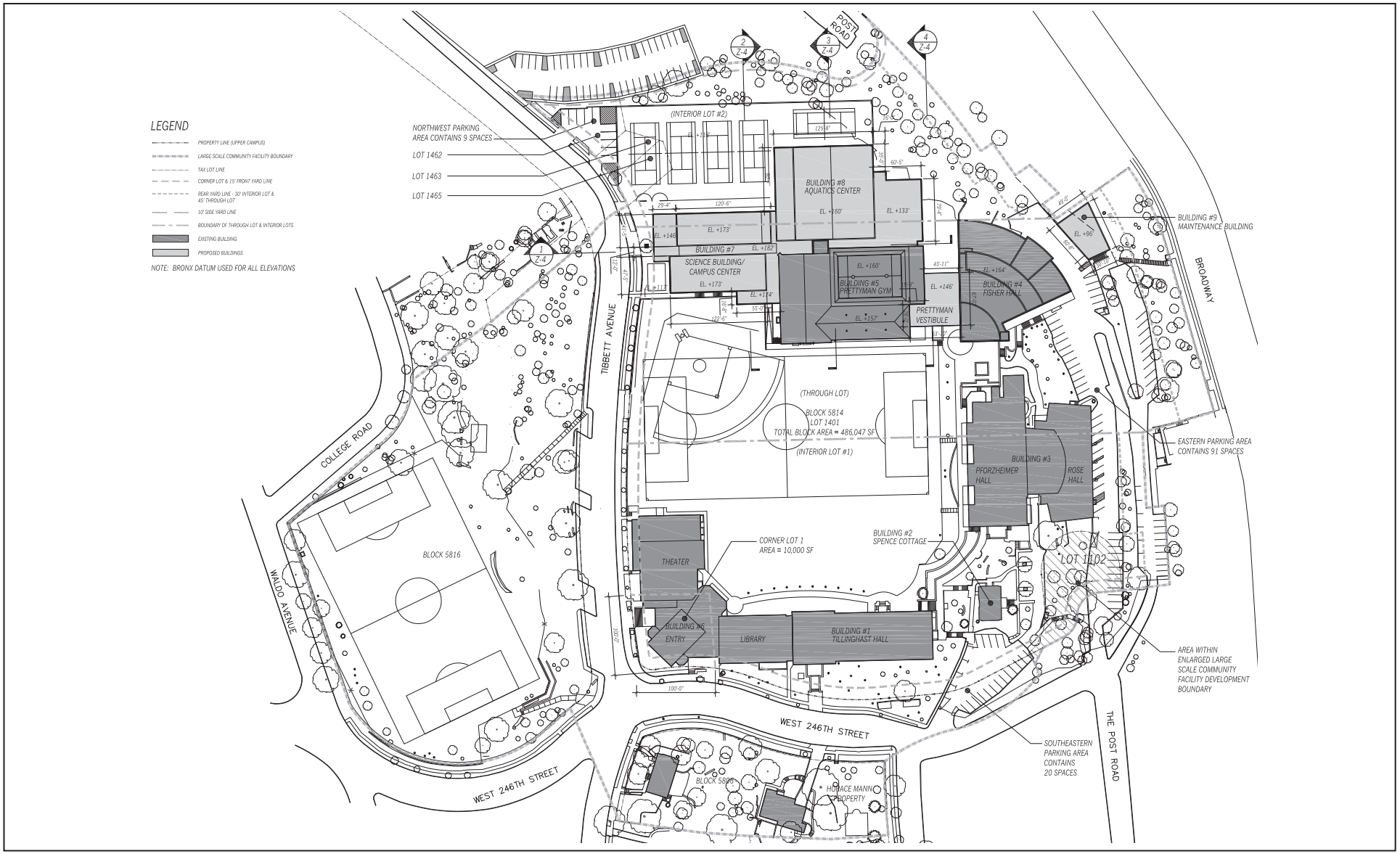
View northwest of tennis courts located north of the playing field where the proposed Science Building would be located **9**

View of tennis courts to be relocated further north to accommodate the proposed Science Building and two houses that would be demolished **10**

View of the Project Site
Figure 5e

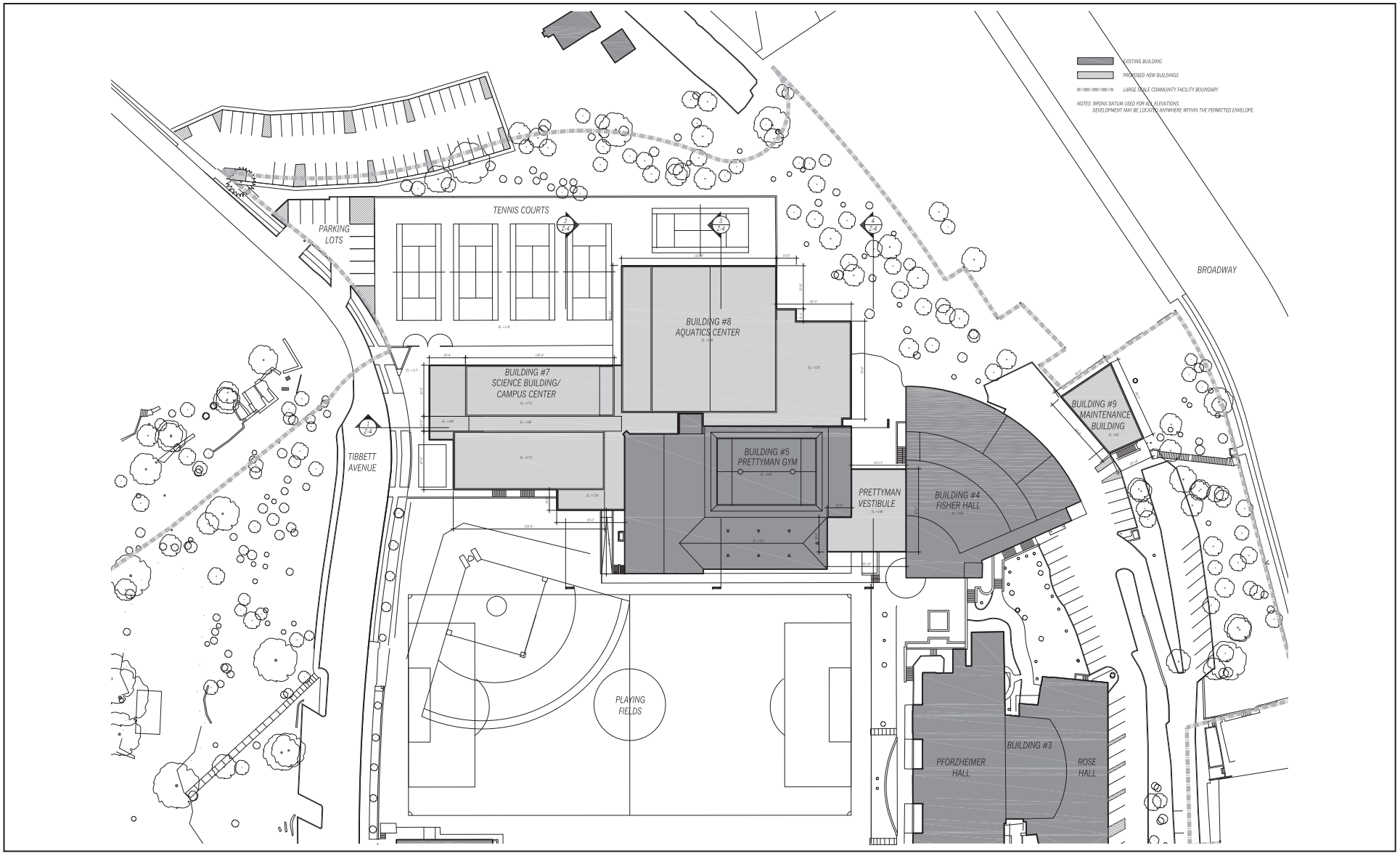
Existing Campus Buildings

Figure 6



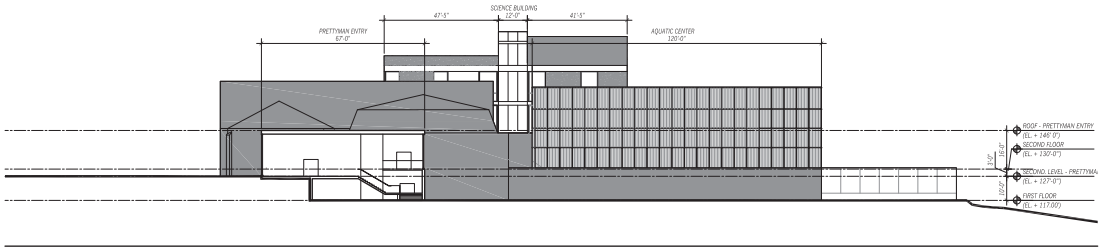
Proposed Site Plan

Figure 7



Enlarged Proposed Site Plan

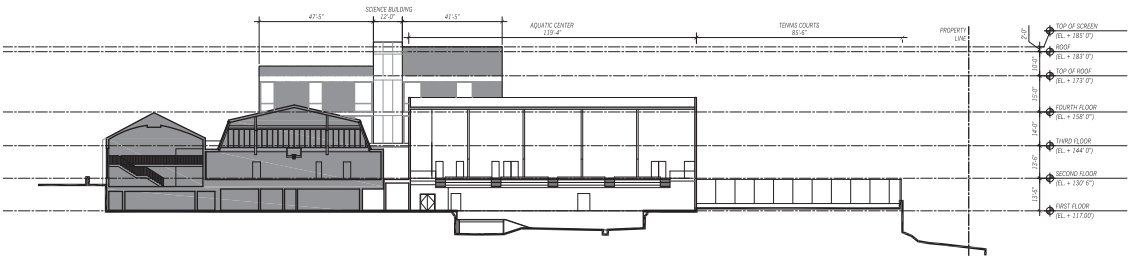
Figure 8



LEGEND
EXISTING BUILDINGS

4 SECTION 04

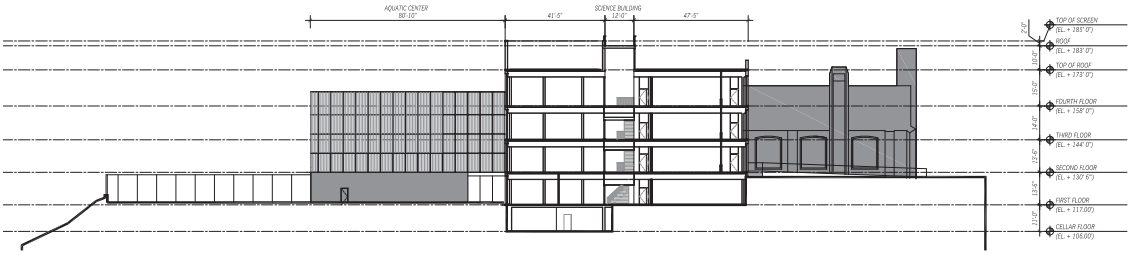
SCALE: 1/32"=1'



LEGEND
EXISTING BUILDINGS

3 SECTION 03

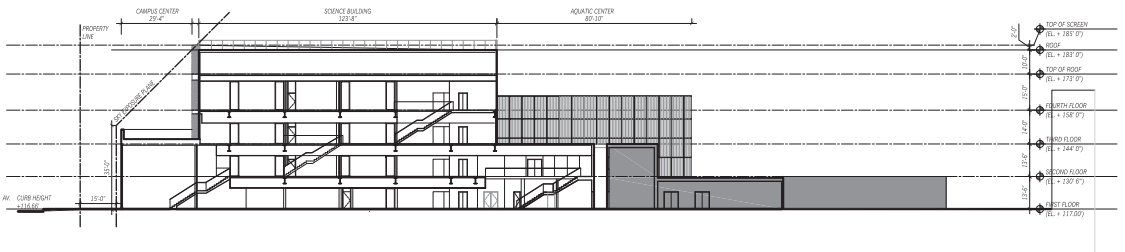
SCALE: 1/32"=1'



LEGEND
EXISTING BUILDINGS

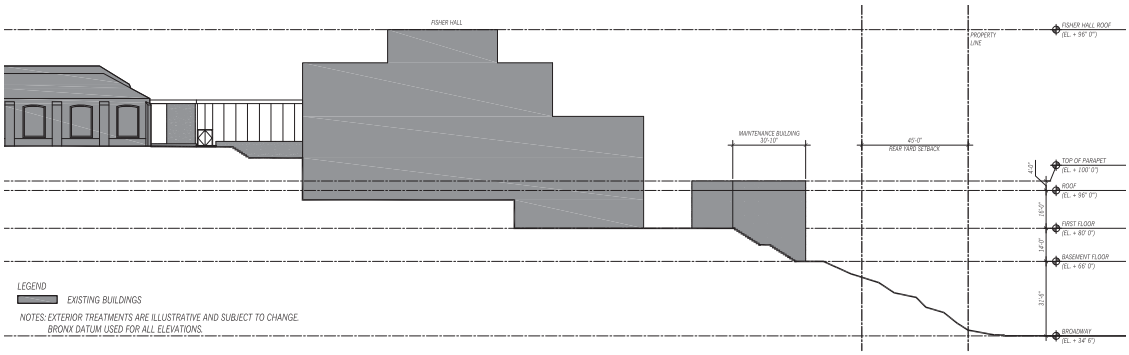
2 SECTION 02

SCALE: 1/32"=1'



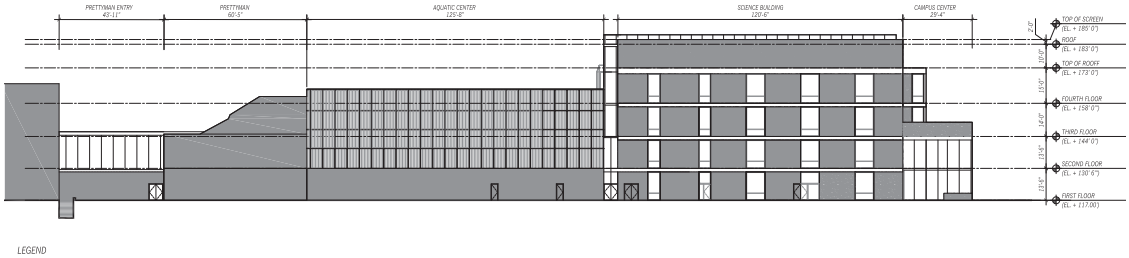
LEGEND
EXISTING BUILDINGS

NOTES: BRONX DATUM USED FOR ALL ELEVATIONS.
EXTERIOR TREATMENTS ARE ILLUSTRATIVE AND SUBJECT TO CHANGE.



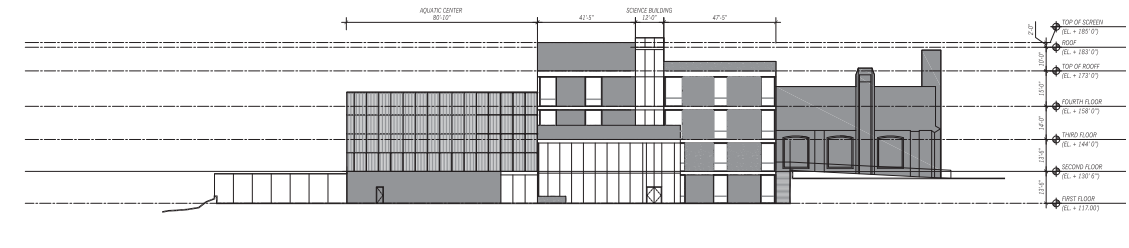
6 MAINTENANCE BUILDING SOUTH ELEVATION

SCALE: 1/32"=1'



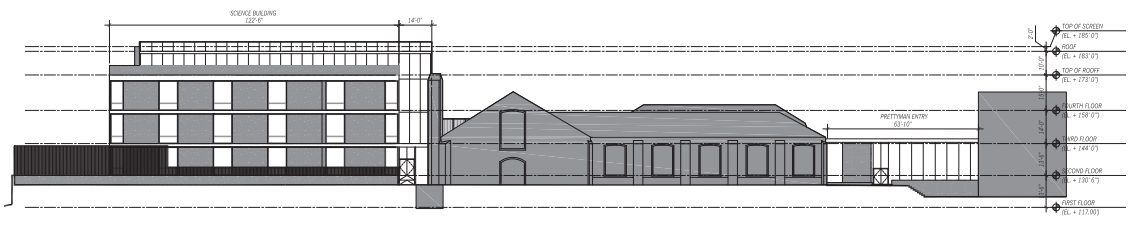
5 NORTH ELEVATION

SCALE: 1/32"=1'



4 WEST ELEVATION

SCALE: 1/32"=1'



Illustrative Proposed Elevations
Figure 10

The Proposed Project would comply with the applicable bulk controls contained in the Zoning Resolution, and no additional bulk waivers would be required to facilitate the Proposed Project.

Most of the development area is zoned R4, a low-density residential district that allows a maximum floor area ratio of 0.75 (or 0.9 with an attic bonus) for residential uses and 2.0 for community facility uses. The proposed location of the replacement maintenance building is located in a R6 district with a C2-2 commercial overlay. R6 districts allow a maximum FAR of 2.43 for residential uses and 4.8 for community facility uses. Both R4 and R6 districts allow residential uses (UG 1 and 2) and community facility uses (UG 3 and 4). The C2-2 commercial overlay allows local retail uses (UG 5, 6, 7, 8, 9, and 14) of up to 2.0 FAR.

Within the parameters of the underlying zoning, the LSCFD further restricts the location and use of the School's facilities, the maximum developable floor area, and the bulk and height of buildings.

PROJECT AREA HISTORY

Horace Mann School was founded in 1887 as a coeducational experimental and developmental unit of Teachers College, Columbia University. In 1947, it became an independent day school for boys in grades 7 through 12. The reestablishment of coeducation was accomplished through mergers with the New York School for Nursery Years in 1968, the Barnard School in 1972, and the enrollment of girls in the high school beginning in 1975. Horace Mann School currently has 1790 students in grades Nursery through 12.

The Horace Mann LSCFD includes the Upper School Campus, the portion of the Lower School Campus with frontage on West 246th Street, and Four Acres Field, and was established by the CPC in 2001 (Application No. N 000617 ZAX). At that time, CPC approved an authorization pursuant to Section 79-21 of the Zoning Resolution to waive front yard and height and setback regulations to facilitate the construction of the theater building, which was built in 2002. A site plan was submitted as part of this authorization, regulating the location, use and bulk of buildings.

As part of its Master Plan Goals, Horace Mann School determined that its physical education and athletic complex is outdated and unable to meet current student needs; the Middle and Upper Division science space is insufficient for current programs and expanded course offerings; and there is a need for generic classrooms, a campus center with meeting and gathering spaces, and improved maintenance facilities. Underlying the academic and community priorities is the need to upgrade existing buildings; the engineering systems, code and accessibility compliance, architectural features, and educational technology all require improvement.

To fulfill its Master Plan Goals, Horace Mann School proposes the new construction of:

- A new 32,943-gsf Aquatics Center facility adjacent to Prettyman Gym on the north;
- A new Prettyman Gym entrance vestibule of 4,500 gsf, added at the east side;
- A new, approximately 58,550 gsf Campus Center/Science building west of Prettyman Gym and accessed from Tibbett Avenue; and
- A new 5,000-gsf maintenance building near Fisher Hall, at the northeast area of the site.

The Master Plan would also include renovation of two existing buildings and site/access improvements. Specifically, as noted above, Prettyman Gym would undergo major interior renovations and limited exterior restoration work. Pforzheimer Hall would undergo interior renovations of its generic classrooms and lab spaces. Interior renovations for both would include upgrades to the engineering systems. Additional upgrades to the campus include renovation of the tennis courts at the north side of the campus, including potential decking at a portion of one tennis court, and the addition of covered walkways to connect Prettyman Gym with Fisher Hall, and Pforzheimer with Tillinghast Hall. The renovations and improvements would not add or change the total gross square feet of the large scale community facility and are not part of the application for minor modification to the LSCFD. **See Figure 7**.

Horace Mann School periodically opens its campus to the Fieldston Property Owners' Association (FPOA) and greater Bronx community, including hosting an annual free neighborhood concert on Alumni Field and allowing the use of its tennis courts off hours by members of the FPOA. Community Board 8 committee meetings are often held in the HMS Gross Theater, and the school hosts Summer on the Hill, a year-round, supplemental enrichment program for promising, low-income public school students from the Bronx, Washington Heights, and Harlem. Once the Proposed Project is

complete, Horace Mann School anticipates that these community uses will continue with approximately the same frequency.

PROPOSED ACTIONS

The Proposed Project would require a minor modification to the 2001 Authorization in order to (i) update the LSCFD Site Plan and to adjust its boundary to include Block 5814, Lot 1102; and (ii) to permit construction of 86,500 zoning square feet (zsf) of additional floor area. Pursuant to zoning, within the LSCFD, the R4 portion of Block 5814 is permitted a maximum of 837,338 square feet of zoning floor area (for community facility use) and the R6/C2-2 portion of Block 5814 is permitted a maximum of 325,622 square feet of zoning floor area (for community facility use). Within the LSCFD, Block 5814 currently contains 280,394 square feet of floor area, and therefore has 882,566 square feet of unused floor area. The minor modification to the Authorization would revise the LSCFD Site Plan to permit up to 366,894 square feet of zoning floor area to be located on Block 5814. The Proposed Project would comply with the applicable bulk controls contained in the Zoning Resolution, and no additional bulk waivers would be required to facilitate the Proposed Project.

EXISTING CONDITIONS

The project area comprises the Horace Mann School LSCFD (as modified to include Block 5814, Lot 1102) in the Fieldston section of the Riverdale neighborhood of the Bronx. The LSCFD generally extends east to Broadway, south past West 246th Street, west to Waldo Avenue, and north to Horace Mann's tennis courts. The LSCFD encompasses approximately 19 acres (excluding public streets), and contains approximately 306,859 gross square feet (gsf) of floor area.

As described above, the LSCFD regulates the location and use of the School's facilities, the maximum developable floor area, and the bulk and height of buildings. Most of the project area is zoned R4, a low-density residential district that allows a maximum floor area ratio of 0.75 (or 0.9 with an attic bonus) for residential uses and 2.0 for community facility uses. The proposed location of the replacement maintenance building is located in a R6 district with a C2-2 commercial overlay. R6 districts allow a maximum FAR of 2.43 for residential uses and 4.8 for community facility uses. Both R4 and R6 districts allow residential uses (UG 1 and 2) and community facility uses (UG 3 and 4). The C2-2 commercial overlay allows local retail uses (UG 5, 6, 7, 8, 9, and 14) of up to 2.0 FAR.

The Zoning Lot, comprised of the portion of the LSCFD north of 246th Street and east of Tibbett Avenue (Block 5814, Lots 1401, 1462, 1463, and 1465), has an existing built FAR of 0.59. The current built FAR of the LSCFD is approximately 0.43, compared to a maximum FAR for community facility uses of 2.0 in the R4 zone and 4.8 in the R6/C2-2 zone.

The Middle and Upper Divisions of Horace Mann School occupy the portion of the LSCFD north of West 246th Street and east of Tibbett Avenue (Block 5814, Lot 1401). Tillinghast Hall and Mullady Hall, which contain classrooms, administrative offices, a library, and a theater, are on the southern edge of this portion of the LSCFD. Pforzheimer Hall and Rose Hall, which contain science laboratories and classroom space for the Middle and Upper Divisions, are located on the eastern edge of this portion of the LSCFD. Fisher Hall, which contains classroom space, the school's cafeteria, and a theater, is located in the northeastern corner of this portion of the LSCFD. The Prettyman Gymnasium is located in the northern part of this portion of the LSCFD. These buildings surround the central portion of the campus, which contains a baseball field, softball field, and football/soccer field. The school's tennis courts are located behind and to the northwest of Prettyman Gymnasium. There are 182 total accessory parking spaces on the LSCFD (including spaces on Lot 1102 and 18 on-street spaces on Tibbett Avenue).

Additional buildings located in the project area include two houses south of West 246th Street (Block 5806, Lot 681)[1] located in an R1-2 zoning district. These buildings are typical of the scale of the residential portion of the Fieldston neighborhood; one house contains the Headmaster's Residence, and the other contains Horace Mann's business office. There are also two small buildings located northwest of the main site (Block 5814, Lots 1462 and 1463); one building formerly contained faculty housing and is currently vacant, and the other contains administrative offices that are expected

[1] Block 5806, Lot 681 also contains the Horace Mann School Lower School, as well as several other buildings owned by the School. Only a small portion of that parcel, with an approximate depth of 110 feet from West 246th Street, is located within the LSCFD; that portion contains the two houses described above.

to be relocated elsewhere on the Horace Mann campus in the future without the proposed project. The northwest portion of the LSCFD also contains a surface accessory parking lot, which contains 30 of the parking spaces on the LSCFD.

An additional Horace Mann School athletic field, which is used by the Lower, Middle, and Upper divisions, occupies the block west of the Upper and Middle Division campus (Block 5816, Lot 1701), between Waldo Avenue and Tibbett Avenue. The area west of Tibbett Avenue is an R1-2 zoning district that lies within the Special Natural Area District (NA-2). The Special Natural Area District has special regulations that require preservation of the natural features when any development occurs in this area. The proposed project is not located in the Special Natural Area District and will not require any additional review.

Table 1 summarizes the use and size of the existing buildings within the current LSCFD.

Table 1
Summary of Existing Conditions (LSCFD)

Name/Use	Size (gsf)	Use Group
Tillinghast	46,890	UG 3
Spence Cottage	2,184	UG 3
Pforzheimer and Rose Hall	73,425	UG 3
Fisher Hall	57,600	UG 3
Prettyman Gymnasium	46,000	UG 3
Library/Entry/Theater	65,710	UG 3
Van Sant Cottage & Head of School House	7,650	UG 2 and 3
Vacant Building (Former Faculty Housing)	3,100	UG 2
Building (Administration)	3,100	UG 3
Maintenance Shed	1,200	UG 3
TOTAL:	**306,859**	
Notes: See Figure 6 for reference. GSF = Gross Square Feet **Sources:** Skidmore, Owings & Merrill LLP		

The proposed expansion would be located on three sides of the existing Prettyman Gymnasium and would occupy portions of the site now used as tennis courts, paved parking and exterior circulation space. The proposed new buildings, as well as the existing facilities that would be renovated as part of the Proposed Project, would be located entirely within Block 5814, Lot 1401.

DESCRIPTION OF THE PROPOSED DEVELOPMENT

The Proposed Project would result in the construction of new buildings totaling approximately 100,993 gsf, including three new buildings attached to the side and rear facades of the Prettyman Gymnasium and a separate maintenance building. One four-story (68’ tall), approximately 58,550 gsf building located to the west of the Prettyman Gymnasium would contain new science laboratories and a new student activities center. North of Prettyman Gymnasium, a new 32,943 gsf aquatics center (43’ tall) would contain a pool and other recreation space. A new 4,500 gsf vestibule (29’ tall) would provide a new access point to Prettyman Gymnasium, as well as improve connectivity to Fisher Hall, located to the east. These new structures would occupy a portion of the project area currently taken up by tennis courts, paved parking and exterior circulation. A 5,000-gsf maintenance building (34’ tall) would be constructed in the northeastern portion of the campus, near Fisher Hall, to replace a 1,200-gsf maintenance shed located behind Prettyman Gymnasium that would be demolished with the Proposed Project. Two new curb cuts of 25’ and 30’ in length would replace the three existing curb cuts along Tibbett Avenue. In addition to the construction of the new buildings, the project would include renovations to the Prettyman Gymnasium, Pforzheimer Hall (which currently contains Horace Mann School’s science facilities), and the demolition of the two buildings located northwest of the main campus on the project site (Block 5814, Lots 1462 and 1463, as described above) to be replaced by nine unenclosed accessory parking spaces and renovated tennis courts with a reduced footprint of approximately 31,191 square feet as a result of the proposed project.[1] As noted above, one of these buildings formerly contained faculty housing and is currently vacant, and the other contains administrative offices that are expected to be relocated elsewhere on the Horace Mann campus in the future without the proposed project. **Table 2**, below summarizes the use and size of the proposed buildings on the Horace Mann campus.

[1] All tennis courts on the Horace Mann School campus are not accessible to the public.

Table 2
Summary of With Action Condition (LSCFD)

Name/Use	Size (gsf)	Use Group
Tillinghast	46,890	UG 3
Spence Cottage	2,184	UG 3
Pforzheimer and Rose Hall	73,425	UG 3
Fisher Hall	57,600	UG 3
Prettyman Gymnasium	46,000	UG 3
Van Sant Cottage & Head of School House	7,650	UG 2 and 3
Library/Entry/Theater	65,710	UG 3
TOTAL: Existing To Remain	**299,459**	
Aquatics Center	32,943	UG 3
Science Building/Student Center	58,550	UG 3
Vestibule to Prettyman Gym.	4,500	UG 3
Maintenance Building	5,000	UG 3
TOTAL: New Construction	**100,993**	
TOTAL: Existing and Proposed	**400,452**	
Notes: See Figure 7 for reference. GSF = Gross Square Feet **Sources:** Skidmore, Owings & Merrill LLP		

All of the new buildings would contain Use Group 3 Community Facility uses, like the existing academic buildings on the Horace Mann campus; collectively, the new buildings would represent an increase in the built gross square footage within the LSCFD of approximately 33 percent. Currently, there are a total of 182 parking spaces in the LSCFD (including spaces on Lot 1102 and 18 on-street spaces on Tibbett Avenue), 57 of which would be removed to accommodate the proposed project.[1] With the nine new parking spaces would be provided, the LSCFD would have 138 parking spaces (including spaces on Lot 1102 and 18 on-street spaces on Tibbett Avenue), for a net reduction of 44. In addition, nine new bicycle parking spaces would be provided to meet the current zoning regulations.

The proposed improvements are highly specialized and were programmatically developed to address certain deficiencies in the school's curriculum and activities. The proposed improvements would not accommodate an increase in student population and no enlargements are being proposed to essential common areas that would be necessary to serve an increase in population, such as the cafeteria or library. Below is more detailed information about the use of the components of the Proposed Project:

1. Maintenance Building—this building would replace an existing storage shed that would be removed as part of the proposed renovations. It would not contain any student facilities.
2. Vestibule to Prettyman Gymnasium—this connective space would provide Americans with Disabilities Act (ADA)-compliant accessibility to various parts of the school and provide a sheltered queuing area for student athletes before heading outside to the existing fields. This component of the Proposed Project would not add additional program space to the school.
3. Aquatics Center—this building would provide replacement facilities for existing uses on the Horace Mann campus. The pool would be substantially upgraded, but would not be used in a different manner than under existing conditions. Currently, the pool is heavily used by students for swimming and water polo for gym classes, practice, and competitions; those uses would remain. The existing pool regularly hosts swim meets and water polo matches with other schools in the conference and this use is expected to continue in the same manner in the future. Between the beginning of the school year and the end of the season in early March, there is typically between two and five meets every week. Generally, around 30 visiting students arrive for each meet, split between a girls team and a boys team. The visiting students usually arrive on one bus and typically some parents also attend. As with any school, Horace Mann students participate in both home games at the Horace Mann campus and away games at other schools; the balance of home and away games would not be adjusted because of the improved facilities.

[1] The parking spaces that would be removed would be replaced by the proposed tennis courts, Science Building, and Aquatics Center.

The proposed renovations to Prettyman Gymnasium would retain two gym areas and reduce the permitted capacity of the gyms from the current capacity of 750/700—a number that is never achieved—to 250 persons per gym, consistent with how the gyms are used today. The renovations to Prettyman Gymnasium would also include a fitness center that would replace an existing facility that would be removed as part of the proposed renovations. The replacement fitness center would be approximately the same size as the existing facility and would have substantially the same types of equipment and services.

4. Science Building/Student Center—the student center component of the Proposed Project would consolidate existing student curriculum and activities including the Center for Community Values and Action (CCVA), Service Learning, Student Publications, media rooms, and collaborative meeting space. The student center would also provide a central gathering space for athletes and students who participate in existing afterhours programs, with security. The science building component of the Proposed Project would provide space for existing students and would address a critical deficiency in how Horace Mann currently teaches sciences by providing nine dedicated and specialized lab/classroom spaces for the Upper School students. Currently, the middle school students and upper school students share labs and there is inadequate classroom space supporting the lab activities, requiring the use of makeshift spaces for education purposes (including the Headmaster's office). The proposed science building would address this particular condition, allowing the Middle School full use of the existing science labs in Pforzeimer Hall. Further, the design of the proposed building has been developed for its particular use and would not accommodate additional students.

BUILD YEAR

For analysis purposes, it is assumed that the Proposed Project would be completed by 2019. Construction of the Proposed Project would take place in a single phase over a period of approximately 23 months.

PURPOSE AND NEED

As described above, the Horace Mann LSCFD was established in 2001. At that time, CPC approved an authorization pursuant to Section 79-21 of the Zoning Resolution. The Proposed Project would require a minor modification to the 2001 Authorization in order to update the LSCFD Site Plan and to adjust its boundary to include Block 5814, Lot 1102 within the LSCFD. The Proposed Project would comply with the applicable bulk controls contained in the Zoning Resolution, and no additional bulk waivers would be required to facilitate the Proposed Project.

As noted above, the LSCFD regulates the location and use of the School's facilities, the maximum developable floor area, and the bulk and height of buildings. Most of the development area is zoned R4, a low-density residential district that allows a maximum floor area ratio 0.75 (or 0.9 with an attic bonus) for residential uses and 2.0 for community facility uses. The proposed location of the replacement maintenance building is in an R6 district with a C2-2 commercial overlay. R6 districts allow a maximum FAR of 2.43 for residential uses and 4.8 for community facility uses. Both R4 and R6 districts allow residential uses (UG 1 and 2) and community facility uses (UG 3 and 4). The C2-2 commercial overlay allows local retail uses (UG 5, 6, 7, 8, 9, and 14) of up to 2.0 FAR.

As noted above, the current built FAR of the Zoning Lot is 0.59 and the FAR of the LSCFD is 0.43, compared to a maximum FAR for community facility uses of 2.0 in the R4 zone and 4.8 in the R6/C2-2 zone.

Pursuant to zoning, within the LSCFD, the R4 portion of Block 5814 is permitted a maximum of 837,338 square feet of zoning floor area and the R6/C2-2 portion of Block 5814 is permitted a maximum of 325,622 square feet of zoning floor area. Block 5814 contains 280,394 square feet of floor area which will remain, and therefore Block 5814 contains 882,566 square feet of unused floor area. The minor modification to the Authorization would revise the LSCFD Site Plan to permit up to 366,894 square feet of zoning floor area to be located on Block 5814. Therefore, the built floor area would continue to be below that permitted under zoning.

The proposed improvements are highly specialized and were programmatically developed to address certain deficiencies in the school's curriculum and activities. The proposed improvements would not accommodate an increase in student population and no enlargements are being proposed to essential common areas that would be necessary to serve an increase in population, such as the cafeteria or library. As described above, the proposed maintenance building would replace an existing storage shed that would be removed as part of the proposed renovations and would not contain any student facilities. The proposed vestibule to Prettyman Gymnasium would provide ADA-compliant accessibility to various parts of the school and provide a sheltered queuing area for student athletes before heading outside to the existing

fields. The proposed aquatics center would provide replacement facilities for existing uses; the pool would be substantially upgraded, but would not be used in a different manner than under existing conditions. The proposed renovations to Prettyman Gymnasium would retain two gym areas and reduce the permitted capacity of the gyms, consistent with how the gyms are used today. The renovations to Prettyman Gymnasium would also include a fitness center that would replace an existing facility that would be removed as part of the proposed renovations and would be approximately the same size as the existing facility and would have substantially the same types of equipment and services. The proposed Science Building/Student Center would consolidate existing student curriculum and activities. For example, the science building component would provide space for existing students and would address a critical deficiency in how Horace Mann currently teaches sciences by providing dedicated and specialized lab/classroom spaces for the Upper School students, so that middle school students and upper school students do not need to share labs.

FUTURE WITHOUT THE PROPOSED ACTION (NO ACTION SCENARIO)

In the No Action scenario, no new development would take place within the Horace Mann LSCFD. The current campus would remain in its current condition, and no new facilities would be provided for the school's student body. Table 3 presents a summary of the uses within the LSCFD in the No Action Scenario.

Table 3
No Action Scenario

Lot Number (Block, Lot)	Total GSF	Retail GSF	Office GSF	Community Facility GSF	Residential GSF	# Residential Units	# Parking Spaces
5806, 681[1]	7,650[2]			4,000	3,650	1	
5814, 1102							13
5814, 1401	293,009[3]			293,009			131
5814, 1462	3,100[4]			3,100			
5814, 1463	3,100[5]				3,100	1	
5814, 1465							20
5816, 1701							18[6]
Total	**306,859**			**300,109**	**6,750**	**2**	**182**

Note:
1. Only a portion of Block 5806, Lot 681 is located within the LSCFD. Only that portion is described here.
2. Includes Van Sant Cottage and Head of School House.
3. Includes Tillinghast (46,890), Spence Cottage (2,184), Pforzheimer and Rose Hall (73,425), Fisher Hall (57,600), Prettyman Gym (46,000), Library/Entry/Theater (65,710), Maintenance Shed (1,200).
4. Includes an administration building.
5. Includes a vacant building (former faculty housing).
6. These spaces are located along Tibbett Avenue.

FUTURE WITH THE PROPOSED ACTION (WITH ACTION SCENARIO)

In the With Action scenario, three new buildings and a maintenance building totaling 100,993 gsf would be constructed on the Horace Mann School campus (existing 306,859 gsf). The new buildings, which would be attached to the side and rear facades of the Prettyman Gymnasium, would house a new science center (58,550 gsf), a new aquatics center (32,943 gsf), and a new entry into Prettyman Gymnasium from its east side (4,500 gsf). These new structures would occupy a portion of the project area currently taken up by tennis courts, paved parking and exterior circulation. In addition, a 5,000 gsf maintenance building would be constructed in the northeastern portion of the campus, near Fisher Hall, to replace a 1,200-gsf maintenance shed located behind Prettyman Gymnasium that would be demolished with the Proposed Project.

In addition to the construction of the new buildings, the project would include renovations to the Prettyman Gymnasium and the demolition of one administrative building and one vacant (former faculty housing) building located northwest of the main campus on the project to be replaced by nine accessory parking spaces and renovated tennis courts with a reduced footprint of 31,191 square feet as a result of the proposed project. Tables 4, 5, and 6 present a summary of the uses within the LSCFD in the With Action Scenario. Table 6 summarizes the existing, No Action, and With Action conditions.

The Proposed Project would not introduce new or incompatible uses on the site. The height and bulk of each of the three buildings (up to 68 feet tall) would be similar to that of existing buildings on the campus. Additionally, while the

proposed expansion would result in an approximately 27 percent increase in the built area (gsf) on the project site, the total built area would still remain approximately 68 percent below the total buildable area allowed under zoning regulations. Pursuant to zoning, the R4 portion of Block 5814 within the LSCFD is permitted a maximum of 837,338 square feet of zoning floor area and the R6/C2-2 portion of Block 5814 is permitted a maximum of 325,622 square feet of zoning floor area. Block 5814 contains 280,394 square feet of floor area which will remain, and therefore Block 5814 contains 882,566 square feet of unused floor area. The minor modification to the Authorization would revise the LSCFD Site Plan to permit up to 366,894 square feet of zoning floor area to be located on Block 5814. The FAR of the Zoning Lot would increase from 0.59 to 0.75 and the FAR of the LSCFD would increase from the existing 0.43 to 0.55. Overall, the Proposed Action would result in development that would be compatible with existing land uses on the project site.

The Proposed Action would only apply within the revised boundaries of the Horace Mann LSCFD. Therefore, the Proposed Action would not affect any other development sites.

Table 4
With Action Scenario

Lot Number	Total GSF	Retail GSF	Office GSF	Community Facility GSF	Residential GSF	# Residential Units	# Parking Spaces
5806, 681[1]	7,650[2]			4,000	3,650	1	
5814, 1102							13
5814, 1401	392,802[3]			392,802			98
5814, 1462							
5814, 1463							
5814, 1465							9
5816, 1701							18[5]
Total	**400,452[4]**			**396,802**	**3,650**	**1**	**138**

Notes:
1. Only a portion of Block 5806, Lot 681 is located within the LSCFD. Only that portion is described here.
2. Includes Van Sant Cottage and Head of School House
3. Includes Tillinghast (46,890), Spence Cottage (2,184), Pforzheimer and Rose Hall (73,425), Fisher Hall (57,600), Prettyman Gym and Vestibule (50,500), Library/Entry/Theater (65,710), Aquatics Center (32,943), Science Building/Student Center (58,550), new Maintenance Building (5,000).
4. Total gsf is net of the existing maintenance shed (1,200 gsf) and existing buildings on Block 5814, Lots 1462 (3,100 gsf) and 1463 (3,100 gsf) that would be removed and includes 100,993 gsf of new construction.
5. Existing spaces along Tibbett Avenue to remain.

Table 5
Summary of With Action Condition (LSCFD)

Name/Use	Size (gsf)	Use Group
Tillinghast	46,890	UG 3
Spence Cottage	2,184	UG 3
Pforzheimer and Rose Hall	73,425	UG 3
Fisher Hall	57,600	UG 3
Prettyman Gymnasium	46,000	UG 3
Van Sant Cottage & Head of School House	7,650	UG 2 and 3
Library/Entry/Theater	65,710	UG 3
TOTAL: Existing To Remain	**299,459**	
Aquatics Center	32,943	UG 3
Science Building/Student Center	58,550	UG 3
Vestibule to Prettyman Gym.	4,500	UG 3
Maintenance Building	5,000	UG 3
TOTAL: New Construction	**100,993**	
TOTAL: Existing and Proposed	**400,452**	

Notes: See Figures 1 and 4 for reference.
GSF = Gross Square Feet
Sources: Skidmore, Owings & Merrill LLP

Table 6
Comparison of Existing, No Action, and With Action Conditions

	EXISTING CONDITION	NO-ACTION CONDITION	WITH-ACTION CONDITION	INCREMENT
Land Use				
Residential	Yes ■ No □	Yes ■ No □	Yes ■ No □	
If yes, specify the following				
Describe type of residential structures	**Single-family homes**	**Single-family homes**	**Single-family homes**	
No. of dwelling units	**2**	**2**	**1**	**-1**
No. of low- to moderate-income units	**0**	**0**	**0**	
Gross Floor Area (sq. ft.)	**6,750**	**6,750**	**3,650**	**-3,100**
Commercial	Yes □ No ■	Yes □ No ■	Yes □ No ■	
If yes, specify the following:				
Describe type (retail, office, other)				
Gross floor area (sq. ft.)				
Manufacturing/Industrial	Yes □ No ■	Yes □ No ■	Yes □ No ■	
If yes, specify the following:				
Type of use				
Gross floor area (sq. ft.)				
Open storage area (sq. ft.)				
If any unenclosed activities, specify				
Community Facility	Yes ■ No □	Yes ■ No □	Yes ■ No □	
If yes, specify the following				
Type	**Private K-12 School**	**Private K-12 School**	**Private K-12 School**	
Gross floor area (sq. ft.)	**300,109**	**300,109**	**396,802**	**+96,693**[1]
Vacant Land	Yes □ No ■	Yes □ No ■	Yes □ No ■	
If yes, describe				
Other Land Uses	Yes □ No ■	Yes □ No ■	Yes □ No ■	
If yes, describe				
Parking				
Garages	Yes □ No ■	Yes □ No ■	Yes □ No ■	
If yes, specify the following:				
No. of public spaces				
No. of accessory spaces				
Lots	Yes ■ No □	Yes ■ No □	Yes ■ No □	
If yes, specify the following:				
No. of public spaces				
No. of accessory spaces	**182**	**182**	**138**	**-44**
Zoning				
Zoning classification	**R1-2, R4, R6, C2-2, NA-2**	**R1-2, R4, R6, C2-2, NA-2**	**R1-2, R4, R6, C2-2, NA-2**	
Maximum amount of floor area that can be developed	**1,162,960**[2]	**1,162,960**	**1,162,960**	**0**
Predominant land use and zoning classifications within land use study areas or a 400-foot radius of proposed project	**Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2**	**Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2**	**Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2**	

[1] 100,993 gsf (proposed new buildings) minus 3,100 gsf (community facility use) and 1,200 (maintenance shed) to be demolished with the proposed action.

[2] 837,338 sf of floor area is the maximum permitted in the R4 portion of Block 5814. A maximum of 325,622 square feet of floor area is also permitted in the R6/C2-2 portion of Block 5814, but can only be used in the R6/C2-2 area along Broadway.

☐ SITE SELECTION—PUBLIC FACILITY ☐ DISPOSITION—REAL PROPERTY ☐ FRANCHISE
☐ HOUSING PLAN & PROJECT ☒ OTHER, explain: : Minor modification to LSCFD
☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:
SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION

***Board of Standards and Appeals*:** ☐ YES ☒ NO
☐ VARIANCE (use)
☐ VARIANCE (bulk)
☐ SPECIAL PERMIT (if appropriate, specify type: ☐ modification; ☐ renewal; ☐ other); EXPIRATION DATE:
SPECIFY AFFECTED SECTIONS OF THE ZONING RESOLUTION

***Department of Environmental Protection*:** ☐ YES ☒ NO If "yes," specify:

Other City Approvals Subject to CEQR (check all that apply)
☐ LEGISLATION ☐ FUNDING OF CONSTRUCTION, specify:
☐ RULEMAKING ☐ POLICY OR PLAN, specify:
☐ CONSTRUCTION OF PUBLIC FACILITIES ☐ FUNDING OF PROGRAMS, specify:
☐ 384(b)(4) APPROVAL ☐ PERMITS, specify:
☐ OTHER, explain:

Other City Approvals Not Subject to CEQR (check all that apply)
☒ PERMITS FROM DOT'S OFFICE OF CONSTRUCTION MITIGATION AND COORDINATION (OCMC) ☐ LANDMARKS PRESERVATION COMMISSION APPROVAL
☐ OTHER, explain:

***State or Federal Actions/Approvals/Funding*:** ☐ YES ☒ NO If "yes," specify:

6. *Site Description:* *The directly affected area consists of the project site and the area subject to any change in regulatory controls. Except where otherwise indicated, provide the following information with regard to the directly affected area.*

***Graphics*:** *The following graphics must be attached and each box must be checked off before the EAS is complete. Each map must clearly depict the boundaries of the directly affected area or areas and indicate a 400-foot radius drawn from the outer boundaries of the project site. Maps may not exceed 11 x 17 inches in size and, for paper filings, must be folded to 8.5 x 11 inches.*

☒ SITE LOCATION MAP ☒ ZONING MAP ☒ SANBORN OR OTHER LAND USE MAP
☒ TAX MAP ☐ FOR LARGE AREAS OR MULTIPLE SITES, A GIS SHAPE FILE THAT DEFINES THE PROJECT SITE(S)
☒ PHOTOGRAPHS OF THE PROJECT SITE TAKEN WITHIN 6 MONTHS OF EAS SUBMISSION AND KEYED TO THE SITE LOCATION MAP

Physical Setting (both developed and undeveloped areas)
Total directly affected area (sq. ft.): ±43,650 sf (Development Site) Waterbody area (sq. ft.) and type: 0
Roads, buildings, and other paved surfaces (sq. ft.): ±36,063[1] Other, describe (sq. ft.): ±1,066[1]

7. *Physical Dimensions and Scale of Project* (if the project affects multiple sites, provide the total development facilitated by the action)
SIZE OF PROJECT TO BE DEVELOPED (gross square feet): 100,993 gsf
NUMBER OF BUILDINGS: 4 GROSS FLOOR AREA OF EACH BUILDING (sq. ft.): See page 1a
HEIGHT OF EACH BUILDING (ft.): See page 1a NUMBER OF STORIES OF EACH BUILDING: See page 1a

Does the proposed project involve changes in zoning on one or more sites? ☐ YES ☒ NO
If "yes," specify: The total square feet owned or controlled by the applicant:
The total square feet not owned or controlled by the applicant:

Does the proposed project involve in-ground excavation or subsurface disturbance, including, but not limited to foundation work, pilings, utility lines, or grading? ☒ YES ☐ NO
If "yes," indicate the estimated area and volume dimensions of subsurface disturbance (if known):
AREA OF TEMPORARY DISTURBANCE: ±37,348 sq. ft. (width x length) VOLUME OF DISTURBANCE: ±486,000 cubic ft. (width x length x depth)
AREA OF PERMANENT DISTURBANCE: ±37,348 sq. ft. (width x length)

8. *Analysis Year* CEQR Technical Manual Chapter 2

ANTICIPATED BUILD YEAR (date the project would be completed and operational): 2019
ANTICIPATED PERIOD OF CONSTRUCTION IN MONTHS: 23
WOULD THE PROJECT BE IMPLEMENTED IN A SINGLE PHASE? ☒ YES ☐ NO IF MULTIPLE PHASES, HOW MANY?
BRIEFLY DESCRIBE PHASES AND CONSTRUCTION SCHEDULE:

[1]The total area of new construction is approx. 37,348 sf, of which approx. 36,063 sf is impermeable (buildings, roads, tennis courts) and approx. 1,066 sf is lawn.

9. *Predominant Land Use in the Vicinity of the Project* (check all that apply)

☒ RESIDENTIAL ☐ MANUFACTURING ☐ COMMERCIAL ☐ PARK/FOREST/OPEN SPACE ☒ OTHER, specify: Community Facility

DESCRIPTION OF EXISTING AND PROPOSED CONDITIONS

The information requested in this table applies to the directly affected area. The directly affected area consists of the project site and the area subject to any change in regulatory control. The increment is the difference between the No-Action and the With-Action conditions.

	EXISTING CONDITION	NO-ACTION CONDITION	WITH-ACTION CONDITION	INCREMENT
LAND USE				
Residential	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
Describe type of residential structures	Single-family homes	Single-family homes	Single-family homes	
No. of dwelling units	2	2	1	-1
No. of low- to moderate-income units	0	0	0	
Gross floor area (sq. ft.)	6,750	6,750	3,650	-3,100
Commercial	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify the following:				
Describe type (retail, office, other)				
Gross floor area (sq. ft.)				
Manufacturing/Industrial	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify the following:				
Type of use				
Gross floor area (sq. ft.)				
Open storage area (sq. ft.)				
If any unenclosed activities, specify:				
Community Facility	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
Type	Private K-12 School	Private K-12 School	Private K-12 School	
Gross floor area (sq. ft.)	300,109	300,109	396,802	96,693[1]
Vacant Land	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," describe:				
Publicly Accessible Open Space	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify type (mapped City, State, or Federal parkland, wetland—mapped or otherwise known, other):				
Other Land Uses	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," describe:				
PARKING				
Garages	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify the following:				
No. of public spaces				
No. of accessory spaces				
Operating hours				
Attended or non-attended				
Lots	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify the following:				
No. of public spaces				
No. of accessory spaces	182	182	138	-44
Operating hours				
Other (includes street parking)	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," describe:				
POPULATION				
Residents	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If "yes," specify number:	3	3	3	
Briefly explain how the number of residents was calculated:	Under existing conditions and the No Action condition, there are two single-family houses; the Headmaster's Residence and a vacant building. In the With Action condition, the Headmaster's…			

[1]100,993 gsf (proposed new buildings) minus 3,100 gsf (community facility use) and 1,200 (maintenance shed) to be demolished with the proposed action.

	EXISTING CONDITION	NO-ACTION CONDITION	WITH-ACTION CONDITION	INCREMENT
	Residence would remain and the vacant building would be removed.			
Businesses	☐ YES ☒ NO	☐ YES ☒ NO	☐ YES ☒ NO	
If "yes," specify the following:				
No. and type				
No. and type of workers by business				
No. and type of non-residents who are not workers				
Briefly explain how the number of businesses was calculated:				
Other (students, visitors, concert-goers, *etc.*)	☒ YES ☐ NO	☒ YES ☐ NO	☒ YES ☐ NO	
If any, specify type and number:	1,782 students	1,782 students	1,782 students	0
Briefly explain how the number was calculated:	Source: Horace Mann School data for the 2014-2015 school year. See Appendix B.			
ZONING				
Zoning classification	R1-2, R4, R6, C2-2, NA-2	R1-2, R4, R6, C2-2, NA-2	R1-2, R4, R6, C2-2, NA-2	
Maximum amount of floor area that can be developed	1,162,960[1]	1,162,960	1,162,960	0
Predominant land use and zoning classifications within land use study area(s) or a 400 ft. radius of proposed project	Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2	Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2	Residential, Park, Commercial, Community Facility; R1-2, R4, R6, C2-2 NA-2	
Attach any additional information that may be needed to describe the project. If your project involves changes that affect one or more sites not associated with a specific development, it is generally appropriate to include total development projections in the above table and attach separate tables outlining the reasonable development scenarios for each site.				

[1] 837,338 sf of floor area is the maximum permitted in the R4 portion of Block 5814. A maximum of 325,622 square feet of floor area is also permitted in the R6/C2-2 portion of Block 5814, but can only be used in the R6/C2-2 area along Broadway.

Part II: TECHNICAL ANALYSIS

INSTRUCTIONS: For each of the analysis categories listed in this section, assess the proposed project's impacts based on the thresholds and criteria presented in the CEQR Technical Manual. Check each box that applies.

- If the proposed project can be demonstrated not to meet or exceed the threshold, check the "no" box.
- If the proposed project will meet or exceed the threshold, or if this cannot be determined, check the "yes" box.
- For each "yes" response, provide additional analyses (and, if needed, attach supporting information) based on guidance in the CEQR Technical Manual to determine whether the potential for significant impacts exists. Please note that a "yes" answer does not mean that an EIS must be prepared—it means that more information may be required for the lead agency to make a determination of significance.
- The lead agency, upon reviewing Part II, may require an applicant to provide additional information to support the Full EAS Form. For example, if a question is answered "no," an agency may request a short explanation for this response.

	YES	NO
1. *LAND USE, ZONING, AND PUBLIC POLICY*: CEQR Technical Manual Chapter 4		
(a) Would the proposed project result in a change in land use different from surrounding land uses?	☐	☒
(b) Would the proposed project result in a change in zoning different from surrounding zoning?	☐	☒
(c) Is there the potential to affect an applicable public policy?	☐	☒
(d) If "yes," to (a), (b), and/or (c), complete a preliminary assessment and attach.		
(e) Is the project a large, publicly sponsored project?	☐	☒
○ If "yes," complete a PlaNYC assessment and attach.		
(f) Is any part of the directly affected area within the City's Waterfront Revitalization Program boundaries?	☐	☒
○ If "yes," complete the Consistency Assessment Form.		
2. *SOCIOECONOMIC CONDITIONS*: CEQR Technical Manual Chapter 5		
(a) Would the proposed project:		
○ Generate a net increase of more than 200 residential units *or* 200,000 square feet of commercial space?	☐	☒
▪ If "yes," answer *both* questions 2(b)(ii) and 2(b)(iv) below.		
○ Directly displace 500 or more residents?	☐	☒
▪ If "yes," answer questions 2(b)(i), 2(b)(ii), and 2(b)(iv) below.		
○ Directly displace more than 100 employees?	☐	☒
▪ If "yes," answer questions under 2(b)(iii) and 2(b)(iv) below.		
○ Affect conditions in a specific industry?	☐	☒
▪ If "yes," answer question 2(b)(v) below.		
(b) If "yes" to any of the above, attach supporting information to answer the relevant questions below. If "no" was checked for each category above, the remaining questions in this technical area do not need to be answered.		
i. Direct Residential Displacement		
○ If more than 500 residents would be displaced, would these residents represent more than 5% of the primary study area population?	☐	☐
○ If "yes," is the average income of the directly displaced population markedly lower than the average income of the rest of the study area population?	☐	☐
ii. Indirect Residential Displacement		
○ Would expected average incomes of the new population exceed the average incomes of study area populations?	☐	☐
○ If "yes:"		
▪ Would the population of the primary study area increase by more than 10 percent?	☐	☐
▪ Would the population of the primary study area increase by more than 5 percent in an area where there is the potential to accelerate trends toward increasing rents?	☐	☐
○ If "yes" to either of the preceding questions, would more than 5 percent of all housing units be renter-occupied and unprotected?	☐	☐
iii. Direct Business Displacement		
○ Do any of the displaced businesses provide goods or services that otherwise would not be found within the trade area, either under existing conditions or in the future with the proposed project?	☐	☐
○ Is any category of business to be displaced the subject of other regulations or publicly adopted plans to preserve,	☐	☐

	YES	NO
enhance, or otherwise protect it?		
iv. Indirect Business Displacement		
○ Would the project potentially introduce trends that make it difficult for businesses to remain in the area?	☐	☐
○ Would the project capture retail sales in a particular category of goods to the extent that the market for such goods would become saturated, potentially resulting in vacancies and disinvestment on neighborhood commercial streets?	☐	☐
v. Effects on Industry		
○ Would the project significantly affect business conditions in any industry or any category of businesses within or outside the study area?	☐	☐
○ Would the project indirectly substantially reduce employment or impair the economic viability in the industry or category of businesses?	☐	☐
3. *COMMUNITY FACILITIES*: CEQR Technical Manual Chapter 6		
(a) Direct Effects		
○ Would the project directly eliminate, displace, or alter public or publicly funded community facilities such as educational facilities, libraries, health care facilities, day care centers, police stations, or fire stations?	☐	☒
(b) Indirect Effects		
i. Child Care Centers		
○ Would the project result in 20 or more eligible children under age 6, based on the number of low or low/moderate income residential units? (See Table 6-1 in Chapter 6)	☐	☒
○ If "yes," would the project result in a collective utilization rate of the group child care/Head Start centers in the study area that is greater than 100 percent?	☐	☐
○ If "yes," would the project increase the collective utilization rate by 5 percent or more from the No-Action scenario?	☐	☐
ii. Libraries		
○ Would the project result in a 5 percent or more increase in the ratio of residential units to library branches? (See Table 6-1 in Chapter 6)	☐	☒
○ If "yes," would the project increase the study area population by 5 percent or more from the No-Action levels?	☐	☐
○ If "yes," would the additional population impair the delivery of library services in the study area?	☐	☐
iii. Public Schools		
○ Would the project result in 50 or more elementary or middle school students, or 150 or more high school students based on number of residential units? (See Table 6-1 in Chapter 6)	☐	☒
○ If "yes," would the project result in a collective utilization rate of the elementary and/or intermediate schools in the study area that is equal to or greater than 100 percent?	☐	☐
○ If "yes," would the project increase this collective utilization rate by 5 percent or more from the No-Action scenario?	☐	☐
iv. Health Care Facilities		
○ Would the project result in the introduction of a sizeable new neighborhood?	☐	☒
○ If "yes," would the project affect the operation of health care facilities in the area?	☐	☐
v. Fire and Police Protection		
○ Would the project result in the introduction of a sizeable new neighborhood?	☐	☒
○ If "yes," would the project affect the operation of fire or police protection in the area?	☐	☐
4. *OPEN SPACE*: CEQR Technical Manual Chapter 7		
(a) Would the project change or eliminate existing open space?	☐	☒
(b) Is the project located within an under-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island?	☐	☒
(c) If "yes," would the project generate more than 50 additional residents or 125 additional employees?	☐	☐
(d) Is the project located within a well-served area in the Bronx, Brooklyn, Manhattan, Queens, or Staten Island?	☒	☐
(e) If "yes," would the project generate more than 350 additional residents or 750 additional employees?	☐	☒
(f) If the project is located in an area that is neither under-served nor well-served, would it generate more than 200 additional residents or 500 additional employees?	☐	☐
(g) If "yes" to questions (c), (e), or (f) above, attach supporting information to answer the following:		
○ If in an under-served area, would the project result in a decrease in the open space ratio by more than 1 percent?	☐	☐
○ If in an area that is not under-served, would the project result in a decrease in the open space ratio by more than 5	☐	☐

	YES	NO
percent?		
○ If "yes," are there qualitative considerations, such as the quality of open space, that need to be considered? Please specify:	☐	☐
5. *SHADOWS*: CEQR Technical Manual Chapter 8		
(a) Would the proposed project result in a net height increase of any structure of 50 feet or more?	☒	☐
(b) Would the proposed project result in any increase in structure height and be located adjacent to or across the street from a sunlight-sensitive resource?	☐	☒
(c) If "yes" to either of the above questions, attach supporting information explaining whether the project's shadow would reach any sunlight-sensitive resource at any time of the year.		
6. *HISTORIC AND CULTURAL RESOURCES*: CEQR Technical Manual Chapter 9		
(a) Does the proposed project site or an adjacent site contain any architectural and/or archaeological resource that is eligible for or has been designated (or is calendared for consideration) as a New York City Landmark, Interior Landmark or Scenic Landmark; that is listed or eligible for listing on the New York State or National Register of Historic Places; or that is within a designated or eligible New York City, New York State or National Register Historic District? (See the GIS System for Archaeology and National Register to confirm)	☒	☐
(b) Would the proposed project involve construction resulting in in-ground disturbance to an area not previously excavated?	☒	☐
(c) If "yes" to either of the above, list any identified architectural and/or archaeological resources and attach supporting information on whether the proposed project would potentially affect any architectural or archeological resources.		
7. *URBAN DESIGN AND VISUAL RESOURCES*: CEQR Technical Manual Chapter 10		
(a) Would the proposed project introduce a new building, a new building height, or result in any substantial physical alteration to the streetscape or public space in the vicinity of the proposed project that is not currently allowed by existing zoning?	☒	☐
(b) Would the proposed project result in obstruction of publicly accessible views to visual resources not currently allowed by existing zoning?	☐	☒
(c) If "yes" to either of the above, please provide the information requested in Chapter 10.		
8. *NATURAL RESOURCES*: CEQR Technical Manual Chapter 11		
(a) Does the proposed project site or a site adjacent to the project contain natural resources as defined in Section 100 of Chapter 11?	☐	☒
○ If "yes," list the resources and attach supporting information on whether the project would affect any of these resources.		
(b) Is any part of the directly affected area within the Jamaica Bay Watershed?	☐	☒
○ If "yes," complete the Jamaica Bay Watershed Form and submit according to its instructions.		
9. *HAZARDOUS MATERIALS*: CEQR Technical Manual Chapter 12		
(a) Would the proposed project allow commercial or residential uses in an area that is currently, or was historically, a manufacturing area that involved hazardous materials?	☐	☒
(b) Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to hazardous materials that preclude the potential for significant adverse impacts?	☐	☒
(c) Would the project require soil disturbance in a manufacturing area or any development on or near a manufacturing area or existing/historic facilities listed in Appendix 1 (including nonconforming uses)?	☐	☒
(d) Would the project result in the development of a site where there is reason to suspect the presence of hazardous materials, contamination, illegal dumping or fill, or fill material of unknown origin?	☒	☐
(e) Would the project result in development on or near a site that has or had underground and/or aboveground storage tanks (*e.g.*, gas stations, oil storage facilities, heating oil storage)?	☒	☐
(f) Would the project result in renovation of interior existing space on a site with the potential for compromised air quality; vapor intrusion from either on-site or off-site sources; or the presence of asbestos, PCBs, mercury or lead-based paint?	☒	☐
(g) Would the project result in development on or near a site with potential hazardous materials issues such as government-listed voluntary cleanup/brownfield site, current or former power generation/transmission facilities, coal gasification or gas storage sites, railroad tracks or rights-of-way, or municipal incinerators?	☐	☒
(h) Has a Phase I Environmental Site Assessment been performed for the site?	☒	☐
○ If "yes," were Recognized Environmental Conditions (RECs) identified? Briefly identify: See Attachment C.	☒	☐
(i) Based on the Phase I Assessment, is a Phase II Investigation needed? See Attachment C.	☒	☐
10. *WATER AND SEWER INFRASTRUCTURE*: CEQR Technical Manual Chapter 13		
(a) Would the project result in water demand of more than one million gallons per day?	☐	☒
(b) If the proposed project located in a combined sewer area, would it result in at least 1,000 residential units or 250,000 square feet or more of commercial space in Manhattan, or at least 400 residential units or 150,000 square feet or more of commercial space in the Bronx, Brooklyn, Staten Island, or Queens?	☐	☒

	YES	NO
(c) If the proposed project located in a separately sewered area, would it result in the same or greater development than that listed in Table 13-1 in Chapter 13?	☐	☒
(d) Would the project involve development on a site that is 5 acres or larger where the amount of impervious surface would increase?	☐	☒
(e) If the project is located within the Jamaica Bay Watershed or in certain specific drainage areas, including Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchinson River, Newtown Creek, or Westchester Creek, would it involve development on a site that is 1 acre or larger where the amount of impervious surface would increase?	☐	☒
(f) Would the proposed project be located in an area that is partially sewered or currently unsewered?	☐	☒
(g) Is the project proposing an industrial facility or activity that would contribute industrial discharges to a Wastewater Treatment Plant and/or contribute contaminated stormwater to a separate storm sewer system?	☐	☒
(h) Would the project involve construction of a new stormwater outfall that requires federal and/or state permits?	☐	☒
(i) If "yes" to any of the above, conduct the appropriate preliminary analyses and attach supporting documentation.		
11. *SOLID WASTE AND SANITATION SERVICES*: CEQR Technical Manual Chapter 14		
(a) Using Table 14-1 in Chapter 14, the project's projected operational solid waste generation is estimated to be (pounds per week): 4,030 lbs.		
○ Would the proposed project have the potential to generate 100,000 pounds (50 tons) or more of solid waste per week?	☐	☒
(b) Would the proposed project involve a reduction in capacity at a solid waste management facility used for refuse or recyclables generated within the City?	☐	☒
○ If "yes," would the proposed project comply with the City's Solid Waste Management Plan?	☐	☐
12. *ENERGY*: CEQR Technical Manual Chapter 15		
(a) Using energy modeling or Table 15-1 in Chapter 15, the project's projected energy use is estimated to be (annual BTUs): 25,318,945 BTU		
(b) Would the proposed project affect the transmission or generation of energy?	☐	☒
13. *TRANSPORTATION*: CEQR Technical Manual Chapter 16		
(a) Would the proposed project exceed any threshold identified in Table 16-1 in Chapter 16?	☐	☒
(b) If "yes," conduct the appropriate screening analyses, attach back up data as needed for each stage, and answer the following questions:		
○ Would the proposed project result in 50 or more Passenger Car Equivalents (PCEs) per project peak hour?	☐	☐
If "yes," would the proposed project result in 50 or more vehicle trips per project peak hour at any given intersection? ***It should be noted that the lead agency may require further analysis of intersections of concern even when a project generates fewer than 50 vehicles in the peak hour. See Subsection 313 of Chapter 16 for more information.*	☐	☐
○ Would the proposed project result in more than 200 subway/rail or bus trips per project peak hour?	☐	☐
If "yes," would the proposed project result, per project peak hour, in 50 or more bus trips on a single line (in one direction) or 200 subway/rail trips per station or line?	☐	☐
○ Would the proposed project result in more than 200 pedestrian trips per project peak hour?	☐	☐
If "yes," would the proposed project result in more than 200 pedestrian trips per project peak hour to any given pedestrian or transit element, crosswalk, subway stair, or bus stop?	☐	☐
14. *AIR QUALITY*: CEQR Technical Manual Chapter 17		
(a) *Mobile Sources*: Would the proposed project result in the conditions outlined in Section 210 in Chapter 17?	☐	☒
(b) *Stationary Sources*: Would the proposed project result in the conditions outlined in Section 220 in Chapter 17?	☒	☐
○ If "yes," would the proposed project exceed the thresholds in Figure 17-3, Stationary Source Screen Graph in Chapter 17? (Attach graph as needed) See Attachment D.	☐	☒
(c) Does the proposed project involve multiple buildings on the project site?	☒	☐
(d) Does the proposed project require federal approvals, support, licensing, or permits subject to conformity requirements?	☐	☒
(e) Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to air quality that preclude the potential for significant adverse impacts?	☐	☒
(f) If "yes" to any of the above, conduct the appropriate analyses and attach any supporting documentation. See Attachment D.		
15. *GREENHOUSE GAS EMISSIONS*: CEQR Technical Manual Chapter 18		
(a) Is the proposed project a city capital project or a power generation plant?	☐	☒
(b) Would the proposed project fundamentally change the City's solid waste management system?	☐	☒
(c) Would the proposed project result in the development of 350,000 square feet or more?	☐	☒
(d) If "yes" to any of the above, would the project require a GHG emissions assessment based on guidance in Chapter 18?	☐	☒
○ If "yes," would the project result in inconsistencies with the City's GHG reduction goal? (See Local Law 22 of 2008; § 24-	☐	☐

	YES	NO
803 of the Administrative Code of the City of New York). Please attach supporting documentation.		
16. *NOISE*: CEQR Technical Manual Chapter 19		
(a) Would the proposed project generate or reroute vehicular traffic?	☐	☒
(b) Would the proposed project introduce new or additional receptors (see Section 124 in Chapter 19) near heavily trafficked roadways, within one horizontal mile of an existing or proposed flight path, or within 1,500 feet of an existing or proposed rail line with a direct line of site to that rail line?	☒	☐
(c) Would the proposed project cause a stationary noise source to operate within 1,500 feet of a receptor with a direct line of sight to that receptor or introduce receptors into an area with high ambient stationary noise?	☐	☒
(d) Does the proposed project site have existing institutional controls (*e.g.*, (E) designation or Restrictive Declaration) relating to noise that preclude the potential for significant adverse impacts?	☐	☒
(e) If "yes" to any of the above, conduct the appropriate analyses and attach any supporting documentation.		
17. *PUBLIC HEALTH*: CEQR Technical Manual Chapter 20		
(a) Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Air Quality; Hazardous Materials; Noise?	☐	☒
(b) If "yes," explain why an assessment of public health is or is not warranted based on the guidance in Chapter 20, "Public Health." Attach a preliminary analysis, if necessary.		
18. *NEIGHBORHOOD CHARACTER*: CEQR Technical Manual Chapter 21		
(a) Based upon the analyses conducted, do any of the following technical areas require a detailed analysis: Land Use, Zoning, and Public Policy; Socioeconomic Conditions; Open Space; Historic and Cultural Resources; Urban Design and Visual Resources; Shadows; Transportation; Noise?	☐	☒
(b) If "yes," explain why an assessment of neighborhood character is or is not warranted based on the guidance in Chapter 21, "Neighborhood Character." Attach a preliminary analysis, if necessary.		
19. *CONSTRUCTION*: CEQR Technical Manual Chapter 22		
(a) Would the project's construction activities involve:		
o Construction activities lasting longer than two years?	☐	☒
o Construction activities within a Central Business District or along an arterial highway or major thoroughfare?	☐	☒
o Closing, narrowing, or otherwise impeding traffic, transit, or pedestrian elements (roadways, parking spaces, bicycle routes, sidewalks, crosswalks, corners, *etc.*)?	☒	☐
o Construction of multiple buildings where there is a potential for on-site receptors on buildings completed before the final build-out?	☒	☐
o The operation of several pieces of diesel equipment in a single location at peak construction?	☒	☐
o Closure of a community facility or disruption in its services?	☐	☒
o Activities within 400 feet of a historic or cultural resource?	☒	☐
o Disturbance of a site containing or adjacent to a site containing natural resources?	☐	☒
o Construction on multiple development sites in the same geographic area, such that there is the potential for several construction timelines to overlap or last for more than two years overall?	☐	☒
(b) If any boxes are checked "yes," explain why a preliminary construction assessment is or is not warranted based on the guidance in Chapter 22, "Construction." It should be noted that the nature and extent of any commitment to use the Best Available Technology for construction equipment or Best Management Practices for construction activities should be considered when making this determination. See Screening Analyses Starting on Page 9A.		

20. *APPLICANT'S CERTIFICATION*

I swear or affirm under oath and subject to the penalties for perjury that the information provided in this Environmental Assessment Statement (EAS) is true and accurate to the best of my knowledge and belief, based upon my personal knowledge and familiarity with the information described herein and after examination of the pertinent books and records and/or after inquiry of persons who have personal knowledge of such information or who have examined pertinent books and records.

Still under oath, I further swear or affirm that I make this statement in my capacity as the applicant or representative of the entity that seeks the permits, approvals, funding, or other governmental action(s) described in this EAS.

APPLICANT/REPRESENTATIVE NAME	SIGNATURE	DATE
Lisa M. Lau, AICP		August 19, 2016

PLEASE NOTE THAT APPLICANTS MAY BE REQUIRED TO SUBSTANTIATE RESPONSES IN THIS FORM AT THE DISCRETION OF THE LEAD AGENCY SO THAT IT MAY SUPPORT ITS DETERMINATION OF SIGNIFICANCE.

Part III: DETERMINATION OF SIGNIFICANCE (To Be Completed by Lead Agency)

INSTRUCTIONS: In completing Part III, the lead agency should consult 6 NYCRR 617.7 and 43 RCNY § 6-06 (Executive Order 91 or 1977, as amended), which contain the State and City criteria for determining significance.

1. For each of the impact categories listed below, consider whether the project may have a significant adverse effect on the environment, taking into account its (a) location; (b) probability of occurring; (c) duration; (d) irreversibility; (e) geographic scope; and (f) magnitude.

IMPACT CATEGORY	Potentially Significant Adverse Impact: YES	NO
Land Use, Zoning, and Public Policy	☐	☒
Socioeconomic Conditions	☐	☒
Community Facilities and Services	☐	☒
Open Space	☐	☒
Shadows	☐	☒
Historic and Cultural Resources	☐	☒
Urban Design/Visual Resources	☐	☒
Natural Resources	☐	☒
Hazardous Materials	☐	☒
Water and Sewer Infrastructure	☐	☒
Solid Waste and Sanitation Services	☐	☒
Energy	☐	☒
Transportation	☐	☒
Air Quality	☐	☒
Greenhouse Gas Emissions	☐	☒
Noise	☐	☒
Public Health	☐	☒
Neighborhood Character	☐	☒
Construction	☐	☒

2. Are there any aspects of the project relevant to the determination of whether the project may have a significant impact on the environment, such as combined or cumulative impacts, that were not fully covered by other responses and supporting materials? ☐ YES ☒ NO

If there are such impacts, attach an explanation stating whether, as a result of them, the project may have a significant impact on the environment.

3. Check determination to be issued by the lead agency:

☐ **Positive Declaration**: If the lead agency has determined that the project may have a significant impact on the environment, and if a Conditional Negative Declaration is not appropriate, then the lead agency issues a *Positive Declaration* and prepares a draft Scope of Work for the Environmental Impact Statement (EIS).

☐ **Conditional Negative Declaration:** A *Conditional Negative Declaration* (CND) may be appropriate if there is a private applicant for an Unlisted action AND when conditions imposed by the lead agency will modify the proposed project so that no significant adverse environmental impacts would result. The CND is prepared as a separate document and is subject to the requirements of 6 NYCRR Part 617.

☒ **Negative Declaration:** If the lead agency has determined that the project would not result in potentially significant adverse environmental impacts, then the lead agency issues a *Negative Declaration*. The *Negative Declaration* may be prepared as a separate document (see template) or using the embedded Negative Declaration on the next page.

4. ***LEAD AGENCY'S CERTIFICATION***

TITLE Deputy Director, Envionmental Assessment & Review Division	LEAD AGENCY New York City Department of City Planning
NAME Olga Abinader	DATE August 19, 2016
SIGNATURE Olga Abinader	

Additional Technical Information for EAS Part II

For environmental categories in which the EAS checklist does not indicate the need for further assessment, the proposed project would not have the potential to result in any significant adverse impacts, and no further analysis is necessary. For the environmental categories for which a 'yes' box was checked, additional information is provided below, or in supplemental attachments if a more detailed discussion is appropriate. The analyses have been prepared consistent with the guidelines of the 2014 *CEQR Technical Manual*.

LAND USE, ZONING, AND PUBLIC POLICY

See Attachment A, "Land Use, Zoning, and Public Policy."

SHADOWS

Under CEQR, a shadow study is required if the proposed project would result in a structure 50 feet or greater in height, or of any height if the project site is located adjacent to, or across the street from, a sunlight-sensitive resource.

The development site is located across Broadway and upslope from a portion of Van Cortlandt Park. Therefore a preliminary assessment was conducted to determine whether new shadow from any of the four proposed structures could reach the park or any other nearby sunlight-sensitive resources.

The project area and surrounding context are characterized by variable topography. The school's main field, just south of the Prettyman Building and three of the four proposed structures, is at an elevation of approximately 127' (referenced to NAVD 88[1]). North of the Prettyman Building and the three adjacent proposed structures, there are tennis courts approximately nine feet lower in elevation, at approximately 118.5'. The land slopes down eastward from the project area to Broadway which is at approximately 36' elevation adjacent to the project site. Van Cortlandt Park, on the other side of Broadway, is a little lower than Broadway; the main expanse of the park in this location is at approximately 30'.

The proposed Science Building would reach a maximum height of 68' above the lowest adjacent grade of 118.5. The proposed Aquatic Center would be 43' above the lowest adjacent grade of 118.5'. The proposed Prettyman Vestibule would be 29' above the lowest adjacent grade of 118.5'. The proposed Maintenance Building, located east and down slope from the main campus where the other proposed buildings are located, would be 34' high relative to the lowest adjacent grade of 67.5'.

This assessment was prepared in accordance with the guidelines of the 2014 *CEQR Technical Manual*. The assessment concludes that the proposed project would not cause any significant shadow impacts.

PRELIMINARY SCREENING ASSESSMENT

A base map was developed using Geographic Information Systems (GIS)[2] showing the location of the project site and the surrounding street layout (see **Figure 11**). Potential sunlight-sensitive resources were identified and shown on the map.

TIER 1 SCREENING ASSESSMENT

As per the *CEQR Technical Manual*, for a Tier 1 assessment, the longest shadow that a proposed structure could cast is calculated, and, using this length as the radius, a perimeter is drawn around the site. 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.

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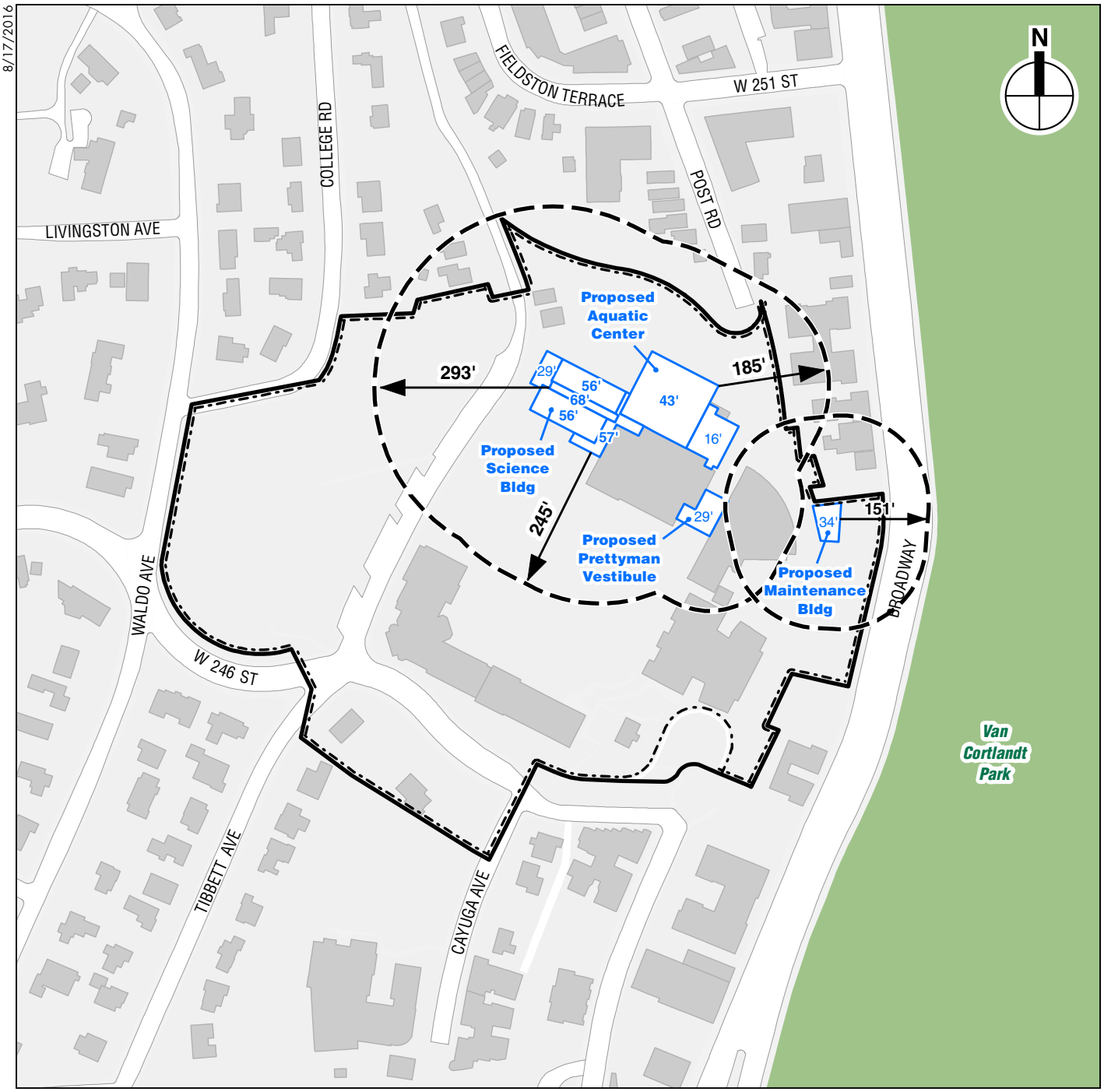
[1] North American Vertical Datum of 1988, which is approximately mean sea level.

[2] Software: Esri ArcGIS 10.3; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.



Proposed LSCFD Boundary

Existing LSCFD Boundary

Proposed building footprints, labeled with heights in feet above lowest adjacent grade

Tier 1: Longest shadow study area perimeter (4.3 x max. height of structure)

Publicly Accessible Open Space

Historic Resources with Sunlight-Sensitive Features (none in map extent)

0 400 FEET

Notes: Lowest adjacent grade for proposed Science Building, Aquatic Center and Perryman Vestibule is elevation 118.5' NAVD88. Lowest adjacent grade for proposed Maintenance Building is elevation 67.5' NAVD88. NAVD88 = North American Vertical Datum of 1988.

Therefore, at a maximum height of approximately 68 feet above the lowest adjacent grade[1], the proposed Science Building could cast a shadow up to approximately 293 feet in length (68 x 4.3). Using this length as the radius, a perimeter was drawn around the proposed building footprint (see **Figure 11**). Similar calculations were performed for the other proposed structures and portions of structures: at a maximum height of 43' above the lowest adjacent ground level, the Aquatic Center building could cast a shadow up to approximately 185 feet; the proposed Prettyman Vestibule could cast a shadow up to 125', and the proposed Maintenance Building could cast a shadow up to approximately 151' Using these distances, perimeters were drawn around each corresponding proposed structure to represent each structure's longest shadow study area. All the individual longest shadow study areas were then merged using the GIS software to illustrate the combined longest shadow study area clearly (except the proposed Maintenance Building, which is located a little farther away from the others and whose study area is shown distinctly).

However, the study area is not flat, and in fact is highly variable in topography (see **Figure 12**). Given that the project site is situated at a higher elevation relative to Van Cortlandt Park, and therefore shadows would likely reach further when falling downslope to the east in the afternoons, additional assessment is required.

The top of the proposed Science Center Building has a maximum elevation of 186.5'; therefore it is 156.5' above the adjacent area of Van Cortlandt Park, which is at elevation 30'. Consequently, in the afternoons when shadows fall eastward, the proposed Science Center Building's shadow would reach up to 673 feet (156.5 x 4.3) onto a small area at the western edge of Van Cortlandt Park (see Figure 12). Similarly, the top of the proposed Aquatic Center would be at elevation 161.5', 131.5' above the adjacent area of Van Cortlandt Park, and its shadow could therefore reach up to 566' when falling eastward on the park, long enough to reach a small area at the park's western edge. The proposed Prettyman Vestibule would be at elevation 147.5', or 117.5' above the adjacent area of Van Cortlandt Park, resulting in a shadow up to 506' when falling eastward on to the park, long enough to reach a small area at the park's western edge. The roof of the proposed maintenance building would be at elevation 101.5', 71.5' above the adjacent area of Van Cortlandt Park, and its shadow therefore would reach up to 308' feet when falling eastward on the park, long enough to reach a small area at the park's western edge (see **Figure 12**).

Even without taking into account other existing shadows from intervening or nearby buildings and topography, any new shadow that could potentially result from the proposed buildings on Van Cortlandt Park would be exceedingly small, relative to the large expanse of parkland at that location. Any new shadows would also be brief, given that the park is near the perimeter of the longest shadow study areas for the proposed buildings. Any incremental shadows would fall on a small portion of the park's Parade Ground, which includes a running path, soccer fields, and cricket pitches, leaving most of this resource in direct sunlight; therefore, the usability of this resource would not be significantly impacted by the proposed project. Further, it is likely that surrounding structures and topography would already cast shadows on the adjacent areas of the park where project-generated shadow might otherwise be created. For instance, the existing Fisher Hall is adjacent to the proposed maintenance building, the proposed Prettyman Vestibule, and the proposed Aquatic Center but at a higher elevation than any of those proposed buildings (Fisher Hall has a maximum elevation of 165.5', the proposed maintenance building has a maximum elevation of 101.5', the proposed Prettyman Vestibule has an elevation of 117.5 and the proposed Aquatic Center has a maximum elevation of 131.5.) Therefore, it is possible there would not be any incremental shadow—or greatly limited incremental shadow only— falling on Van Cortlandt Park as a result of the proposed project, with shadows from nearby buildings and topography taken into account.

Overall, while the proposed project could potentially result in new shadows on a portion of Van Cortlandt Park, these shadows would be small and brief even in the worst case scenario where no other intervening shadows are also falling there, and they would not result in significant adverse impacts to the park or its users.

HISTORIC AND CULTURAL RESOURCES

See Attachment B, "Historic and Cultural Resources."

URBAN DESIGN AND VISUAL RESOURCES

See Attachment F, "Urban Design and Visual Resources."

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[1] Using the lowest adjacent grade ensures a more conservative analysis because it results in a "taller" building. The proposed Science Center would be only 59 feet tall relative to the Main Field, which is at a higher elevation than the rear tennis courts.

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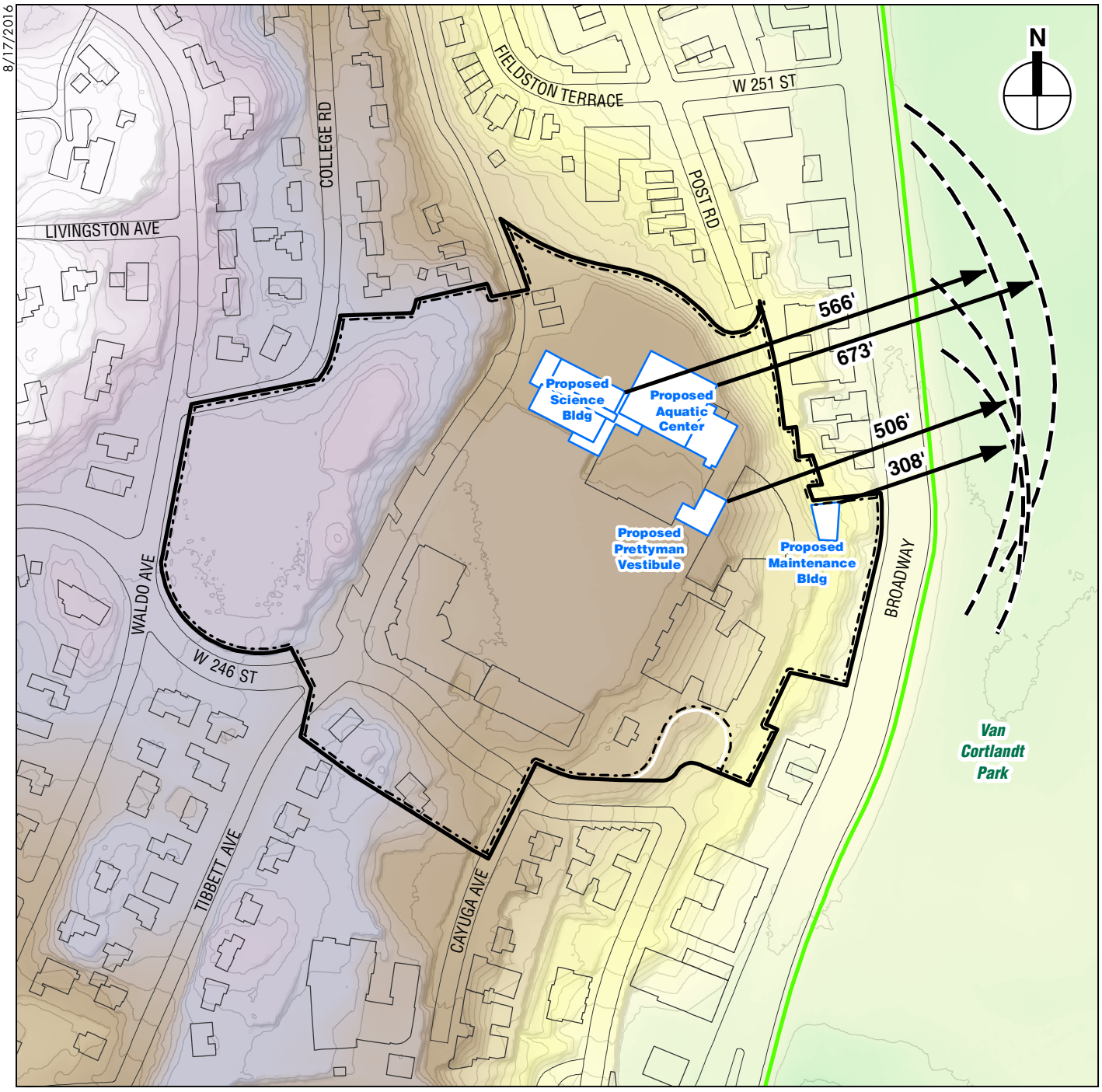


Proposed LSCFD Boundary

Publicly Accessible Open Space Boundary

Existing LSCFD Boundary

Tier 1: Longest shadow study area boundary accounting for topography

Proposed Buildings

Elevation

High : 240'

Low : 6'

0 400 FEET

Tier 1 Assessment with Topography

HORACE MANN EXPANSION

Figure 12

HAZARDOUS MATERIALS

See Attachment C, "Hazardous Materials."

TRANSPORTATION

According to the *CEQR Technical Manual*, development exceeding 25,000 square feet of community facility use typically requires an assessment of travel demand. However, the Proposed Project would not result in an increase in the overall student population, and would have a minimal increase in employee population (up to 10 employees).

As described in the "Project Description" on page 1a, the Proposed Project would result in the construction of four new buildings and renovations to existing space. The proposed improvements are highly specialized and were programmatically developed to address certain deficiencies in the school's curriculum and activities. The proposed improvements would not accommodate an increase in student population and no enlargements are being proposed to essential common areas that would be necessary to serve an increase in population, such as the cafeteria or library. Student enrollment at the Horace Mann School has remained relatively constant over the past 20 years and did not substantially increase following the approval of the previous CPC authorization in 2001 (see Appendix B). Below is more detailed information about the use of the components of the Proposed Project:

1. Maintenance Building—this building would replace an existing storage shed that would be removed as part of the proposed renovations. It would not contain any student facilities.
2. Vestibule to Prettyman Gymnasium—this connective space would provide ADA-compliant accessibility to various parts of the school and provide a sheltered queuing area for student athletes before heading outside to the existing fields. This component of the Proposed Project would not add additional program space to the school.
3. Aquatics Center—this building would provide replacement facilities for existing uses on the Horace Mann campus. The pool would be substantially upgraded, but would not be used in a different manner than under existing conditions. Currently, the pool is heavily used by students for swimming and water polo for gym classes, practice, and competitions; those uses would remain. The existing pool regularly hosts swim meets and water polo matches with other schools in the conference and this use is expected to continue in the same manner in the future. Between the beginning of the school year and the end of the season in early March, there is typically between two and five meets every week. Generally, around 30 visiting students arrive for each meet, split between a girls team and a boys team. The visiting students usually arrive on one bus and typically some parents also attend. As with any school, Horace Mann students participate in both home games at the Horace Mann campus and away games at other schools; the balance of home and away games would not be adjusted because of the improved facilities.

   The proposed renovations to Prettyman Gymnasium would retain two gym areas and reduce the permitted capacity of the gyms from the current capacity of 750/700—a number that is never achieved—to 250 persons per gym, consistent with how the gyms are used today. The renovations to Prettyman Gymnasium would also include a fitness center that would replace an existing facility that would be removed as part of the proposed renovations. The replacement fitness center would be approximately the same size as the existing facility and would have substantially the same types of equipment and services.
4. Science Building/Student Center—the student center component of the Proposed Project would consolidate existing student curriculum and activities including the CCVA, Service Learning, Student Publications, media rooms, and collaborative meeting space. The student center would also provide a central gathering space for athletes and students who participate in existing afterhours programs, with security. The science building component of the Proposed Project would provide space for existing students and would address a critical deficiency in how Horace Mann currently teaches sciences by providing nine dedicated and specialized lab/classroom spaces for the Upper School students. Currently, the middle school students and upper school students share labs and there is inadequate classroom space supporting the lab activities, requiring the use of makeshift spaces for education purposes (including the Headmaster's office). The proposed science building would address this particular condition, allowing the Middle School full use of the existing science labs in Pforzeimer Hall. Further, the design of the proposed building has been developed for its particular use and would not accommodate additional students.

Because attendance would remain the same with the Proposed Project, additional trips for events are not expected. It is not envisioned that the Proposed Project would increase the number of school-related events or induce additional spectators or visitors to school-related events beyond current programming and attendance levels. Similarly, it is not envisioned that the Proposed Project would increase the frequency or attendance of non-school events such as community use or special events. Therefore, both school and non-school programming, use, and events would continue at current levels and not increase as a result of the proposed actions.

While the Proposed Project would not result in an increase in the student population, it would result in approximately ten additional maintenance and support workers. As shown below in **Table 7**, this increase would result in a negligible change in trips.

Table 7
Future with the Proposed Project: Peak Hour Person Trip Increases

Population Type	Additional Persons	Increase in AM Peak Hour Trips		Increase in PM Peak Hour Trips	
		In	Out	In	Out
Students	0	0	0	0	0
Workers	10	10	0	0	10
Total Person Trips:		**10**	**0**	**0**	**10**

As shown in **Table 7**, the Proposed Project would not exceed the *CEQR Technical Manual* thresholds of 50 vehicle trips or 200 person or transit trips—conservatively assuming that all of the worker trips would result in an auto trip—and no further analysis is required. No significant adverse impacts to transportation would occur with the Proposed Action.

AIR QUALITY

See Attachment D, "Air Quality."

CONSTRUCTION

As with all construction projects, work at the project site would result in temporary disruptions to the surrounding area, including occasional noise and dust. However, such effects would be temporary and would be limited to the construction period. The construction activities associated with the development of the Proposed Project would be expected to result in conditions typical of construction sites in New York City.

Construction of the Proposed Project is anticipated to occur over a period of approximately 23 months. During this time, construction activities for the Proposed Project would normally take place Monday through Friday, although the delivery or installation of certain critical equipment could occur on weekend days. The permitted hours of construction are regulated by the Department of Buildings (DOB) and apply to all areas of the City. In accordance with those regulations, work would begin at 7:00 AM on weekdays, although some workers would arrive and begin to prepare work areas between 6:00 AM and 7:00 AM. Typically, work would end at 3:30 PM, but it can be expected that, in order to complete certain critical tasks (i.e., finishing a concrete pour for a floor deck), the workday may occasionally be extended beyond normal work hours. Weekend work may also be required for certain construction activities such as the erection of the tower crane and to make up for weather delays. Appropriate work permits from DOB would be obtained for any necessary work outside of normal construction hours (i.e., weekend work) and no work outside of normal construction hours could be performed until such permits are obtained.

During construction of the Proposed Project, all necessary measures would be implemented to ensure adherence to the New York City Air Pollution Control Code regulating construction-related dust emissions and the New York City Noise Control Code regulating construction noise. In addition, Maintenance and Protection of Traffic (MPT) plans would be developed for any curb-lane and/or sidewalk closures. Approval of these plans and implementation of all temporary closures during construction would be coordinated with the New York City Department of Transportation (DOT)'s Office of Construction Mitigation and Coordination (OCMC). Furthermore, efforts would be made to schedule construction deliveries outside of the school commuting traffic peak hours (generally 7:30 AM to 8:30 AM and 3:00 PM to 4:00 PM) to the extent practicable while school is in session. Through implementation of the measures described above, adverse

effects associated with the proposed construction activities would be minimized. Accordingly, the Proposed Project would not result in significant adverse impacts during construction, and no further analysis is required.

Overall, duration and severity of potential construction impacts would be short-term and would be minimized by implementing measures during construction to control intrusive construction-related noise, particulate emissions, as well as to minimize disruption to existing traffic circulation. Therefore, the development of the Proposed Project would not have significant adverse construction impacts.

Attachment A: Land Use, Zoning, and Public Policy

A. INTRODUCTION

As described in "Project Description" beginning on EAS page 1A, the Proposed Project would result in the expansion of the Horace Mann School (HMS), located in the Fieldston neighborhood of the Bronx. This analysis characterizes the existing conditions in the surrounding area, anticipates changes in land use and zoning that are expected independent of the Proposed Project, and addresses any potential impacts to land use, zoning, and public policy associated with the Proposed Project.

B. METHODOLOGY

To determine existing conditions and assess the potential for project-related impacts, the land use study area for the development site was defined as the area within 400 feet of the project area, which is where the proposed actions could reasonably be expected to create potential direct and indirect impacts. The project area, development site, and study area boundary are shown on **Figure A-1**. Various sources have been utilized to prepare an analysis of the land use, zoning, and public policy characteristics of the study area, including field surveys, evaluation of land use and zoning maps, and the Zoning Resolution of the City of New York. To determine future conditions without the proposed actions, those changes in land use and zoning that are likely to occur by the build year of 2019 were also evaluated.

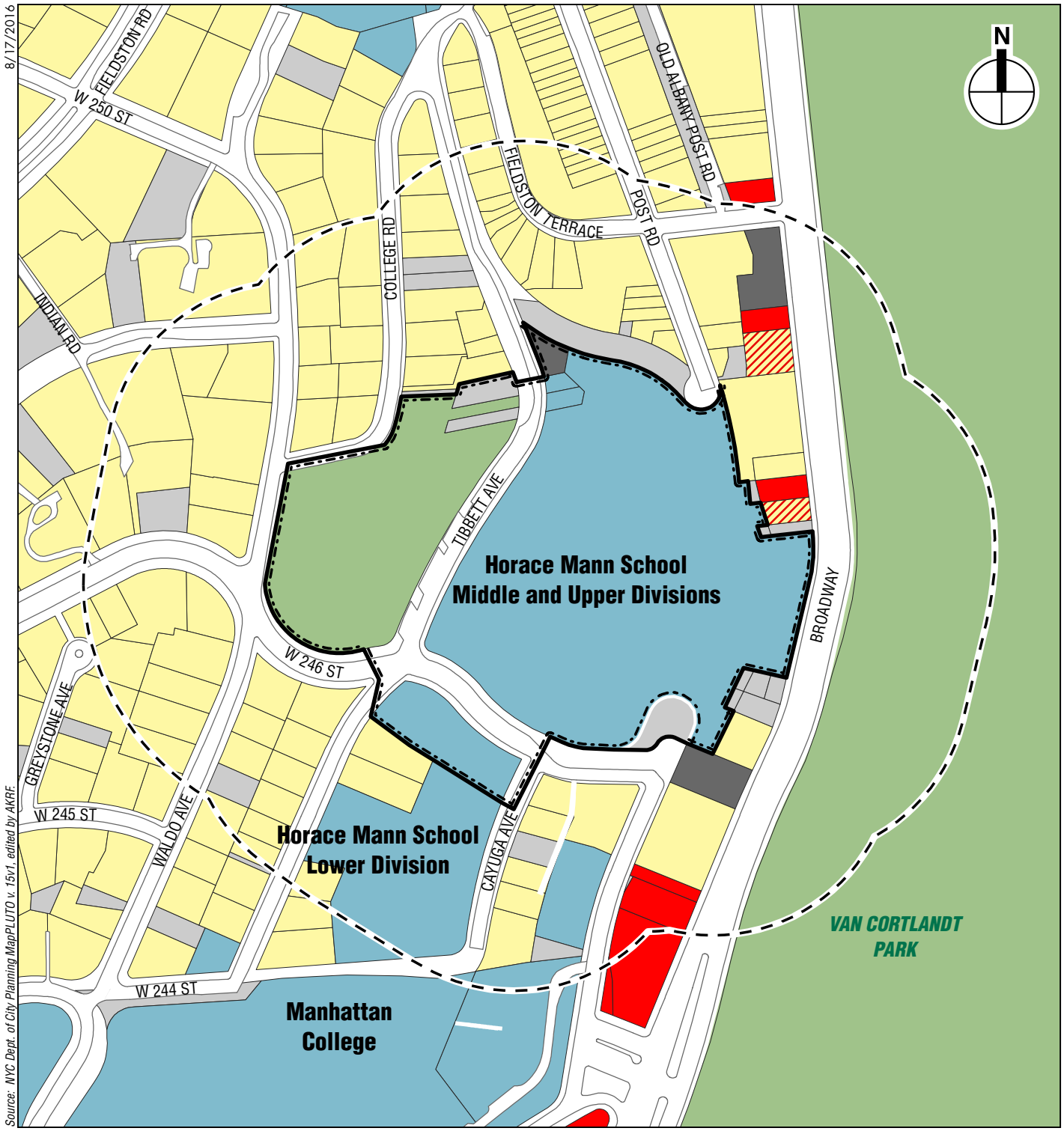
C. EXISTING CONDITIONS

LAND USE

PROJECT AREA AND DEVELOPMENT SITE

The project area comprises the HMS Large Scale Community Facility Development (LSCFD), which generally extends east to Broadway, south past West 246th Street, west to Waldo Avenue, and north to West 251st Street (Bronx Block 5814, Lots 1401, 1462, 1463, 1465; Block 5806, Lots 681; and Block 5816, Lot 1701). The Horace Mann school also occupies a portion of Block 5814, Lot 1102. The current LSCFD encompasses approximately 19 acres (excluding public streets), and contains approximately 306,859 gross square feet (gsf) of floor area. The Proposed Project would require a minor modification to the Authorization in order to update the LSCFD Site Plan and to adjust its boundary to include Block 5814, Lot 1102 within the LSCFD.

The Middle and Upper Divisions of HMS occupy the portion of the LSCFD north of West 246th Street and east of Tibbett Avenue (Block 5814, Lot 1401). Tillinghast Hall, which contains classrooms, administrative offices, a library, and a theater, is on the southern edge of this portion of the LSCFD. Pforzheimer Hall and Rose Hall, which contain science laboratories and classroom space for the Middle and Upper Divisions, are located on the eastern edge of this portion of the LSCFD. Fisher Hall, which contains classroom space, the school's cafeteria, and a theater, is located in the northeastern corner of this portion of the LSCFD. The Prettyman Gymnasium is located in the northern part of this portion of the LSCFD. These buildings



HORACE MANN EXPANSION

Land Use
Figure A-1

surround the central portion of the campus, which contains a baseball field, softball field, and football/soccer field. The school's tennis courts are located behind and to the northwest of Prettyman Gymnasium. There are 182 total parking spaces on the LSCFD (including spaces on Lot 1102 and 18 on-street spaces on Tibbett Avenue).

Additional buildings located in the project area include two houses south of West 246th Street (Block 5806, Lot 681)[1], located in an R1-2 zoning district. These homes are typical of the scale of the Fieldston neighborhood; one house contains the Headmaster's Residence, and the other contains Horace Mann's business office. There are also two small buildings located northwest of the main site (Block 5814, Lots 1462 and 1463); one building formerly contained faculty housing and is currently vacant, and the other contains administrative offices that are expected to be relocated elsewhere on the Horace Mann campus in the future without the Proposed Project. The northwest portion of the LSCFD also contains a surface parking lot.

An additional Horace Mann School athletic field, which is used by the Lower, Middle, and Upper divisions, occupies the block west of the Upper and Middle Division campus (Block 5816, Lot 1701), between Waldo Avenue and Tibbett Avenue.

As shown on **Figure A-1**, the development site includes two buildings that would be renovated (Prettyman Gymnasium and Pforzheimer Hall) and areas proposed for new construction, including on three sides of Prettyman Gymnasium and northeast of Fisher Hall. The portion of the development site proposed for new construction includes areas now used as tennis courts, paved parking, and exterior circulation space. The development site is located entirely within Block 5814, Lot 1401.

STUDY AREA

As shown in **Figure A-1,** the study area extends north past West 251st Street and Livingston Avenue; south to West 244th Street and Manhattan College; east of Broadway into Van Cortlandt Park; and west of Waldo Avenue. The study area contains a mix of residential, institutional, commercial, transportation/utility, open space, and parking uses, and vacant land.

Residential uses in most of the study area include single-family houses, although there are apartment buildings of up to seven stories in the northern portion of the study area. Institutional uses include HMS and Manhattan College, which is located just outside of the southern study area boundary. There are a few commercial uses in the eastern portion of the study area along Broadway. These include a deli and grocery, a sports bar and restaurant, realty office, bakery, restaurant, market, and a vacant office. The study area includes a section of Van Cortlandt Park, New York City's fourth largest park with 1,146-acres of open fields, forested areas, and athletic and recreational facilities. Portions of the park's parade ground and cross country course are located in the study area.

[1] Block 5806, Lot 681 also contains the Horace Mann School Lower School, as well as several other buildings owned by the School. Only a small portion of that parcel, with an approximate depth of 110 feet from West 246th Street, is located within the LSCFD; that portion contains the two houses described above.

ZONING

PROJECT AREA AND DEVELOPMENT SITE

As shown in the **Figure A-2**, the project area is composed of four zoning districts (plus a special purpose district), with most of the site located in an R4 district including the area where most of the proposed expansion would occur. The western portion of the project area is located in a lower density R1-2 zoning district. The eastern portion of the project area is located in a higher density R6 zoning district that runs along Broadway, most of which is also zoned with a C2-2 commercial overlay district. As noted above, the development site is within the LSCFD.

R1-2 zoning districts are low-density neighborhoods of large, single-family detached homes on spacious lots that allow a maximum FAR of 0.5 with an increase of up to 1.0 FAR by special permit. These districts are characterized as suburban areas with generous yard requirements and high open space ratios. Community facility uses are permitted at an FAR of 0.5.

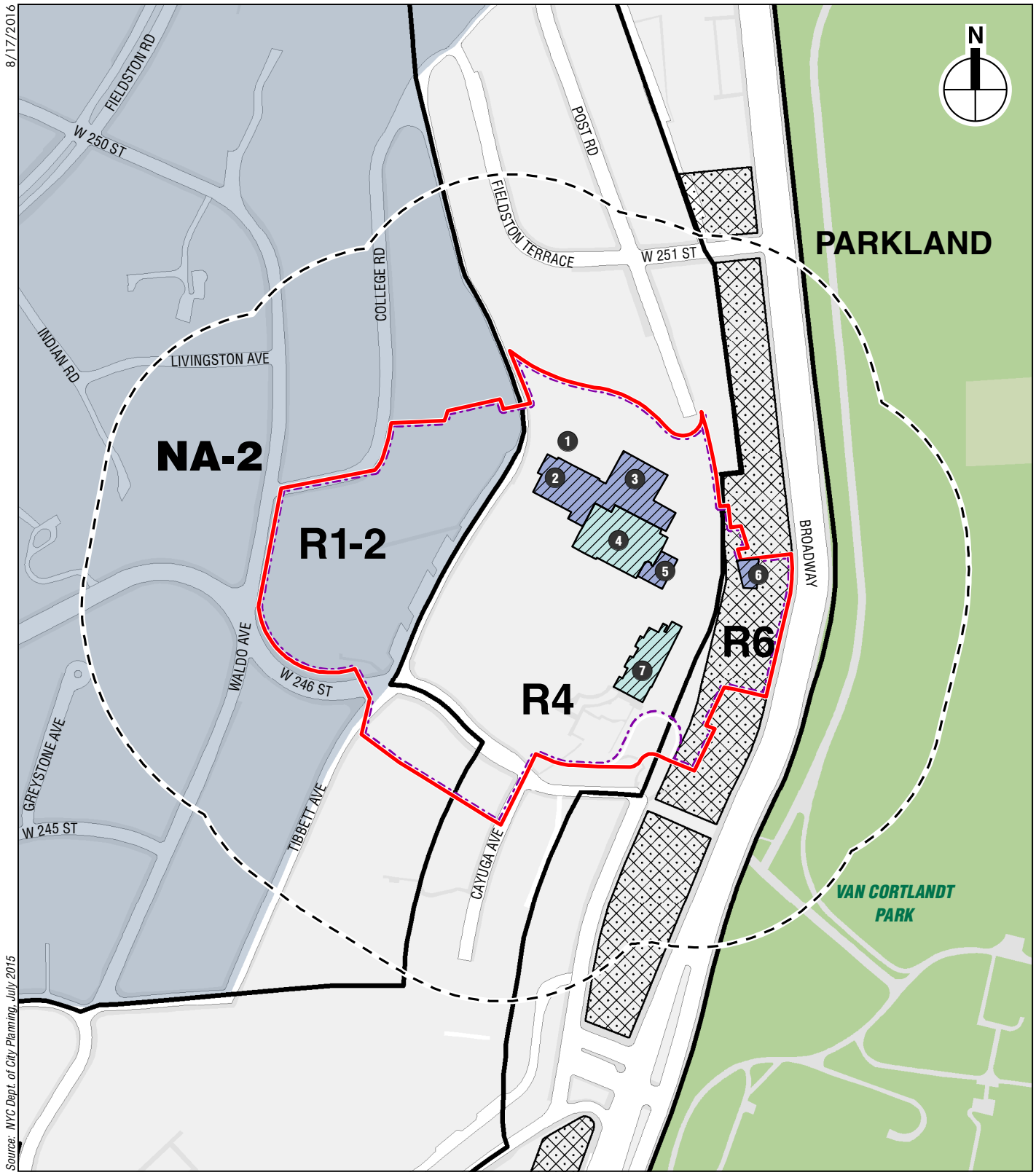
R4 zoning districts are low-density residential districts that allow a maximum FAR of 0.75 for residential uses with an increase of up to 20 percent allowance for an attic. These districts usually result in three-story buildings with pitched roofs to accommodate the attics. The front wall may rise to 25 feet before a set back and the maximum building height for residential is 35 feet. Community facility uses are permitted at an FAR of 2.0. The front wall for buildings with community facility uses may rise to 35 feet before a setback, and the maximum building height is then limited to a plane that increases one foot in height for every one foot from the street line.

R6 zoning districts are found in built-up, medium-density areas in Brooklyn, Queens, and the Bronx, and the character of these districts can vary based on the bulk regulations that are followed. Residential development in R6 districts using height factor regulations result in tall buildings set back from the street and surrounded by open space and on-site parking. Under height factor regulations, R6 districts permit an FAR range from 0.78 to 2.43, depending on the amount of open space provided. There are no height limits for height factor buildings, but they are regulated by a sky exposure plane at a height of 60 feet. Under optional Quality Housing regulations, R6 districts result in higher lot coverage buildings set at or near the street line. The FAR for Quality Housing buildings is 3.0 and the maximum height is 70 feet, with a setback required beyond a base height of 60 feet on a wide street. On a narrow street, the maximum FAR is 2.2, with a maximum base height of 45 feet before setback and a maximum building height of 55 feet. The maximum FAR for community facilities in an R6 zoning district is 4.8.

In an R6 district, a C2-2 overlay permits a maximum FAR of 2.0 for commercial uses. These overlay districts are commonly found in lower- and medium-density areas in the City along streets with local-serving retail. Typical uses include neighborhood grocery stores, restaurants, salons, and repair services.

A Special Natural Area District (NA-2) is mapped west of Tibbett Avenue. The purpose of the NA district is to guide new development and site alterations in areas endowed with unique natural characteristics, including forests, rock outcrops, steep slopes, creeks and a variety of botanic and aquatic environments. The City Planning Commission (CPC) reviews proposals for new development, enlargements, and site alterations within NA districts to maximize protection of natural features. The proposed project is not impacting the Special Natural Area District which will not require any additional review.

An LSCFD is a development or enlargement on a zoning lot containing a minimum lot area of three acres and located entirely in a residential district or in a C1, C2, C3 or C4-1 district. An



HORACE MANN EXPANSION

Zoning
Figure A-2

LSCFD is predominantly designated for community facility uses but can contain any residential and commercial uses permitted within underlying districts.

STUDY AREA

As shown on **Figure A-2**, the study area also contains R1-2, R4, R6, C2-2, and NA-2 zoning designations, as described above. **Table A-1** lists the zoning districts in the study area.

Table A-1
Zoning Districts in the Study Area

Zoning District	Maximum FAR[1]	Uses/Zone Type
R1-2	0.5 residential; 0.5 community facility[2]	Single-family detached residence district
R4	0.75 residential[3]; 2.0 community facility	Low-density residential district
R6	0.78-2.43 residential; 4.8 community facility	Medium-density residential district
C2-2	0.78-2.43 residential; 2.0 commercial; 4.8 community facility[4]	Commercial overlay district
NA-2	0.5 residential; 0.5 community facility[5]	Special Natural Area district

Notes: 1. Floor area ratio (FAR) is a measure of density establishing the amount of development allowed in proportion to the base lot area. For example, a lot of 10,000 square feet with an FAR of 1.0 has an allowable building area of 10,000 square feet. The same lot with an FAR of 10.0 has an allowable building area of 100,000 square feet.
2. For community facility, FAR of 1.0 by special permit.
3. FAR of 0.9 with attic allowance.
4. FAR of underlying R6 district for residential and community facility uses.
5. FAR for R1-2 district remains unchanged in NA-2 areas.

Sources: *New York City Zoning Resolution*

PUBLIC POLICY

Public policies that are applicable to the project area and study area include:

197A PLAN

The project area is located in Bronx Community Board 8, the subject of a 197a plan titled *CD 8 2000: A River to Reservoir Preservation Strategy*, which was approved in 2003 by CPC and the City Council (CC). The plan's goals are to: preserve the scale and character of existing neighborhoods; strengthen protections for sensitive natural features; improve the appearance and economic vitality of local commercial districts; foster economic opportunities and access to cultural and educational facilities; create additional recreational resources, enhance existing parks and promote the greening of major corridors; and preserve and educate the public about historic resources.

NEW YORK CITY HISTORIC DISTRICTS

The New York City Landmarks Law of 1965 established the New York City Landmarks Preservation Commission (LPC) and authorized it to designate individual buildings, historic districts, interior landmarks and scenic landmarks of historical, cultural and architectural significance. The Landmarks Law defines a Historic District as an area that has a "special character or special historic or aesthetic interest," represents "one or more periods of styles of architecture typical of one or more eras in the history of the city," and constitutes "a distinct section of the city." Historic district designation by LPC protects buildings that are found to contribute to the historic character of the area from demolition and ensures the appropriateness of development in the context of what LPC found to be the defining characteristics of the district. Property owners are required to obtain LPC approval, in the form of a Certificate of Appropriateness, before altering a designated building or constructing a building located in an historic district.

While no portion of the project area is within the Fieldston Historic District or designated as a landmark, portions of the study area are located within the Fieldston Historic District, which was established by LPC in 2006. New development, alterations or demolition of structures in the historic district require approval from LPC and the issuance of a Certificate of Appropriateness. Attachment B, "Historic and Cultural Resources," describes the Fieldston Historic District in greater detail.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

LAND USE

PROJECT AREA AND DEVELOPMENT SITE

Absent the proposed action, existing conditions on the project area and development site are not expected to change. HMS will continue to have its Middle and Upper Divisions located on this campus.

STUDY AREA

No additional development projects are expected to be built in the study area by 2019. Existing conditions in the study area are not expected to change.

ZONING

No changes are expected to zoning on the project area or study area in the future without the Proposed Project. The existing zoning districts are expected to remain unchanged.

PUBLIC POLICY

No changes to public policy affecting the project area or study area are anticipated in the future without the Proposed Project. Portions of the study area will continue to be located within the Fieldston Historic District, as described above and in Attachment B, "Historic and Cultural Resources."

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE

PROJECT AREA AND DEVELOPMENT SITE

The Proposed Project would result in the construction of three new buildings and one additional structure totaling 100,993 gross square feet (gsf) on the development site. Three of the new structures would be attached to the side and rear facades of the Prettyman Gymnasium and would house new science laboratories, a new aquatics center, and a new connection between Prettyman Gymnasium to the west and Fisher Hall to the east. These new structures would occupy a portion of the site currently taken up by tennis courts, paved parking and exterior circulation. Other changes to the development site include renovations to the Prettyman Gymnasium, the demolition of two houses located northwest of the main campus on the project area to be replaced by parking and tennis courts, and the construction of a small maintenance building.

The Proposed Project would not introduce new or incompatible uses on the development site. The height and bulk of each of the three buildings would be similar to that of existing buildings on the campus. Additionally, while the proposed expansion would result in an increase in the built area on the project area, the total built area would still remain 65 percent below the total buildable area allowed under zoning regulations. Overall, the Proposed Action would result in

development that would be compatible with existing land uses on the project area and development site, and would not result in significant adverse land use impacts.

STUDY AREA

The Proposed Project would not introduce development that is incompatible, or out of scale, with the surrounding study area. Due to dense vegetation and topography, the proposed expansion would generally not be visible from the surrounding residences west of the project area; any views to the development site from this area would be partially obstructed by trees and vegetation. The new maintenance building would be somewhat visible from Broadway and from Van Cortlandt Park, although it would be partially obscured by trees and other vegetation. As described above, no other projects are expected to be complete by the project's 2019 build year. Overall, the Proposed Project would be compatible with existing land use patterns in the surrounding area and would therefore not result in any significant adverse land use impacts.

ZONING

PROJECT AREA AND DEVELOPMENT SITE

While the Proposed Project requires a minor modification to the LSCFD governing the project area, the Proposed Project would be in conformance with the R4 district bulk and use requirements. As noted above, the use of the project area and development site would not change and the proposed development would be in keeping with the height and bulk of existing development on the project area. The increase in lot coverage that would result from the Proposed Project would not be out of scale with the surrounding study area and would still remain below the total buildable area allowed under current zoning regulations. Therefore, the Proposed Project would not result in any significant adverse zoning impacts on the project area.

STUDY AREA

No changes to zoning in the study area are anticipated as a result of the Proposed Project. Therefore, the Proposed Project would not result in significant adverse impacts to zoning in the study area.

PUBLIC POLICY

197A PLAN

The Proposed Project would support the policies outlined in the 197a plan approved by the CPC and City Council in 2003 by fostering access to educational facilities and preserving the scale and character of the existing neighborhood. Therefore, the Proposed Project is consistent with this policy.

NEW YORK CITY HISTORIC DISTRICTS

As the Proposed Project is not located within the boundaries of the Fieldston Historic District, LPC approval of the project is not required. However, as previously mentioned, the proposed expansion would be consistent with the height and bulk of existing buildings on the project area and the visibility of new construction would be limited from any of the houses located in the historic district, due to trees and vegetation. Therefore, the Proposed Project would not result in any significant adverse impacts to this public policy. ✷

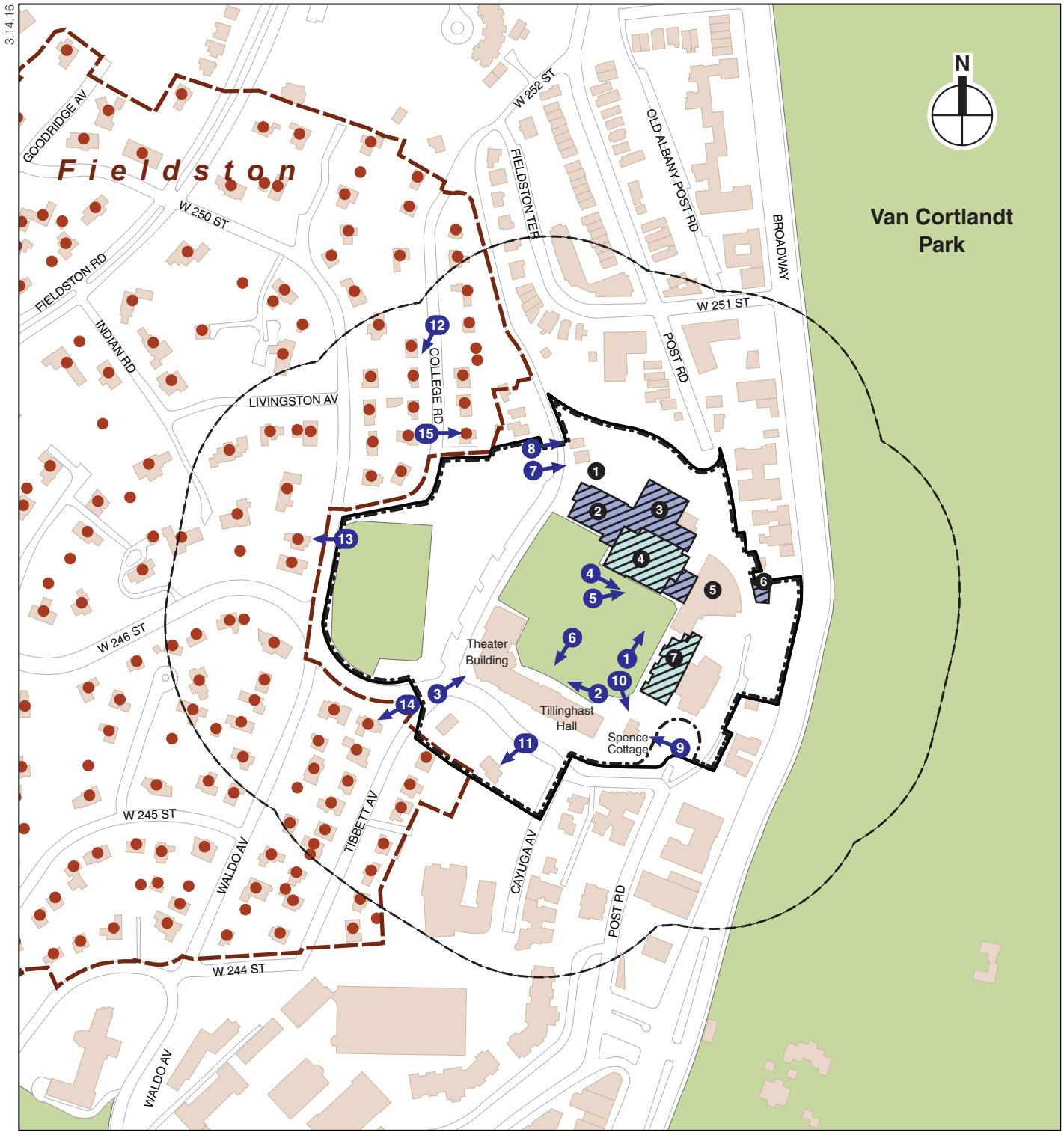
A. INTRODUCTION

This attachment assesses the potential of the Proposed Project to affect historic and cultural resources. As described under "Project Description" on page 1a of the EAS, the development site includes portions of the Horace Mann School (HMS) located at 231 West 246th Street (Block 5814, Lot 1401) in the Riverdale section of the Bronx. The development site includes two buildings that would be renovated (Prettyman Gymnasium and Pforzheimer Hall) and areas proposed for new construction, including on three sides of Prettyman Gymnasium and northeast of Fisher Hall. The portion of the development site proposed for new construction includes areas now used as tennis courts, paved parking, and exterior circulation space. The project area contains several additional buildings, including Spence Cottage, Fisher Hall, Tillinghast Hall, and the Theater Building, as well as an athletic field, and two 2-story houses (see **Figure B-1**). The Proposed Project would add three new buildings and one additional structure, totaling 100,993 gross square feet (gsf) to the development site. Three of the structures would be attached to the side and rear facades of the Prettyman Gymnasium to house new science laboratories, a new aquatics center, and a new entry into Prettyman Gymnasium from the east side. The fourth structure, a small maintenance building, would be constructed in the northeastern portion of the campus near Fisher Hall. Other changes to the development site include renovations to the Prettyman Gymnasium, and the demolition of two buildings located northwest of the main campus in the project area. These two buildings would be replaced by tennis courts and surface parking. While the development site is not adjacent to any historic resources, the LSCFD is adjacent to the Fieldston Historic District (described below).

Historic and cultural resources include both archaeological and architectural resources. The study area for archaeological resources is the area that would be disturbed for project construction, which is the development site itself. LPC has been contacted to determine potential archaeological and architectural sensitivity in the project area.

In general, potential impacts to architectural resources can include both direct physical effects and indirect (contextual) effects. Direct effects may include demolition, alteration, or damage from nearby construction, such as damage 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. Adjacent construction is defined as any construction activity that would occur within 90 feet of an architectural resource, as defined in the New York City Department of Buildings (DOB) *Technical Policy and Procedure Notice* (TPPN) #10/88.[1] Indirect impacts on architectural resources are contextual or visual

[1] 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 that are listed on the NR or NYCLs resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.



HORACE MANN EXPANSION

Historic and Cultural Resources Photograph Key

Figure B-1

impacts that could result from project construction or operation. As described in the *City Environmental Quality Review (CEQR) Technical Manual*, indirect impacts could result from blocking significant public views of a resource; isolating a resource from its setting or relationship to the streetscape; altering the setting of a resource; introducing incompatible visual, audible, or atmospheric elements to a resource's setting; 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). The study area for architectural resources is, therefore, larger than the archaeological study area. Following the guidelines of the *CEQR Technical Manual*, the architectural resources study area for this project is defined as being within an approximately 400-foot radius of the project area. The study area generally extends east to Broadway, south past West 246th Street, West to Waldo Avenue, and north to West 251st Street (see **Figure B-1**). Architectural resources that were analyzed include properties or districts listed on the State/National Registers of Historic Places (S/NR) or determined eligible for such listing; National Historic Landmarks (NHLs); New York City Landmarks (NYCLs) and Historic Districts (NYCHDs); and properties that have been found by the New York City Landmarks Preservation Commission (LPC) to appear eligible for designation, considered for designation ("heard") by LPC at a public hearing, or calendared for consideration at such a hearing ("pending" NYCLs).

B. EXISTING CONDITIONS

ARCHITECTURAL RESOURCES

PROJECT AREA AND DEVELOPMENT SITE

The project area and development site do not contain any known architectural resources. Pforzheimer Hall, completed in 1956, is not architecturally significant and would not meet criteria for S/NR or NYCL designation (see image 1 of **Figure B-2**). Fisher Hall, completed in 1999, and the Theater Building, completed in 2002, would not meet the age criteria for S/NR or NYCL designation (see image 2 of **Figure B-2** and image 3 of **Figure B-3**). The Prettyman Gymnasium, designed by the Fred F. French Company[2] and opened in 1924, was designed as an L-shaped building (see image 4 of **Figure B-3** and image 5 of **Figure B-4**). This building was subsequently altered through the addition of a pool facility at the rear of the building in 1992. Additional alterations include the replacement of all the windows and the roof. Therefore, the building lacks integrity and does not meet criteria for S/NR or NYCL designation. Tillinghast Hall, constructed in 1913 and designed by Edgar A. Josselyn[3] in the English Gothic style, is one of the oldest buildings on the campus (see image 6 of **Figure B-4**). However, the building has been substantially altered, including replacement of all the windows, the addition of rooftop mechanical equipment, and the addition of the Theater Building on the west elevation in 2004. Therefore, the building lacks integrity and also does not meet criteria for S/NR or NYCL designation.

[2] The Fred F. French Company was founded by Fred F. French, a Horace Mann alumnus, in 1910. French became one of New York City's most prominent developers by the mid-1920s, and his company was responsible for the development of NYCHD-listed Tudor City and the NYCL-listed Fred F. French Building at 551 Fifth Avenue.

[3] Edgar A. Josselyn designed several buildings in New York City in the late-19th and early 20th centuries, including Teachers College located between 120th and 121st Streets on Broadway and Speyer College at 14 West 126th Street.

View northeast of Pforzheimer Hall in the foreground and Fisher Hall in the background **1**

View west of Tillinghast Hall on the left and the Theater Building in the background **2**

Project Area
Photographs
Figure B-2

View of the Theater Building from the corner of Tibbett Avenue and West 246th Street **3**

View southeast of Prettyman Gymnasium and Fisher Hall in the background **4**

View of the south façade of Prettyman Gymnasium **5**

View of the north façade of Tillinghast Hall **6**

Project Area
Photographs
Figure B-4

There are two houses located in the northern corner of the project area. The two-story four-square house with a dormer window located at 4662 Tibbett Avenue was constructed in 1944 (see image 7 of **Figure B-5**). The two-story brick house with a gambrel roof located at 4664 Tibbett Avenue was constructed in 1931 (see image 8 of **Figure B-5**). Both buildings are not particularly architecturally distinguished and have been substantially altered, including enclosure of the porches and replacement of the original windows; hence, they also lack integrity and are not architecturally significant.

Spence Cottage, constructed in 1913 and also designed by Josselyn, is located in the southern portion of the project area. Similar to Tillinghast Hall, the rough-stone clad cottage was constructed in the English Gothic style and only its windows have been replaced in a recent renovation (see images 9 and 10 of **Figure B-6**). The overall structure, including the original slate roof and entrance porch, are completely intact; therefore, the structure has a high degree of architectural integrity and does meet the criteria for S/NR or NYCL designation.

The project area also contains a residential property located at 258 West 246th Street. This Tudor Revival house was constructed during the same time period as many of the houses located in the Fieldston Historic District and retains a high degree of architectural integrity. The property is currently used as the Horace Mann School headmaster's house (see image 11 of **Figure B-9**).

STUDY AREA

There is one historic resource in the study area. The historic resource includes portions of the Fieldston Historic District (NYCHD) located adjacent to the project area. The historic district contains an early 20th century suburban development created on land purchased by descendants of Major Joseph Delafield in 1829. The development of the property did not begin until 1909 when subway service had reached 242nd Street and Broadway. Plans for the property's development were prepared by civil engineer Albert E. Wheeler and were based on recommendations made by Frederick Law Olmsted and James R. Croes in 1876. The plans preserved much of the area's wooded character and incorporated roadways following the area's natural topography. Construction of the first houses began in 1911. Most houses were designed in picturesque historic revival styles—including the Medieval, English Tudor, Mediterranean, Dutch, and Georgian Colonial styles—that were encouraged by a handbook containing a list of approved architects (see image 12 of **Figure B-8**). Houses were sited on their lots to take advantage of the area's varied and picturesque topography. No businesses, two-family homes, or apartment buildings were allowed in the neighborhood. The Fieldston Property Owners Association established design guidelines for the Fieldston neighborhood. These guidelines were relaxed in the 1950s which has allowed for the construction of more eclectic house styles (see image 13 of **Figure B-8**).[4]

Winding roadways, changes in topography, and dense vegetation limit the visibility between the area where construction is proposed on the project area and the houses in the historic district. Houses located in the study area include a range of house styles from different periods ranging from large houses such as the two-story 1927-1928 eclectic Colonial Revival style house at 280 West 246th Street immediately southwest of the project area to the smaller two-story Medieval Revival style house at 334-336 College Road built in 1931 located northwest of the project area (see images 14 and 15 of **Figure B-9**).

[4] Information in this section is from the *Fieldston Historic District Designation Report*. Volume 1. New York City Landmarks Preservation Commission. 2006.

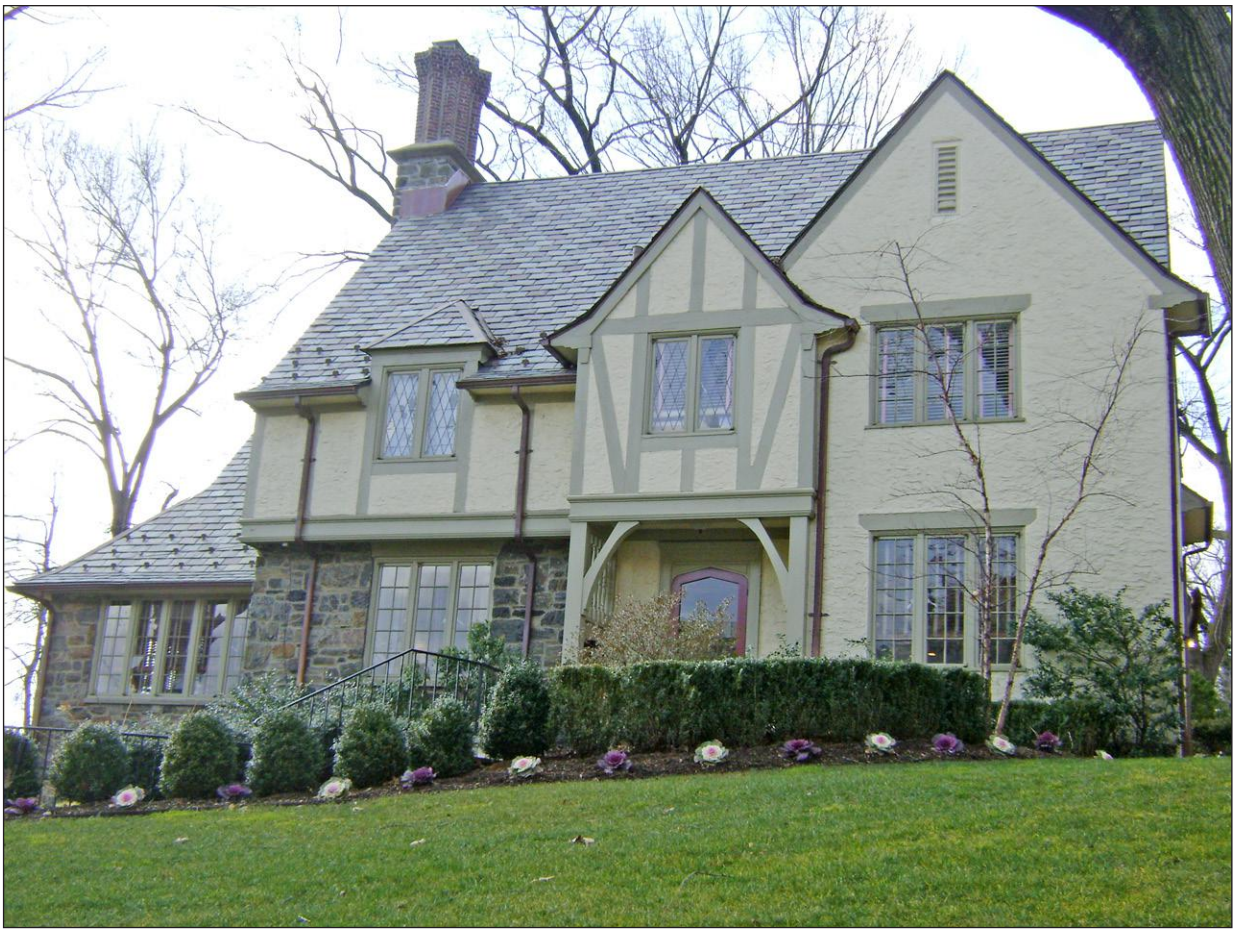
View northeast of one of the two houses on campus located at 4662 Tibbett Avenue **7**

View northeast of one of the two houses on campus located at 4664 Tibbett Avenue **8**

View of the front (east) elevation of Spence Cottage **9**

View of the rear (west) elevation of Spence Cottage **10**

Project Area
Photographs
Figure B-6



View southwest of the house at 258 West 246th Street **11**

View southwest along College Road in the Fieldston Historic District **12**

View west of a contemporary house located in the Fieldston Historic District at 4617 Waldo Avenue **13**

Architectural Resources in the Study Area - Fieldston Historic District

Figure B-8

View southwest of the house at 280 West 246th Street **14**

View east of the house at 334-336 College Road **15**

Architectural Resources in the Study Area -
Fieldston Historic District

Figure B-9

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the Proposed Project, it is assumed that the project area and development site will not be altered.

There are no known development projects in the 400-foot study area with a completion date before the project's 2019 build year.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

ARCHITECTURAL RESOURCES

PROJECT AREA AND DEVELOPMENT SITE

With the Proposed Project, three new buildings would be built attached to the side and rear facades of the Prettyman Gymnasium to house new science laboratories, a new student activities center, a new natatorium, and a new connection into Prettyman Gymnasium. These new structures would occupy a portion of the development site currently taken up by tennis courts, paved parking and exterior circulation. A maintenance building would also be constructed to replace a maintenance shed located behind Prettyman Gymnasium that would be demolished with the Proposed Project. In conjunction with these improvements, there would be renovations to the Prettyman Gymnasium, Pforzheimer Hall (which currently contains Horace Mann School's science facilities), and the demolition of the two houses located northwest of the main campus to be replaced by parking and tennis courts (see EAS **Figure 6**).

As there are no known architectural resources on the project area or development site, the Proposed Project would not have any significant adverse impact on such resources.

STUDY AREA

The Fieldston Historic District is adjacent to the southwestern edge of the project area, while the proposed development would take place on the northern portion of the project area. Since no historic structures are located within the potential range for damage resulting from construction-related activities (90 feet), the project would not be expected to have any construction-related impacts on structures in the Fieldston Historic District. The Proposed Project also would not introduce any incompatible visual, audible, or atmospheric elements to the settings of historic resources in the study area. Additionally, as noted above, dense vegetation, topography, and winding roadways limit visibility of the Proposed Project from the Fieldston Historic District; new construction would generally not be visible from any of the houses located in the historic district, or would be partially obstructed by trees and vegetation. Therefore, the Proposed Project would not have any adverse impacts on historic resources in the study area. ✷

A. INTRODUCTION

This attachment presents the findings of the hazardous materials assessment and identifies potential areas of concern that could pose a hazard to workers, the community, and/or the environment during or after development of the proposed Horace Mann School expansion. As described in "Project Description" on EAS page 1A, the Proposed Project would include new construction totaling 100,993 gross square feet (gsf) (on a portion of Block 5814, Lot 1401) and renovations to both the interior and exterior of the Prettyman Gymnasium and the demolition of two houses located northwest of the main campus on the project site (Block 5814, Lots 1462 and 1463). The Proposed Project would entail soil disturbance to a maximum depth of 18 feet for the construction of new subgrade levels, foundations and footings. The potential for hazardous material conditions was evaluated based on previous environmental investigations including a Phase I Environmental Site Assessment (ESA) and a Phase II Environmental Site Investigation (ESI) and Waste Characterization Study (WCS), as discussed below. The Phase I ESA assessed the potential for hazardous materials to be present, based on a reconnaissance of the project site and surrounding area, a review of data on geology and hydrology of the area, an examination of historical Sanborn Fire Insurance maps, a review of pertinent federal and state databases, and review of pertinent prior reports. The Phase II ESI and WCS included a geophysical investigation and advancement of 25 borings with the collection and laboratory analysis of soil, groundwater, and soil vapor samples.

The findings of the hazardous materials assessment were that no significant adverse impacts related to hazardous materials would be expected to occur either during or following the construction of the Proposed Project, provided certain protocols are followed.

B. EXISTING CONDITIONS

TOPOGRAPHY AND SUBSURFACE CONDITIONS

The surface topography slopes slightly down to the east towards Van Cortland Park and Lake. Based on U.S. Geological Survey mapping (Yonkers Quadrangle), the project site is approximately 107 feet above mean sea level. A geotechnical investigation conducted by Langan in March and April 2010 indicated that the area where excavation, construction, and renovation would take place is underlain by approximately 2 to 24 feet of fill materials (generally consisting of silty sand with gravel, concrete, brick, and rock). The fill was underlain by sand with some silt, clay, and gravel. The depth to bedrock (competent gneiss) was highly variable and was encountered at 3 to 22 feet beneath the existing parking lot.

The geotechnical report noted that scattered perched groundwater was encountered at 4 to 8 feet below certain portions of the existing parking lot; however, the depth to perched groundwater was noted to be highly variable and subject to weather fluctuations. Groundwater was also encountered within the bedrock at approximately 3 to 8 feet below surface grade. Groundwater

is expected to flow along the bedrock surface and/or through fissures in the bedrock. As such, the actual groundwater flow direction beneath the project site could be affected by many factors including bedrock geology, underground utilities, subsurface openings or obstructions such as basements, etc. However, groundwater in this area of New York City is not used as a source of potable water (the municipal water supply uses upstate reservoirs).

PRIOR ENVIRONMENTAL INVESTIGATIONS

Triannual Asbestos Reinspection – Horace Mann School Upper Campus, Environmental Health Investigations, Inc., September 1, 1999

An asbestos inspection and sampling survey was conducted by Environmental Health Investigations, Inc. at the upper school campus of the Horace Man School. Analyzed building material samples identified asbestos in the roofing materials of the library.

Preliminary Subsurface Engineering Report – The Horace Mann School, Bronx, New York, Langan, April 30, 2010

A geotechnical investigation conducted by Langan in March 22 and April 1, 2010 indicated that the project site is underlain by approximately 2 to 24 feet of fill materials (generally consisting of silty sand with gravel, concrete, brick, and rock). The fill was underlain by sand with some silt, clay, and gravel. The depth to competent gneiss bedrock was highly variable, encountered at depths ranging from approximately 3 to 22 feet beneath the existing parking lot. The geotechnical report noted that scattered perched groundwater was encountered below portions of the existing parking lot approximately 4 to 8 feet below grade, but was highly variable and subject to weather fluctuations. Static groundwater was encountered within the bedrock at approximately 3 to8 feet below surface grade. Groundwater is expected to flow along the bedrock surface and/or through fissures in the bedrock.

Petroleum-contaminated soil was detected in two geotechnical borings and a spill was reported to the New York State Department of Conservation (NYSDEC) (Spill No. 09-13618). Langan's investigation was expanded to include the advancement of 8 additional borings with the collection of 9 soil samples for laboratory analysis to delineate the petroleum contamination. In general, field screening of soil during the investigation detected staining, petroleum-like odors and elevated organic vapor readings at depths from approximately 10 to 18 feet below grade. Laboratory analytical results identified concentrations of petroleum-related compounds above the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046 Recommended Soil Cleanup Objectives.

Spill Investigation Report – The Horace Mann School, Bronx, New York, Langan, August 31, 2010

Langan prepared a Spill Investigation Report for submittal to the NYSDEC in response to Spill No. 09-13618. The report comprised a summary of analytical and observational data from the 8 environmental borings, 12 geotechnical borings, and 7 test pits performed between March 22 and April 1, 2010. In addition, a geophysical investigation was conducted to search for potential underground storage tanks (USTs) in the area of petroleum contamination.

The geophysical investigation did not identify any subsurface anomalies consistent with the presence of USTs. The petroleum contamination was limited to an approximately 10,000-square foot area and ranged in depth from approximately 10 to 18 feet below grade. No free petroleum product was observed in any of the soil borings or test pits. Although shallow perched

groundwater was encountered in certain areas of the site by Langan's 2010 geotechnical investigation, the area of petroleum-impacted soil was noted to be within the unsaturated zone (i.e., above the water table).

Remedial Action Plan – The Horace Mann School, Bronx, New York, Langan, January 6, 2011

A Remedial Action Plan (RAP)/Construction Health and Safety Plan (CHASP) was prepared by Langan to address the remediation of the petroleum-contaminated soil and was approved by NYSDEC. The RAP/CHASP provides a scope of work for the removal of petroleum-contaminated soil and any potential USTs encountered during the remedial activities. The RAP/CHASP included protocols for air monitoring and regulatory reporting and was designed to be implemented during construction of the new swimming pool portion of the proposed project.

Tank Closure Report – Horace Mann School, Bronx, New York, The Franklin Company, August 2011

A 5,000-gallon No. 2 fuel oil UST was removed from the Clark Field area of the campus on August 8, 2010. The tank was cleaned and removed in accordance with applicable regulations and the removal affidavit was filed with New York City Fire Department (FDNY) on August 16, 2011. Post-excavation sampling included the collection of six soil samples for laboratory analysis (two from the bottom and four from the sidewalls). Analytical results did not detect petroleum-related compound concentrations in excess of applicable regulatory guidelines and no further action was required.

Phase I Environmental Site Assessment – Horace Mann School, Bronx, New York, Langan, July 2014

The Phase I ESA for the area of proposed excavation, construction and renovation reviewed a variety of sources including: current and historical Sanborn Fire Insurance maps; state and federal environmental regulatory databases; computerized FDNY and Department of Buildings records; and previous reports. It also included reconnaissance of the project site and its surroundings. The Phase I ESA identified the following Recognized Environmental Conditions (RECs). The term "Recognized Environmental Condition" means the presence or likely presence of hazardous substances or petroleum at a property, including the ground, groundwater, or surface water at or under the property.

- Two 250-gallon No. 2 fuel oil aboveground storage tanks (ASTs) were observed between the garage and storage shed north of the Prettyman Gymnasium that could not be thoroughly inspected for releases. The potential for leaks or spills from the ASTs was evaluated by the Phase II ESI and WCS, which, as discussed below, found no signs of petroleum impacts. Previous investigations at the site identified the presence of urban fill material beneath the project site, which may contain varying levels of contaminants.

A petroleum spill was reported to the NYSDEC (Spill No. 09-13618) following the detection of petroleum-contaminated soil during Langan's 2010 geotechnical investigation. An investigation to delineate petroleum impacts was conducted in April 2010 and a Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) were submitted to the NYSDEC in January 2011. The RAP sets out procedures for conducting remediation of the impacted material in conjunction with the Proposed Project. Based on the RAP, the NYSDEC determined that the case did not require further investigation, and the spill listing was given a closed status in March 2011. Note that this closed-status spill incident was not considered a REC (it was considered an historic REC).

The Phase I report also identified the potential for asbestos-containing materials (ACMs), lead-based paint, and PCB-containing materials. Langan recommended that such materials should be identified and properly managed prior to any renovation or demolition.

Phase II Environmental Site Investigation (ESI) and Waste Characterization Study (WCS), Langan, March 2016

In December 2015, three test pits were excavated to a depth of about 5 feet to investigate the two anomalies identified in an August 2010 geophysical survey. Unknown utility structures were identified in two of the test pits but did not appear to be related to chemical or petroleum storage tanks and no petroleum impacts were found.

Twenty-five borings were advanced and soil samples were collected to investigate the quality of historical fill, to investigate potential impacts associated with the ASTs, and to characterize the soil planned to be excavated and disposed of off-site (including soils from the known spill area) during construction of the proposed project. Groundwater samples were collected from two existing geotechnical wells and soil vapor samples were collected from two locations. Although laboratory analysis showed exceedances of the 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives in soil samples, there were no exceedances of the more relevant Restricted Use Residential Soil Cleanup Objectives in these samples and no exceedances of the NYSDEC Class GA Groundwater Standards (drinking water standards), with the exception of certain metals in unfiltered samples. The only metal in the filtered samples that exceeded Class GA Standards was sodium, which is likely naturally occurring. The soil vapor analyses did find measurable levels of solvents and potentially petroleum-related compounds, but none exceeded indoor Air Guideline Values in the October 2006, NYSDOH *Final Soil Vapor Intrusion Guidance*. Additional analyses performed for waste characterization indicated none of the samples exceeded hazardous waste thresholds and that groundwater met the NYC Department of Environmental Protection (DEP) sewer discharge limits

C. THE FUTURE WITHOUT THE PROPOSED PROJECT

This analysis assumes that without the Proposed Project, the site will continue in its current condition. As with current conditions, there would be no significant risks in the future without the Proposed Project.

D. PROBABLE IMPACTS OF THE PROPOSED PROJECT

Based on the findings of the previous investigations, no significant subsurface contamination is believed to be present within areas to be excavated for construction of the Proposed Project, with the exception of the known petroleum spill to be addressed per the 2011 NYSDEC-approved RAP (discussed above under *Prior Environmental Investigations*). In particular, there does not appear to be soil or groundwater contamination associated with the two above ground tanks. The project site's soils do include urban fill materials, which can sometimes contain elevated levels of organic compounds and metals, though no exceedances of State Restricted Use Residential Soil Cleanup Objectives was found in testing conducted to date. Although the proposed action could increase the potential for exposure to these contaminants, as well as to suspect asbestos-containing materials, lead paint and/or PCB-containing equipment during demolition/renovation, the potential for adverse impacts associated with these activities would be avoided by adhering to the following:

- The 2011 NYSDEC-approved RAP would be implemented to properly excavate, transport and dispose off-site the petroleum-contaminated soil. Following excavation and end-point sampling, a report documenting these activities would be submitted to NYSDEC.
- An additional RAP and CHASP, addressing the entire project site and all potential types of subsurface contamination, was prepared and submitted to the DEP for review and approval. In a letter dated July 20, 2016, DEP determined that the RAP and CHASP were acceptable (see Appendix C). The DEP-approved RAP sets out the requirements for: disposal and transportation of contaminated soils; soil stockpiling; dust control; the removal/closure of any unexpectedly encountered underground storage tanks (USTs) that are no longer needed; capping of any newly created landscaped areas with imported clean soil, and the installation of a vapor barrier beneath and around the new foundations. The DEP-approved CHASP addresses possible exposure of workers and/or community to contaminants associated with construction of the proposed project. It sets out requirements for: Health and Safety personnel; personal protective equipment, air monitoring, and emergency response procedures. At the completion of the project, a Professional Engineer-certified Remedial Closure Report would be submitted to DEP for review and approval for the proposed project.
- Based on the results of the subsurface testing conducted, urban fill materials (but not petroleum or other contamination outside of the area addressed by the 2011 RAP) would be expected to be encountered during excavation for the proposed project. All excavated soil and fill materials requiring off-site disposal would be handled and disposed of in accordance with applicable regulatory requirements. Should any USTs or contamination be encountered, these materials would be managed (including stockpiling, off-site transportation and disposal), in accordance with applicable regulatory requirements including NYSDEC's requirements relating to petroleum spill reporting and tank registration.
- Based on the depth to groundwater, extensive dewatering is not likely to be required for the Proposed Project. However, if dewatering is required, groundwater testing performed to date suggests that the groundwater would meet DEP sewer discharge requirements. If required as a part of the DEP permit/approval process, additional testing would be conducted prior to discharge to the sewer.
- Unless there is labeling or test data which indicates that on-site fluorescent lights do not contain mercury, and that fluorescent lighting fixtures are not PCB-containing, if disposal is required, it would be performed in accordance with applicable federal, state and local regulations and guidelines.
- Any renovation or demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62 - *Lead Exposure in Construction*).
- Prior to the proposed alterations, a comprehensive asbestos survey of the affected areas would be conducted. This survey would include sampling of all suspect asbestos-containing materials (ACM). Any identified ACM that would be disturbed by the renovation would be removed and disposed of in accordance with all applicable regulations. Any remaining ACM would be maintained in good condition in accordance with the applicable regulations.

With the measures outlined above, no significant adverse impacts related to hazardous materials would be expected to occur as a result of the Proposed Project. Following construction, there would be no potential for the Proposed Project to have significant adverse impacts. ✷

A. INTRODUCTION

The potential for air quality impacts from the proposed Horace Mann School expansion project is examined in this attachment. The Proposed Project is not expected to significantly alter traffic conditions. The maximum hourly incremental traffic from the Proposed Project would not exceed the *CEQR Technical Manual* carbon monoxide screening threshold of 170 peak hour trips at nearby intersections in the study area, nor would it exceed the fine particulate matter ($PM_{2.5}$) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project generated traffic is not warranted.

In terms of stationary source emissions from heating, ventilation and air conditioning (HVAC) systems, the proposed expansion project would include natural gas-burning boiler plant. Therefore, a stationary source analysis was conducted to evaluate potential future pollutant concentrations with the proposed boiler plant.

This attachment also describes the expected use of potentially hazardous materials in the proposed laboratories and systems that would be employed in the proposed Science Building to ensure the safety of staff, students and the surrounding community in the event of a chemical spill in one of the proposed laboratories.

B. POLLUTANTS FOR ANALYSIS

Ambient air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities are referred to as stationary source emissions. Ambient concentrations of carbon monoxide (CO) are predominantly influenced by mobile source emissions. Particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (nitric oxide, NO, and nitrogen dioxide, NO_2, collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and sources utilizing non-road diesel such as diesel trains, marine engines, and non-road vehicles (e.g., construction engines). On-road diesel vehicles currently contribute very little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs. Ambient concentrations of CO, PM, NO_2, SO_2, ozone, and lead are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act (CAA), and are referred to as 'criteria pollutants'; emissions of VOCs, NO_x, and other precursors to criteria pollutants are also regulated by EPA.

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. Since CO is a reactive gas which does not persist in the atmosphere, CO concentrations can vary greatly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be predicted on a local, or microscale, basis.

The Proposed Project is not expected to significantly alter traffic conditions. Since the proposed expansion project would result in fewer new peak hour vehicle trips than the *CEQR Technical Manual* screening threshold of 170 trips at nearby intersections in the study area, a quantified assessment of on-street CO emissions is not warranted.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow, and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions. The Proposed Project would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted. An analysis of Proposed Project-related emissions of these pollutants from mobile sources was therefore not warranted.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern further downwind from large stationary point sources, and not a local concern from mobile sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) However, with the promulgation of the 2010 1-hour average standard for NO_2, local sources such as vehicular emissions may be of greater concern. Potential impacts on local NO_2 concentrations from the fuel combustion (natural gas) for the Proposed Project's boiler systems were evaluated.

LEAD

Airborne lead emissions are currently associated principally with industrial sources. Lead in gasoline has been banned under the CAA. No significant sources of lead are associated with the Proposed Project and, therefore, analysis was not warranted.

RESPIRABLE PARTICULATE MATTER—PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOC; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles

emitted from volcanic and geothermal eruptions and from forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, all types of construction, agricultural activities, as well as wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$) and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}, which includes $PM_{2.5}$). $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source exhaust) or from precursor gases reacting in the atmosphere to form secondary PM.

Diesel-powered vehicles, especially heavy duty trucks and buses, are a significant source of respirable PM, most of which is $PM_{2.5}$; PM concentrations may, consequently, be locally elevated near roadways with high volumes of heavy diesel powered vehicles. The Proposed Project would not result in any significant increases in truck traffic near the project area or in the region, nor other potentially significant increase in $PM_{2.5}$ vehicle emissions as defined in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Potential impacts on local $PM_{2.5}$ concentrations from the fuel combustion (natural gas) for the Proposed Project's boiler system were evaluated.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). SO_2 is also of concern as a precursor to $PM_{2.5}$ and is regulated as a $PM_{2.5}$ precursor under the New Source Review permitting program for large sources. Due to the federal restrictions on the sulfur content in diesel fuel for on-road and non-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore, analysis of SO_2 from mobile and non-road sources was not warranted**.**

The proposed boiler system would use natural gas exclusively and would have negligible SO_2 emissions. Therefore, following the *CEQR Technical Manual* guidance SO_2 emissions were not included in the analysis.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary standards are generally either the same as the secondary standards or more restrictive. The NAAQS are presented in **Table D-1**. The NAAQS for CO, annual NO_2, and 3-hour SO_2 have also been adopted as the ambient air quality standards for New York State, but are defined on a running

12-month basis rather than for calendar years only. New York State also has standards for total suspended particles (TSP), settleable particles, non-methane hydrocarbons (NMHC), 24-hour and annual SO_2, and ozone which correspond to federal standards that have since been revoked or replaced, and for the noncriteria pollutants beryllium, fluoride, and hydrogen sulfide (H_2S).

EPA has revised the NAAQS for PM, effective December 18, 2006. The revision included lowering the level of the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ and retaining the level of the annual standard at 15 $\mu g/m^3$. The PM_{10} 24-hour average standard was retained and the annual average PM_{10} standard was revoked. EPA later lowered the primary annual $PM_{2.5}$ average standard from 15 $\mu g/m^3$ to 12 $\mu g/m^3$, effective March 2013.

EPA has also revised the 8-hour ozone standard, lowering it from 0.08 to 0.075 parts per million (ppm), effective as of May 2008, and the previous 1997 ozone standard was fully revoked effective April 1, 2015. Effective December 2015, EPA further reduced the 2008 ozone NAAQS, lowering the primary and secondary NAAQS from 0.075 ppm to 0.070. EPA expects to issue final area designations by October 1, 2017; those designations likely would be based on 2014-2016 air quality data.

EPA lowered the primary and secondary standards for lead to 0.15 $\mu g/m^3$, effective January 12, 2009. EPA revised the averaging time to a rolling 3-month average and the form of the standard to not-to-exceed across a 3-year span.

EPA established a new 1-hour average NO_2 standard of 0.100 ppm, effective April 12, 2010, in addition to the annual standard. The statistical form is the 3-year average of the 98th percentile of daily maximum 1-hour average concentration in a year.

EPA established a new 1-hour average SO_2 standard of 0.075 ppm, replacing the 24-hour and annual primary standards, effective August 23, 2010. The statistical form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour concentrations (the 4th highest daily maximum corresponds approximately to 99th percentile for a year.)

Table D-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m^3	ppm	µg/m^3
Carbon Monoxide (CO)				
8-Hour Average	9 (1)	10,000	None	
1-Hour Average	35 (1)	40,000		
Lead				
Rolling 3-Month Average (2)	NA	0.15	NA	0.15
Nitrogen Dioxide (NO_2)				
1-Hour Average (3)	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average (4,5)	0.070	140	0.070	140
Respirable Particulate Matter (PM_{10})				
24-Hour Average (1)	NA	150	NA	150
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean (6)	NA	12	NA	15
24-Hour Average (7)	NA	35	NA	35
Sulfur Dioxide (SO_2) (8)				
1-Hour Average(9)	0.075	196	NA	NA
Maximum 3-Hour Average (1)	NA	NA	0.50	1,300

Notes:

ppm – parts per million (unit of measure for gases only).
µg/m^3 – micrograms per cubic meter (unit of measure for gases and particles, including lead).
NA – not applicable.

All annual periods refer to calendar year.

Standards are defined in ppm. Approximately equivalent concentrations in µg/m^3 are presented.

1. Not to be exceeded more than once a year.
2. EPA has lowered the NAAQS down from 1.5 µg/m^3, effective January 12, 2009.
3. 3-year average of the annual 98th percentile daily maximum 1-hr average concentration. Effective April 12, 2010.
4. 3-year average of the annual fourth highest daily maximum 8-hr average concentration.
5. EPA has lowered the NAAQS down from 0.075 ppm, effective December 2015.
6. 3-year average of annual mean. EPA has lowered the primary standard from 15 µg/m^3, effective March 2013.
7. Not to be exceeded by the annual 98th percentile when averaged over 3 years.
8. EPA revoked the 24-hour and annual primary standards, replacing them with a 1-hour average standard. Effective August 23, 2010.
9. 3-year average of the annual 99th percentile daily maximum 1-hr average concentration.

Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards.

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment.

In 2002, EPA re-designated New York City as in attainment for CO. Under the resulting maintenance plans, New York City is committed to implementing site-specific control measures throughout the city to reduce CO levels, should unanticipated localized growth result in elevated CO levels during the maintenance period. The second CO maintenance plan for the region was approved by EPA on May 30th, 2014.

The five New York City counties and Nassau, Suffolk, Rockland, Westchester, Orange Counties, had been designated as a $PM_{2.5}$ NAA (New York Portion of the New York-Northern New Jersey-Long Island, NY-NJ-CT NAA) since 2004 under the CAA due to exceedance of the 1997 annual average standard, and was also nonattainment with the 2006 24-hour $PM_{2.5}$ NAAQS since November 2009. The area was redesignated as in attainment for that standard on April 18, 2014, and is now under a maintenance plan. As stated above, EPA lowered the annual average primary standard to 12 $\mu g/m^3$ effective March 2013. EPA designated the area as in attainment for the new 12 $\mu g/m^3$ NAAQS effective April 15, 2015.

Effective June 15, 2004, EPA designated Nassau, Rockland, Suffolk, Westchester, and the five New York City counties (NY portion of the New York-Northern New Jersey-Long Island, NY-NJ-CT, NAA) as moderate non-attainment areas for the 1997 8-hour average ozone standard. Based on recent monitoring data (2007-2011), EPA determined that the NY-NJ-CT non-attainment area has attained the 1997 8-hour ozone NAAQS (0.08 ppm). Although not yet a redesignation to attainment status, this determination removes further requirements under the 1997 8-hour standard. In March 2008, EPA strengthened the 8-hour ozone standards. EPA designated the New York-Northern New Jersey-Long Island, NY-NJ-CT NAA as a marginal NAA for the 2008 ozone NAAQS, effective July 20, 2012. In June 2012, and again in March 2015, New York State formally requested that the EPA reclassify the area as a moderate NAA. New York State has begun submitting SIP documents in December 2014.

New York City is currently in attainment of the annual-average NO_2 standard. EPA has designated the entire state of New York as "unclassifiable/attainment" for the new 1-hour NO_2 standard effective February 29, 2012. Since additional monitoring is required for the 1-hour standard, areas will be reclassified once three years of monitoring data are available (likely 2017).

EPA has established a 1-hour SO_2 standard, replacing the former 24-hour and annual standards, effective August 23, 2010. Based on the available monitoring data, all New York State counties currently meet the 1-hour standard. Additional monitoring will be required. Draft attainment designations were published by EPA in February 2013, indicating that EPA is deferring action to designate areas in New York State and expects to proceed with designations once additional data are gathered.

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and the *City Environmental Quality Review (CEQR) Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[1] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table D-1**) would be deemed to have a potential significant adverse impact.

[1] New York City. *CEQR Technical Manual*, Chapter 1, section 222, March 2014; and New York State Environmental Quality Review Regulations, 6 NYCRR § 617.7

In addition, in order to maintain concentrations lower than the NAAQS in attainment areas, or to ensure that concentrations will not be significantly increased in non-attainment areas, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

$PM_{2.5}$ DE MINIMIS CRITERIA

New York City uses *de minimis* criteria to determine the potential for significant adverse $PM_{2.5}$ impacts under CEQR as follows:

- Predicted increase of more than half the difference between the background concentration and the 24-hour standard;
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Actions under *CEQR* predicted to increase $PM_{2.5}$ concentrations by more than the above *de minimis* criteria will be considered to have a potential significant adverse impact.

D. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

HVAC SYSTEMS

The Proposed Project would include natural-gas burning low NO_x boilers located in the Aquatic Center building. The proposed system would serve the Science Building and the Aquatic Center building. The boiler system would provide process steam and domestic hot water requirements year round. The emissions from the proposed HVAC system were evaluated for their potential impact on air quality. A screening analysis was performed using the methodology for the initial screening of impacts from HVAC systems as described in the *CEQR Technical Manual*, and further analysis was prepared using the EPA approved AERMOD model to evaluate potential 1-hour average NO_2 and 24-hour and annual average $PM_{2.5}$ impacts. Potential 1-hour average NO_2 concentrations added to representative background concentrations in the area were compared to the NAAQS. Potential 24-hour and annual average incremental concentrations of $PM_{2.5}$ were compared to the $PM_{2.5}$ *de minimis* criteria thresholds defined in the *CEQR Technical Manual*.

CEQR TECHNICAL MANUAL SCREENING ANALYSIS

An initial screening analysis was performed using the methodology described in the *CEQR Technical Manual*. Emissions from the HVAC systems were determined and plotted using Figure 17-8 in the Air Quality Appendix. This methodology determines the threshold of development size below which the Proposed Project would not have a significant impact. The screening procedure utilizes information on the type of fuel to be burned, the maximum development size, the type of development, and the stack exhaust height. Based on the distance to the nearest building of similar or greater height, if the maximum development size is greater

than the threshold size in the *CEQR Technical Manual*, then there is the potential for significant air quality impacts and a refined dispersion modeling analysis would be required. Otherwise, the source passes the screening analysis.

AERMOD ANALYSIS

Potential 1-hour average NO_2 and 24-hour and annual average $PM_{2.5}$ impacts from the Proposed Project's heating and hot water systems' emissions were evaluated using the EPA/AMS AERMOD dispersion model.[2] AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of terrain interactions. The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, 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 AERMOD model incorporates the Plume Rise Model Enhancements (PRIME) algorithm, which is designed to predict impacts in the "cavity region" (i.e., the area around a structure that under certain conditions may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). The Building Profile Input Program (BPIP) for the PRIME model (BPIPRM) was used to determine the projected building dimensions modeling with the building downwash algorithm enabled. The modeling of downwash from sources accounts for all obstructions within a radius equal to five obstruction heights of the stack.

The analysis of potential impacts from exhaust stack was conducted assuming stack tip downwash, urban dispersion and surface roughness length, with and without building downwash, and with elimination of calms. Hourly meteorological data collected at the LaGuardia Airport station from 2010 to 2014 and concurrent upper air from Brookhaven, NY were used in the analysis.

1-hour average NO_2 concentration from the proposed HVAC system was estimated following guidance for assessing compliance with NAAQS.[3] 1-Hour average NO_2 concentration increments from the proposed boiler system were estimated using AERMOD's Plume Volume Molar Ratio Method (PVMRM) module to analyze chemical transformation of NO to NO_2 within the model. The PVMRM module incorporates hourly background ozone concentrations to estimate NO_x transformation within the source plume. The model applied ozone concentrations measured in 2010–2014 at the nearest available NYSDEC ozone monitoring station—Botanical Garden monitoring station in Bronx. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust stack was assumed, which is considered representative for boilers.[4]

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[2] EPA, AERMOD: Description of Model Formulation, 454/R-03-004, September 2004; and EPA, User's Guide for the AMS/EPA Regulatory Model AERMOD, 454/B-03-001, September 2004 and Addendum December 2006.

[3] EPA. Memorandum: Additional Clarification Regarding Application of Appendix W, Modeling Guidance for the 1-Hour NO_2 National Ambient Air Quality Standard. March 1, 2011.

[4] This is a conservatively high assumption. AP-42 Section 1.3 for NO_x emission factors for fuel oil fired boilers states that 95 percent of NO_x by weight is NO. See— *AP-42 Volume 1, Section 1.3.3.3 Nitrogen Oxide Emissions.*

To determine compliance with the 1-hour NO_2 NAAQS,[5] the monitored background was added to modeled concentrations, following EPA modeling guidance: hourly modeled concentrations from proposed source was first added to the seasonal hourly background monitored concentrations within the AERMOD model; then the highest combined daily 1-hour NO_2 concentration was determined at each receptor 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.

MODELING PARAMETERS FOR AERMOD ANALYSIS

Emission Rates and Stack Parameters

The analysis initially assumed that the natural gas-fired heating and hot water system stack exhausts would be located three feet above the highest structure on the Aquatic Center building at a height of approximately 46 feet above grade. The proposed new buildings would share three natural gas-fired boilers each rated at three million British thermal units per hour (MMBtu/hr) with a maximum of two operating units and one stand-by. The short-term emission rates were calculated using the maximum boiler operating capacity of 6 MMBtu/hr and EPA's emission factors for natural gas-fired boilers.[6] Annual emissions were calculated using fuel usage estimates based on all boilers operating at 100 percent load for a 100-day heating season.

The emission rates and exhaust stack parameters used in the modeling analyses are presented in **Table D-2**.

Table D-2
Exhaust Stack Parameters and Emission Rates

Stack Parameters	Aquatic Center Building
Stack Height (feet above grade)	46
Stack Diameter (feet)(1)	2
Exhaust Velocity (meters/second)(2)	2.7
Exhaust Temperature (degrees Fahrenheit)(2)	250
Emission Rate (grams/second)	
NO_2 (1-hour average)	0.037
$PM_{2.5}$ (24-hour average)	0.0056
$PM_{2.5}$ (Annual average)	0.00059

Note:
1. Stack diameter based on design information provided.
2. Stack parameters are based on design information or estimates.

Background Concentrations

To estimate the maximum expected pollutant concentration at a given receptor, the predicted modeled concentration must be added to a background concentration to account for existing pollutant concentrations from other sources that are not directly accounted for in the model (See **Table D-3**). The background levels are based on concentrations monitored at the nearest

[5] EPA. Memorandum: Clarification on the use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard. September 30, 2014.

[6] EPA. *Compilations of Air Pollutant Emission Factors AP-42*. Fifth Edition, Volume I, Chapter 1, Section 3. http://www.epa.gov/ttn/chief/ap42. September, 1998.

NYSDEC ambient air monitoring stations over a recent five-year period for which data are available.

The background concentration for annual average $PM_{2.5}$ is not used since the criterion is based on incremental concentrations only. However, the *de minimis* criteria take into account background concentrations for the 24-hour $PM_{2.5}$ standard.

Table D-3
Maximum Background Pollutant Concentrations
For Heating and Hot Water System Analysis

Pollutant	Average Period	Location	Background Concentration ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hour	Botanical Gardens, Bronx	N/A [2]	188 [1]
$PM_{2.5}$	24-hour	Botanical Gardens, Bronx	25.7	4.7 [3]

Notes:
1. 1-hour average NAAQS.
2. The 1-Hour NO_2 background concentration is not presented in the table since the AERMOD model determines the total 98th percentile 1-Hour NO_2 concentration at each receptor, so a single representative background concentration is not used.
3. $PM_{2.5}$ *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 $\mu g/m^3$.

Receptor Locations

Receptors (locations in the model at which concentrations are projected) are generally placed at windows in residential or other sensitive buildings, air intakes, and publically accessible open space locations, as applicable. The nearest building of similar or greater height was determined to be the Science Building. Therefore, discrete receptors were placed on the Science Building air intake vents. Receptors were also modeled on the existing Fisher Hall Building.

CHEMICAL SPILL ANALYSIS

Emissions from the proposed science building's fume hood exhaust system, in the event of an accidental chemical spill in one of the laboratories, were evaluated. Impacts were evaluated using information, procedures, and methodologies contained in the *CEQR Technical Manual*. Maximum concentrations were compared to the short-term exposure levels (STELs) or ceiling levels recommended by the U.S. Occupational Safety and Health Administration (OSHA) for the chemicals examined. The types and quantities of materials that are to be used in the labs were obtained from Horace Mann laboratory safety personnel.

The following section details the expected usage of potentially hazardous materials, as well as the systems that would be employed at the proposed science building 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. A quantitative analysis employing mathematical modeling was performed to determine potential impacts on nearby places of public access and potential impacts due to recirculation into air intake systems.

LABORATORY FUME HOOD EXHAUSTS

All proposed laboratories that would use hazardous chemicals would be equipped with fume hoods. Fume hoods are enclosures that are maintained under negative pressure and continuously vented to the outside. Their function is to protect laboratory staff from potentially harmful fumes. By providing a continuous 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.

Preliminary design information from the laboratory ventilation system proposed for the laboratory was used as the basis for analyzing potential spills. That design specifies the following parameters for the exhaust system:

- Number of exhausts—one;
- Exhaust flow rate—14,400 cubic feet per minute (cfm);
- Exhaust diameter—approximately 23 inches;
- Exhaust velocity—5,000 feet per minute; and
- Exhaust stack height—14.5 feet above building roof at a height of 56 feet above grade.

PLANNED OPERATIONS

An inventory of chemicals that may be present in a typical laboratory at the project area was examined. Common buffers, salts, enzymes, nucleotides, peptides, and other biochemicals were not considered in the analysis since they are not typically categorized as air pollutants. Chemicals were surveyed for further examination based on their toxicity and vapor pressure. Vapor pressure is a measure of the material's volatility—its tendency to evaporate, or to form vapors, which is a critical parameter in determining potential impacts from chemical spills. Nonvolatile chemicals (a vapor pressure of less than 10 mm mercury [Hg]) were excluded. 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 permissible exposure limit (PEL), National Institute for Occupational Safety and Health (NIOSH), immediately dangerous to life or health (IDLH), and OSHA and/or NIOSH short-term exposure level (STEL) and ceiling values.

Based on relative exposure thresholds and the vapor pressures of the chemicals provided, a subset of the chemicals with the greatest potential hazard was selected for the worst-case spill analysis (see **Table D-4**). Chemicals with high vapor pressures are most likely to have high evaporation rates. Since the chemicals selected for detailed analysis are most likely to have the highest emissions rates and the lowest exposure standards, if the analysis of these chemicals resulted in no significant impacts, it would indicate that the other chemicals would also not present any significant potential impacts.

The chemical spill analysis was performed for each of the chemicals shown in **Table D-4**.

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

Chemical	Vapor Pressure (mm Hg)	PEL PPM	STEL PPM	IDLH PPM	Ceiling PPM
Nitric Acid	48	2	4	25	2
Hydrochloric Acid	160	5	-	50	5
Iodine Solution	14	0.1	-	2	0.1

Notes:
PEL—permissible exposure limit; time weighted average (TWA) for up to a 10-hour workday during a 40-hour workweek.
STEL—short-term exposure limit is a 15-minute TWA exposure that should not be exceeded at any time during a workday.
IDLH—immediately dangerous to life or health.
Ceiling—Level set by OSHA not to be exceeded in any work place based on up to 15 minutes exposure.
PPM = parts per million.
Where a hyphen (-) appears there is no recommended corresponding guideline value.

ESTIMATES OF WORST-CASE EMISSION RATES

The dispersion of chemicals from a spill within one of the proposed laboratories was analyzed to assess the potential for exposure of the general public and of staff within the building to hazardous fumes in the event of an accident. Evaporation rates for volatile chemicals expected to be used in the proposed laboratories 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 chemical, temperature, and rate of air flow over the spill surface. Room temperature conditions (20° C) and an air-flow rate of 0.5 meters/second were assumed for calculating evaporation rates.

The analysis conservatively assumes that a full container of the chemical would be spilled in a fume hood. For a spill area of approximately 1.11 square meters, the emission rates were determined using the evaporation rates. For modeling purposes, the emission rates shown in **Table D-5** are calculated for a 15-minute time period. 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 large volume of air drawn through this system provides a high degree of dilution for hazardous fumes before they are released above the roof of the residential building.

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

Table D-5
Estimated Emissions from a Spill in a Fume Hood

Chemical	Quantity (Liters)	Evaporation Rate (gram/meter^2/sec)	Emission Rate* (gram/sec)
Nitric Acid	0.2	0.26	0.29
Hydrochloric Acid	0.5	0.57	0.64
Iodine Solution	0.12	0.16	0.17
Note: * Average emission rate.			

DISPERSION MODELING

Recirculation in Laboratory Building Intakes

The potential for recirculation of the fume hood emissions back into the 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, introduction of 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 in Surrounding Area

The study performed also considered the impact of an accidental spill on nearby receptors, such as open windows on nearby buildings. Maximum concentrations at elevated receptors downwind of the fume exhausts were estimated using the AERMOD dispersion model. Hourly meteorological data collected at the LaGuardia Airport station from 2010 to 2014 were used in the analysis. The analysis of potential impacts from a chemical spill was conducted assuming stack tip downwash, urban dispersion and surface roughness length, with and without building downwash, and with elimination of calms.

Discrete receptors (i.e., locations at which concentrations are calculated) were placed on nearby buildings. The model receptor network consisted of locations along the facades and roof of the buildings, at operable windows, intake vents, and otherwise accessible locations. Rows of receptors were placed in the model at spaced intervals on the buildings at multiple elevations. All receptors were referenced to Universal Transverse Mercator (UTM) coordinates.

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.

[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.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

HEATING AND HOT WATER SYSTEMS

INITIAL SCREENING

The distance below which impacts might occur on buildings of similar or greater height was determined to be approximately 76 feet. The distance to the nearest building of similar height would be greater than 78 feet. Since annual average NO_2 is the critical pollutant in this particular analysis, impacts would also not be expected for other pollutants, specifically SO_2, PM_{10} and CO.

AERMOD ANALYSIS

Based on the initial results of the AERMOD analysis, it was determined that the proposed boilers could potentially result in significant adverse air quality impact on receptors on the Science Building air intakes[9]. Therefore, two alternate stack designs were modeled: 1) a stack located on the northwest corner of the Aquatic Center at a height of 63 feet above grade; and 2) a stack located on the northeast portion of the Aquatic Center roof at a distance of 125 feet away from the Science Building. The results of the more detailed AERMOD analysis for 1-hour average NO_2 and 24-hour and annual average $PM_{2.5}$ are presented in **Table D-6**. The projected potential impacts from the proposed project's boiler system on all pollutant concentrations are less than their respective thresholds (NAAQS and *de minimis* criteria); therefore, the proposed project's boiler system would not result in any significant adverse air quality impacts.

Table D-6
Maximum Modeled Pollutant Concentrations (µg/m^3)

Modeled Option	Pollutant	Averaging Period	Maximum Modeled Impact	Background Concentration	Total / Incremental Concentration	Criterion
Stack located 125 feet away	NO_2	1-hour(3)	-	-	160.4	188
	$PM_{2.5}$	24-hour	4.56	N/A	4.56	4.7(1)
		Annual	0.05	N/A	0.05	0.3(2)
Stack located 63 feet above grade	NO_2	1-hour(3)	-	-	117.5	188
	$PM_{2.5}$	24-hour	3.47	N/A	3.47	4.7(1)
		Annual	0.03	N/A	0.03	0.3(2)

Notes:
1. $PM_{2.5}$ 24-hour average *de minimis* criteria —not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.
2. $PM_{2.5}$ annual average *de minimis* criteria—discrete receptor, 0.3 µg/m^3.
3. Reported concentration is the maximum total 98th percentile concentration at any receptor using seasonal-hourly background concentrations.

To ensure that there are no significant adverse impacts of PM2.5 and 1-hour NO2 from the proposed project's boiler system, an (E) designation (E-392) would be assigned to a portion of

[9] Receptors were modeled on buildings of similar or greater height. An existing residential development to the east of the project site is located at a lower elevation, with the building roof elevation at 115 feet, which is shorter than the project site; therefore receptors were not modeled on that building.

the Project Site (Block 5814, Lot 1401) to avoid potential significant adverse impacts related to air quality. The text for the (E) designation related air quality is as follows:

- Aquatic Center

  Any new development on the above-referenced property must ensure that fossil fuel-fired heating and hot water equipment utilize only natural gas and be fitted with low NO_x burners. The exhaust stack must either be located on the roof of the proposed Aquatic Center at 46 feet above grade and at least 125 feet from the proposed Science Building, or at a minimum height of 63 feet above grade and located in the northwest corner of the proposed Aquatic Center.

With these restrictions in place, there would not be any significant adverse air quality impacts due to the proposed project's boiler system.

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 air intake below the rooftop is over 372,418 (i.e., pollutant concentrations at the nearest intake to the exhaust fan would be 372,418 times less than the concentration at the fan exhaust). Thus, for example, a nitric acid spill in a fume hood as described above would produce a maximum concentration at the nearest intake location of about 0.00004 ppm.

The results of the recirculation analysis are presented in **Table D-7**. The results indicate that a spill in a fume hood as described above would produce a maximum concentration at the nearest intake location well 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 laboratory building's air intakes in the event of a chemical spill.

Table D-7
Fume Hood Recirculation Analysis
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Nitric Acid	2	4.44E-05
Hydrochloric Acid	5	1.69E-04
Iodine Solution	0.1	6.62E-06
Note: * 15-Minute Average emission rate.		

DISPERSION IN SURROUNDING AREA

The results of the analysis of potential emissions from the fume hood exhaust system are shown below in **Table D-8**. The maximum concentrations at elevated receptors downwind of the fume hood exhausts were estimated using the methodology previously described, and were determined to be below the STEL levels. The results of the dispersion analysis demonstrate that no significant adverse impacts from the exhaust system of the proposed laboratories would be expected with the proposed project.

Table D-8
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Nitric Acid	2	0.42
Hydrochloric Acid	5	1.59
Iodine Solution	0.1	0.06
Note: * 15-Minute Average emission rate.		

✷

A. INTRODUCTION

The proposed project would not generate sufficient traffic to have the potential to cause a significant noise impact (i.e., it would not result in a doubling of Noise passenger car equivalents [Noise PCEs] which would be necessary to cause a 3 dBA increase in noise levels). However, ambient noise levels adjacent to the project site were considered in order to address CEQR noise abatement requirements for the building. This potential is assessed below.

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 E-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, the background noise in an office, at 50 dBA, is perceived as twice as loud as a library 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 E-1
Common Noise Levels

Sound Source	(dBA)
Military jet, air raid siren	130
Amplified rock music	110
Jet takeoff at 500 meters	100
Freight train at 30 meters	95
Train horn at 30 meters	90
Heavy truck at 15 meters	80–90
Busy city street, loud shout	80
Busy traffic intersection	70–80
Highway traffic at 15 meters, train	70
Predominantly industrial area	60
Light car traffic at 15 meters, city or commercial areas, or residential areas close to industry	50–60
Background noise in an office	50
Suburban areas with medium-density transportation	40–50
Public library	40
Soft whisper at 5 meters	30
Threshold of hearing	0

Note: A 10 dBA increase in level appears to double the loudness, and a 10 dBA decrease halves the apparent loudness.
Sources: Cowan, James P. *Handbook of Environmental Acoustics,* Van Nostrand Reinhold, New York, 1994. Egan, M. David, Architectural Acoustics. McGraw-Hill Book Company, 1988.

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 action, the L_{10} descriptor has been selected as the noise descriptor to be used in this noise impact evaluation. 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* defines attenuation requirements for buildings based on exterior noise level (see Table E-2, "Required Attenuation Values to Achieve Acceptable Interior Noise Levels"). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for academic uses and interior noise levels of 50 dBA or lower for athletic, student lounge, office, and conference room uses and are determined based on exterior $L_{10(1)}$ noise levels.

Table E-2
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise Level With Proposed Action	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
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 academic development. Athletic, student lounge, office, and conference room 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 dBA.
Source: New York City Department of Environmental Protection.

D. EXISTING NOISE LEVELS

Existing noise levels at the proposed project site were measured at three (3) locations (see **Figure E-1**). **Table E-3** lists the receptor site locations. Site 1 was located on Tibbett Avenue between 246th and 252nd Streets, site 2 was located outside the Fisher Hall Library, and site 3 was located at the northeast corner of the Staff Parking Lot adjacent to the Fisher Hall Library. At receptor sites 1 and 2, existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (7:30 AM to 9:30 AM), midday (MD) (11:30 AM to 1:00 PM), and PM (3:00 PM to 5:00 PM). At receptor site 3, a 24-hour continuous noise level measurement was conducted. Measurements were taken on May 6 and 7, 2015.

Table E-3
Noise Receptor Locations

Receptor	Location	Measurement Type
1	Tibbett Avenue between 246th and 252nd Streets	20-minute Measurements Each Peak Hour
2	Outside Fisher Hall Library	20-minute Measurements Each Peak Hour
3	Staff Parking Lot Northeast Corner	24-hour Continuous Measurement

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using Brüel & Kjær Sound Level Meters (SLMs) Type 2260 and 2250, Brüel & Kjær ½-inch microphones Type 4189, and a Brüel & Kjær Sound Level Calibrator Type 4231. The SLMs had a laboratory calibration dates within one year of the measurements, as is standard practice. The Brüel & Kjær SLMs are Type 1 instruments according to ANSI Standard S1.4-1983 (R2006). At receptor sites 1 and 2, the microphone was

8/17/2016

Proposed LSCFD Boundary

Existing LSCFD Boundary

Development Site

Noise Receptor Locations

20-minute spot measurements

24-hour continuous measurements

0 200 FEET

HORACE MANN EXPANSION

Noise Receptor Locations

Figure E-1

mounted on a tripod at a height of approximately 5 feet above grade. At receptor site 3 the microphone was mounted at a height of approximately 8 feet above grade. At all receptor sites, the microphone was was located approximately 5 feet away from large reflecting surfaces that could affect sound propagation. The SLMs were calibrated before and after readings with a Brüel & Kjær Type 4231 Sound Level Calibrator using the appropriate adaptor. Measurements at each location were made on the A-scale (dBA). The data were digitally recorded by the sound level meters and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, L_{90}, and 1/3 octave band levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

The results of the existing noise level measurements are summarized in **Table E-4** and **Table E-5**.

Table E-4
Existing Noise Levels (in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Tibbett Avenue between 246th and 252nd Streets	AM	56.4	69.3	57.1	50.1	48.9
		MD	57.4	68.1	60.7	52.5	47.3
		PM	66.3	77.3	67.1	57.3	52.6
2	Outside Fisher Hall Library	AM	57.5	65.7	59.7	55.9	52.3
		MD	55.1	61.6	57.3	54.0	51.5
		PM	57.6	64.0	59.1	56.6	54.3

Note: Measurements were conducted by AKRF Acoustics Department on May 7, 2016.

Table E-5
Measured Noise Levels (in dBA) at Site 3: Staff Parking Lot Northeast Corner

Start Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
4:00 PM	58.6	67.9	60.4	55.9	51.8
5:00 PM	62.2	75.1	61.1	54.5	49.6
6:00 PM	56.1	66.9	58.8	52.4	47.7
7:00 PM	53.6	63.3	56.3	50.3	47.1
8:00 PM	55.5	66.8	56.2	50.1	47.8
9:00 PM	55.3	67.1	57.8	50.3	48.0
10:00 PM	54.4	65.7	57.0	49.7	48.1
11:00 PM	54.6	66.9	55.2	48.3	47.0
12:00 AM	46.1	50.5	47.8	45.6	43.7
1:00 AM	44.0	46.7	45.0	43.8	42.8
2:00 AM	45.6	54.7	46.8	44.5	43.0
3:00 AM	45.4	49.5	46.9	45.0	43.7
4:00 AM	49.7	56.4	52.2	48.4	46.2
5:00 AM	53.2	58.7	55.8	52.1	49.9
6:00 AM	54.4	61.6	54.8	52.0	50.5
7:00 AM	53.3	62.1	55.0	50.7	49.3
8:00 AM	54.0	64.3	56.0	50.6	48.1
9:00 AM	58.8	70.3	62.3	52.7	47.2
10:00 AM	60.7	70.9	64.0	56.3	50.0
11:00 AM	65.3	77.9	69.8	50.4	45.4
12:00 PM	56.3	68.5	59.3	49.0	44.5
1:00 PM	59.1	67.6	60.4	53.4	47.0
2:00 PM	57.5	66.7	60.1	54.9	50.1
3:00 PM	57.8	66.1	59.8	55.8	52.6

Notes: Measurements were conducted by AKRF Acoustics Department on May 6 and 7, 2016.

At site 1, vehicular traffic noise was the dominant noise source. Student activity also contributed to the noise levels at site 1 and at sites 2 and 3, was the dominant noise source. Measured levels are low to moderate and reflect the level of vehicular activity on the adjacent streets or level of student activity on campus. In terms of the CEQR criteria, the existing noise levels at sites 2 and 3 would be in the "marginally acceptable" category and existing noise levels at ste 3 would be in the "acceptable" category.

E. NOISE ATTENUATION MEASURES

As shown in **Table E-2**, 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 academic uses and interior noise levels of 50 dBA or lower for athletic, student lounge, office, and conference room uses. Because student activity was the dominant noise source at sites 2 and 3, and there is no projected change in the level of student activity on the campus in the future with the proposed project, the measured noise levels at these sites are expected to remain unchanged. At site 1 where traffic on Tibbett Avenue is the dominant noise source, the small changes in noise level (i.e., less than 3 dBA as described above) due to traffic in the future with the proposed project are not expected to result in appreciably higher noise levels than those measured. Consequently, the building attenuation analysis is based on the measured noise levels.

The proposed renovation of the building on the project site would be conducted using standard construction methods, and provide acoustically-rated windows and air conditioning as an alternate means of ventilation. The building façade, including these elements, would be expected to provide a composite Outdoor-Indoor Transmission Class[1] ("OITC") such that interior noise levels would be 45 dBA or lower for residential uses. Furthermore, because the exterior $L_{10(1h)}$ noise levels at the project site would be less than 70 dBA, the *CEQR Technical Manual* does not provide a specific requirement for the level of window/wall attenuation.

In addition, 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. ✷

[1] 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. A building façade generally consists of wall, glazing, and any vents or louvers associated with building mechanical systems. The OITC classification is defined by the American Society of Testing and Materials ("ASTM") E1332-10 and is used in the acoustical design of building façades.

Attachment F: Urban Design and Visual Resources

A. INTRODUCTION

This attachment considers the potential of the proposed expansion of the Horace Mann School (HMS), located in the Fieldston neighborhood of the Bronx, to affect urban design and visual resources. As described in the "Project Description," the proposed project would expand the HMS Upper School Campus with the construction of a new 58,550 gross-square-foot (gsf) science center, a 32,943-gsf aquatics center, a new entry into the existing Prettyman Gymnasium, and a small maintenance building of 5,000 gsf.

Under the 2014 *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. 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 is a preliminary assessment that addresses urban design characteristics and visual resources for existing conditions and the future without and with the proposed project. A detailed analysis is not necessary as the preliminary assessment indicates that the proposed project would not adversely affect urban design and visual resources within the study area.

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 proposed project would expand the HMS Upper School Campus and would require a minor modification to a previously-approved Large Scale Community Facility Development (LSCFD) from a previous authorization to construct the new buildings. Therefore, the proposed project meets the threshold for a preliminary assessment of potential impacts to urban design and visual resources.

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 that 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 an approximately 400-foot radius around the project area, consistent with the analysis

of land use, zoning, and public policy (see **Figures F-1** and **F-2**). Views of the development site are limited within the study area as the development site is wholly located within the project area, which is not publically accessible and screened by buildings and vegetation, including mature tree coverage. The project area, development site, and study area boundary are shown on **Figure F-1**.

The *CEQR Technical Manual* recommends an analysis of pedestrian wind conditions for projects that 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 large buildings at a location that experiences high wind conditions, and thus a pedestrian wind analysis is not warranted.

C. EXISTING CONDITIONS

URBAN DESIGN

PROJECT AREA AND DEVELOPMENT SITE

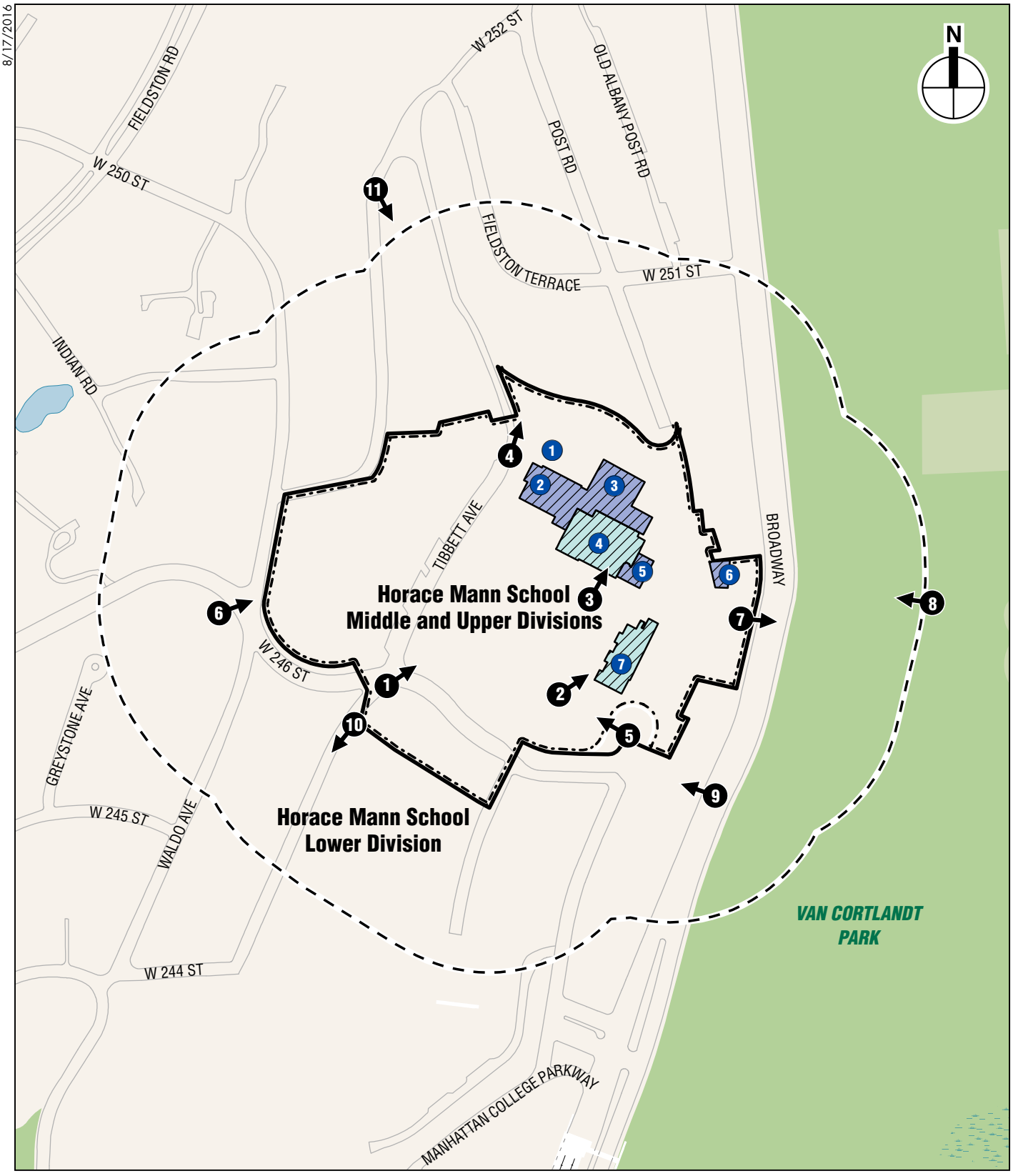
The project area is congruent with the HMS LSCFD, which generally extends east to Broadway, south past West 246th Street, west to Waldo Avenue, and north to West 251st Street. The current LSCFD encompasses approximately 19 acres (excluding public streets), and contains nine buildings with approximately 306,859 gross square feet (gsf) of floor area. For the purposes of this analysis, the area covered by the LSCFD will be referred to as the project area.

Tibbett Avenue runs north-south through the project area and West 246th Street runs roughly east-west. The large academic buildings are arranged on the campus surrounding an open green space, called the Main Field, and set among landscaping. Two smaller buildings are located south of West 246th Street. Mature trees surround the entire project area and the eastern portion of the project area is set on a hillside above Broadway. The buildings on this portion of the campus include Tillinghast Hall, Pforzheimer Hall, Rose Hall, Fisher Hall, Spence Cottage, two houses, and Prettyman Gymnasium (see **Figure F-3**).

The development site includes two buildings that would be renovated (Prettyman Gymnasium and Pforzheimer Hall) and areas proposed for new construction, including on three sides of Prettyman Gymnasium and northeast of Fisher Hall. The portion of the development site proposed for new construction includes areas now used as tennis courts, 4662 and 4664 Tibbett Avenue, paved parking, and sidewalks located within the project area and not publically accessible (see **Figure F-1**).

Tillinghast Hall, which contains classrooms, administrative offices, a library, and a theater, is on the corner of Tibbett Avenue and West 246th Street and acts as a physical boundary to the campus, blocking views and access to the campus and development area. The L-shaped building has a long, three-story section that extends to the east and is clad in rusticated gray stone with tall, narrow windows arranged in groups. The shorter portion of the "L" contains the theater and main campus entry. It is brick-clad and two- and three stories with an angled three-story front gable portion flanked by two taller towers set in the angle of the "L" (see **Figure F-4**, photo 1).

Pforzheimer Hall and Rose Hall, which contain science laboratories and classroom space for the Middle and Upper Divisions, are located at the eastern edge of the project area. Pforzheimer Hall, which faces onto the Main Field, is two stories and clad in brick with limestone details



Proposed LSCFD Boundary

Existing LSCFD Boundary

Photograph View Direction and Reference Number

Study Area (400-foot boundary)

Development Site

New Construction

Renovation

0 400 FEET

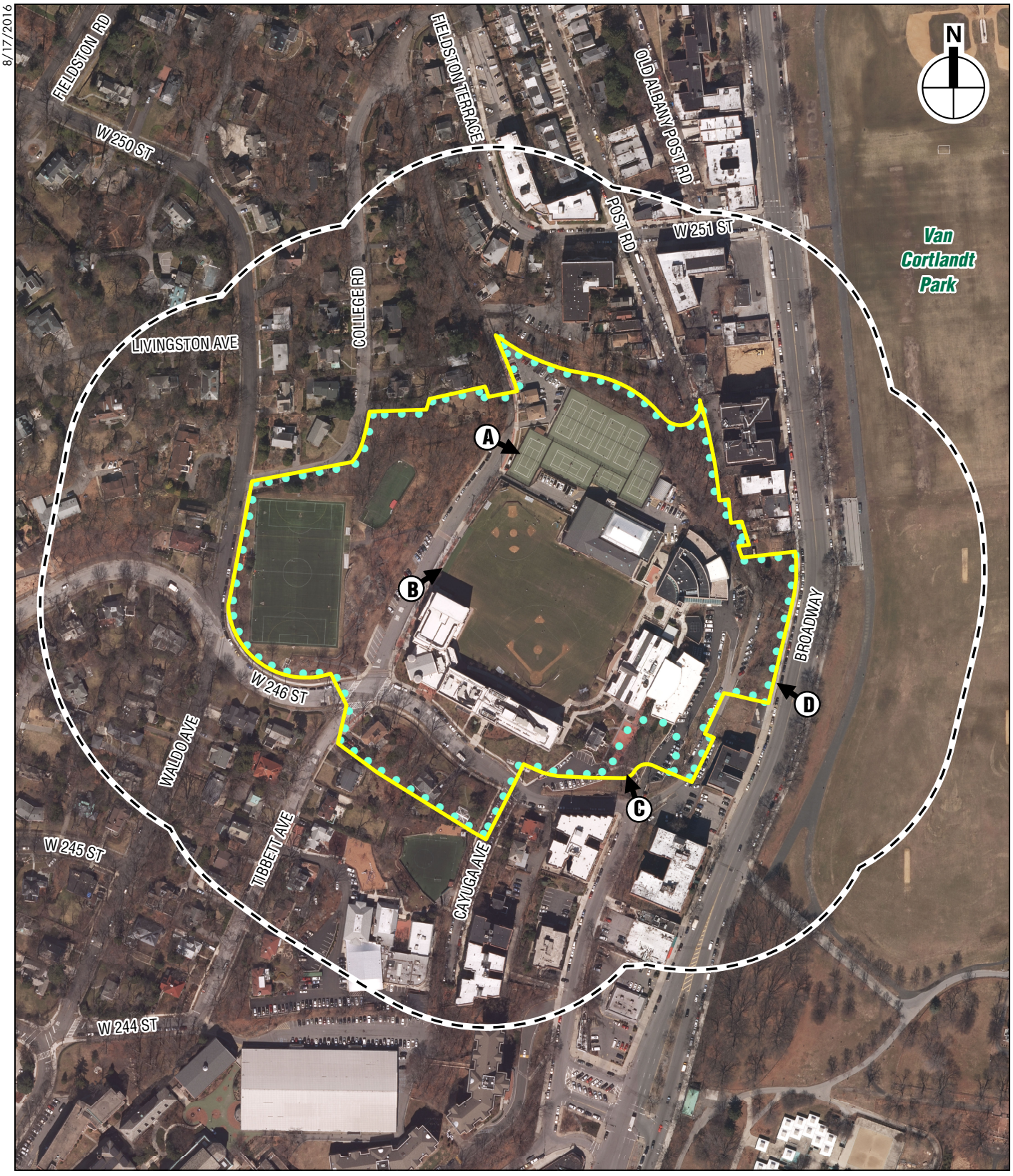
1 Tennis Courts
2 Science Building
3 Aquatics Center
4 Prettyman Gymnasium
5 Prettyman Vestibule
6 Maintenance Building
7 Pforzheimer Hall

HORACE MANN EXPANSION

Reference Map

Figure F-1

8/17/2016



Proposed LSCFD Boundary

Existing LSCFD Boundary

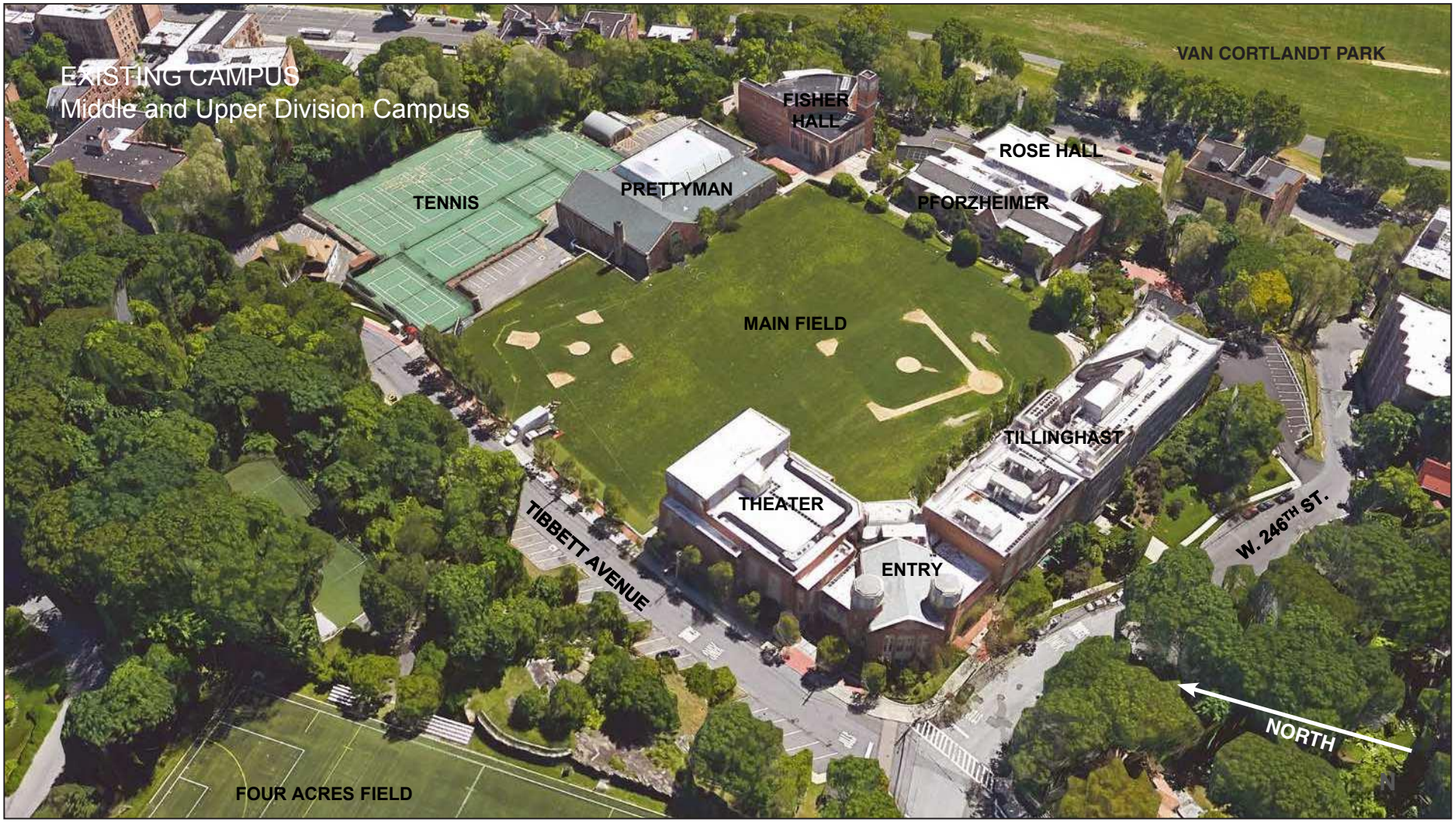
Study Area (400-foot boundary)

A *Comparative View Direction (see Figures F-14, F-15, F-16, and F-17)*

0 200 FEET

HORACE MANN EXPANSION

Aerial Map
Figure F-2



Existing Campus Buildings

Tillinghast Hall as seen from West 246th Street near Tibbett Avenue, looking northeast. **1**

Pforzheimer Hall, seen in the foreground with Fisher Hall behind. View from the main field looking northeast. **2**

while Rose Hall, which connects to the eastern facade of Pforzheimer Hall, is a three- and four-story brick building with large single-paned windows (see **Figure F-4**, photo 2).

Fisher Hall, which contains classroom space, the school's cafeteria, and a theater, is located at the northeastern corner of the project area. Along the Main Field, the building is two- and three-stories and clad in brick with stone details (see **Figure F-4**, photo 2). A tall clock tower rises approximately four stories to the east of the building's entry. Fisher Hall is separated from Pforzheimer Hall by a paved plaza with a central planter and seating.

The Prettyman Gymnasium is located in the northern part of the project area and is a brick and rusticated stone two-story building with a one-story addition extending from the eastern facade (see **Figure F-5**, photo 3). The building has large, multi-paned windows that are divided by rusticated-stone clad pillars. A two-story chimney rises from the western facade of the building.

The school's tennis courts, which are enclosed behind chain link fencing, are located behind and to the northwest of Prettyman Gymnasium. Adjacent to the tennis courts are two houses—4662 Tibbett Avenue is a two-story four-square house clad in siding with a dormer window and 4664 Tibbett Avenue is a two-story brick house with a gambrel roof. These small buildings are the western-most buildings in the project area and face onto Tibbett Avenue (see **Figure F-5**, photo 4).

Spence Cottage, which contains the admissions office for the school and the Head of School's office, is a small, two story English Gothic style, rough-stone clad cottage with a slate roof (see **Figure F-6**, photo 5). It is located between Tillinghast and Pforzheimer Halls.

A large athletic field surrounded by mature trees, known as Four Acre Field, is located west of Tibbett Avenue. This field forms the western boundary of the project area. While the academic buildings are arranged around the central Main Field—which contains a baseball field, softball field, and football/soccer field—Four Acre Field screens the campus from the neighborhood to the west (see **Figure F-6**, photo 6). Additionally, there are 159 total parking spaces in the project area located along the perimeter further dividing the area from the surrounding neighborhood and study area.

At the southern boundary of the project area, across West 246th Street from the campus complex described above, are two houses—258 West 246th Street contains the Headmaster's Residence and is a two-story Tudor Revival style house clad in stucco, half-timbering, and fieldstone. 4466 Tibbett Avenue contains Horace Mann's business office and is a two-story plus raised basement Colonial Revival style house clad in brick. It is set back from the street with landscaping and a narrow sidewalk.

STUDY AREA

As shown in **Figures F-1** and **F-2,** the study area extends north past West 251st Street and Livingston Avenue; south to West 244th Street and Manhattan College; east of Broadway into Van Cortlandt Park; and west of Waldo Avenue. The study area is a gently sloping hill with the low point located to the east in Van Cortlandt Park and rising to the west with the high point west of Waldo Avenue. Four Acre Field, located in the project area between Tibbett and Waldo Avenues, acts as a green-space buffer between the academic buildings in the project area and the residential neighborhood in the western portion of the study area.

Natural features in the study area include tall trees that line Tibbett and Waldo Avenues, and Broadway, and a rocky outcropping at West 246th Street and Waldo Avenue. In addition, landscaped and grassy areas in the study area include Van Cortlandt Park, a 1,146 acre park that

Prettyman Gymnasium with tennis courts beyond as seen from the Main field. View looking north. **3**

View northeast of one of the two houses on campus located at 4662 Tibbett Avenue **4a**

View northeast of one of the two houses on campus located at 4664 Tibbett Avenue **4b**

Spence Cottage located between Tillinghast and Pforzheimer Halls. View looking west. **5**

Four Acre Field as seen from West 246st Street, west of Waldo Avenue. View looking northeast. **6**

includes a municipal golf course, sports fields, trails, stadium, pool, and stables. The portion of the park located within the study area contains playing fields and open fields (see **Figure F-7**, photo 7). Southwest of Van Cortlandt Park, the Manhattan College has landscaped hillside along Broadway.

The study area consists of mostly an irregular street pattern, including curving streets, dead-end streets, and streets that run at angles, creating irregularly shaped blocks. The major thoroughfare in the study area is Broadway, which carries four lanes of traffic north-south with dedicated parking lanes on either side of the street in the study area. As described above, Broadway is bordered by tall trees on the east side with Van Cortlandt Park beyond. The only commercial and mixed-use buildings in the study area are located on the west side of Broadway. These buildings are located just to the north and south of the project area, with no buildings located directly east of the project area. A newly constructed brick building is located south of West 251st Street on Broadway. The six-story tall, ten-bay wide building features large window openings and has two bays on the north and south ends that are recessed and clad in a dark brown brick. The remainder of Broadway within the study area is developed with a mix of one- and two-story brick and stucco clad commercial buildings and six- and eight-story brick apartment buildings (see **Figure F-8**, photo 8).

The majority of the study area consists of the residential neighborhood of Fieldston, much of which is a New York City Historic District. The historic district, which is located to the west and south of the project area, consists of early 20th century suburban development and preserved much of the area's wooded character, incorporating roadways following the natural topography. Houses in this portion of the study area are primarily two stories, and clad in stucco, wood siding, stone, and brick and designed in eclectic, historic revival styles. The single-family homes are set on landscaped lots with many situated on natural rises (see **Figures F-8**, photo 9 and **F-9**, photo 10). For more information, see "Attachment B, Historic and Cultural Resources."

The northern portion of the study area west of Broadway is developed with a mix of four- to eight-story brick apartment buildings, two-story single family dwellings, and three-story semi-detached houses. 272-260 Fieldston Terrace are a group of four newly-constructed row houses. The brick-clad buildings feature raised-stoop entrances, simple brick detailing, and third floor dormer windows. They are set back from the street with slightly sloping driveways that lead to a garage entrances. On the west side of Post Road at West 251st Street there are two mid-20th century brick apartment buildings that rise seven and eight stories and have projecting metal and concrete balconies. Both buildings are set among landscaping with the taller building separated from the project area by large trees and parking. South of West 251st Street, Post Road is developed with two- and three-story brick and siding clad houses. The street comes to a dead end just north of the development site where heavy foliage and mature trees screen the development site from view.

The southern boundary of the study area includes the HMS Lower Division, roughly bounded West 246th Street, Tibbett Avenue, West 244th Street, and Cayuga Avenue, and a small portion of Manhattan College, roughly bounded by Tibbett Avenue, West 244th Street, Manhattan College Parkway, and Post Road. The main two-story building of the HMS Lower Division campus is set back from the street and surrounded by paved surface parking and large trees. The only Manhattan College building within the study area is a large, 11-story brick building with an undulating facade.

Van Cortlandt Park with open playing fields and trees beyond. View from Broadway looking east. **7**

A six-story apartment building located along Broadway. View looking west. **8**

Fieldston Historic District at Tibbett Avenue and West 246th Street looking southwest. **9**

Fieldston Historic District along College Road looking Southeast. **10**

Historic and Cultural Resources
Photographs
Figure F-9

VISUAL RESOURCES

PROJECT AREA AND DEVELOPMENT SITE

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 (p. 10-1)." The campus, while not publicly accessible, is surrounded by large, mature trees and set on a rise, which makes portions of the buildings on the eastern side of the campus visible from Broadway and Van Cortlandt Park. The western boundary of the project area contains Four Acre Field, a large open space surrounded by mature trees. The greenspace is visible from the north, west, and south of the project area and is a visual amenity in the area. Spence Cottage, described above, is located on the southeast side of the project area. The cottage is primarily visible from the campus' Main Field. Limited views to the cottage are provided from the east of the project area due to large trees that screen the view and large buildings along Broadway that narrow visual corridors to the resource. The green space provided by Four Acre Field and Spence Cottage, despite limited visibility, are both visual resources located in the project area.

Views of the development site are limited, as it is located along the northern portion of the project area. Views to the development site from along West 246th Street are blocked by Tillinghast Hall and Four Acre Field. Along Tibbett Avenue, the portion of the development site that currently contains the tennis courts and two houses is visible from the area directly adjacent to the site (see **Figure F-9**, photo 12). However, south of the development site, Tillinghast Hall and landscaping screen the views, and north of the site, Tibbett Avenue narrows and curves sharply, truncating views to the development site. From Broadway and Van Cortlandt Park, Pforzheimer Hall is screened from view by Rose Hall and a heavily treed hillside. The site of the proposed maintenance building is visible from along Broadway and Van Cortlandt Park adjacent to the project area, but north and south of the area views are blocked by taller buildings along Broadway. In addition, the heavily treed hillside provides partial screening. There are no visual resources located on the development site.

STUDY AREA

Visual resources within the study area consist of a visually prominent and architecturally distinguished buildings and natural resources. The Fieldston Historic District's natural, park-like setting with winding roadways, changes in topography, and dense vegetation are both a visual resource while also limiting visual corridors within the study area. The longest views within the study area are provided along Broadway. Views north and south along the street do not include any visual resources; however, Van Cortlandt Park and the large trees that border the east side of the street are a visual resource within the study area as well as a visual boundary.

D. THE FUTURE WITHOUT THE PROPOSED PROJECT

PROJECT AREA AND DEVELOPMENT SITE

Absent the proposed project, existing conditions in the project area and development site are not expected to change. HMS will continue to have its Middle and Upper Divisions located on this campus.

EFFECTS OF OTHER FUTURE PROJECTS

No additional development projects are expected to be built in the study area by 2019. Existing conditions in the study area are not expected to change.

E. PROBABLE IMPACTS OF THE PROPOSED PROJECT

URBAN DESIGN

PROJECT AREA AND DEVELOPMENT SITE

The proposed project would result in the construction of three new buildings and one additional structure totaling 100,993 gross square feet (gsf) on the development site. Three of the new structures would be attached to the side and rear facades of the Prettyman Gymnasium and would house new science laboratories, a new aquatics center, and a new 29-foot-tall, approximately 4,500 gsf connection between Prettyman Gymnasium to the west and Fisher Hall to the east (see **Figure F-10, F-11, F-12, and F-13**). The height and bulk of each of the three buildings would be similar to that of existing buildings on the campus. Along the Main Field, the new science building of approximately 58,550 gsf would be three stories (approximately 55 feet tall) and set back from the existing Prettyman Gymnasium. A taller extension of the science building would be set behind this and would be four stories with a bulkhead (approximately 68 feet tall). As currently designed, the facade of both buildings would be clad in stone, similar in appearance to Tillinghast Hall with tall single paned window openings arranged in vertical ribbons (see **Figure F-11**). The Aquatic Center of approximately 32,943 gsf would be situated behind Prettyman Gymnasium and the new science building and would rise 43 feet, thus it would not be visible from the Main Field. Connections to the existing Prettyman Gymnasium will be primarily glazed with flat roofs. A small 34-foot-tall (approximately 5,000 gsf) maintenance building would be located adjacent to Fisher Hall. As currently designed, the new buildings would be similar in material and massing to the existing buildings in the project area.

STUDY AREA

The proposed project would not introduce development that is incompatible, or out of scale, with the surrounding study area. The materials would be similar to those used on buildings in the project area and the study area, such as the stone-clad houses located within the Fieldston Historic District. The scale would be in keeping with the taller apartment buildings located at Post Road and West 251st Street and on Broadway. Due to dense vegetation and topography, the proposed expansion would have limited visibility from the study area west of the project area; any views to the development site from this area would be mostly obstructed by trees and existing buildings (see **Figure F-16)**. The new maintenance building would be partially visible from Broadway; however, the view corridor would be extremely limited due to large buildings along Broadway and dense tree cover within the project area (see **Figure F-17**). The addition of new buildings to the project area would not dramatically alter the urban design of the campus as they would be set back from existing buildings and would be in keeping with the overall arrangement of the project area with academic buildings located around the Main Field (see **Figure F-14** and **F-15**). Overall, the proposed project would be compatible with the existing urban design of the surrounding area and would, therefore, not result in any significant adverse impacts.

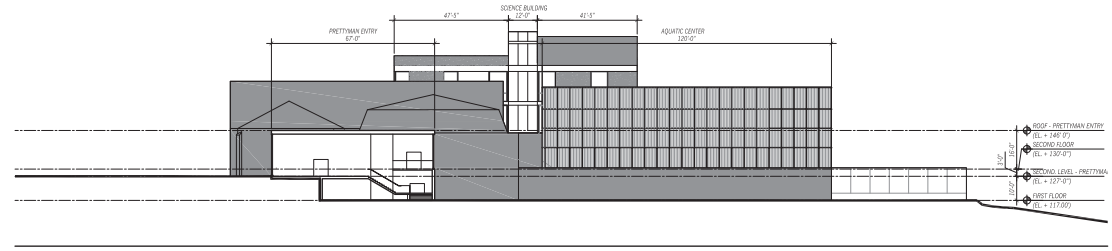
Note: *Red text indicates proposed alterations to campus.*

Proposed Campus Buildings

Figure F-10

Illustrative Rendering of Proposed New Buildings and Prettyman Gymnasium Renovation

Figure F-11

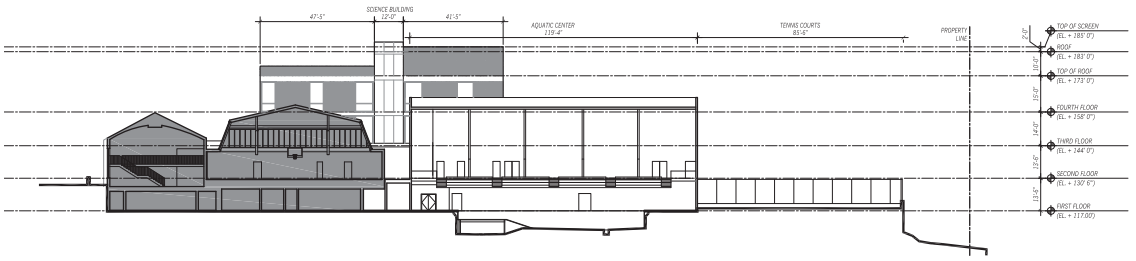


LEGEND

EXISTING BUILDINGS

4 SECTION 04

SCALE: 1/32"=1'

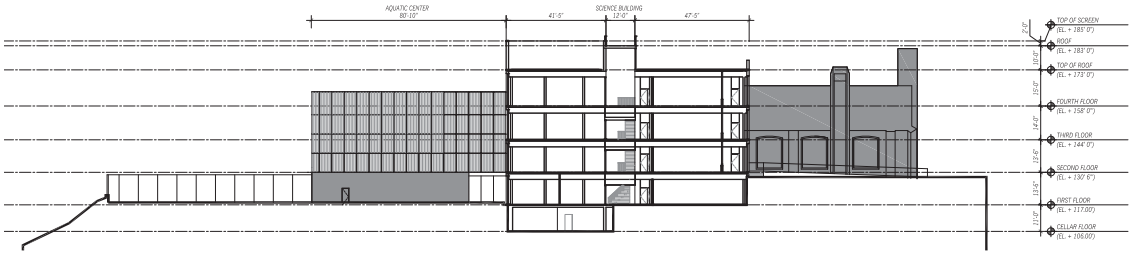


LEGEND

EXISTING BUILDINGS

3 SECTION 03

SCALE: 1/32"=1'

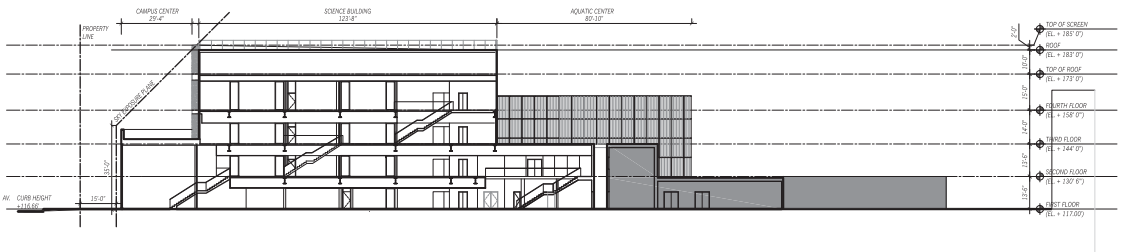


LEGEND

EXISTING BUILDINGS

2 SECTION 02

SCALE: 1/32"=1'

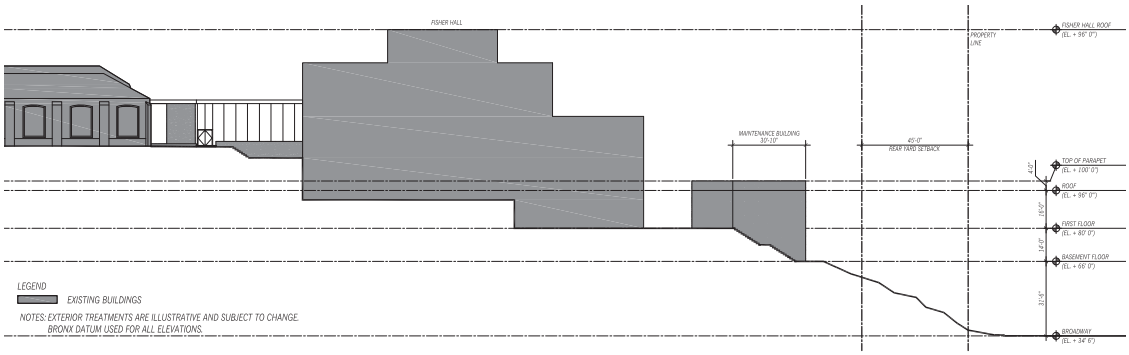


LEGEND

EXISTING BUILDINGS

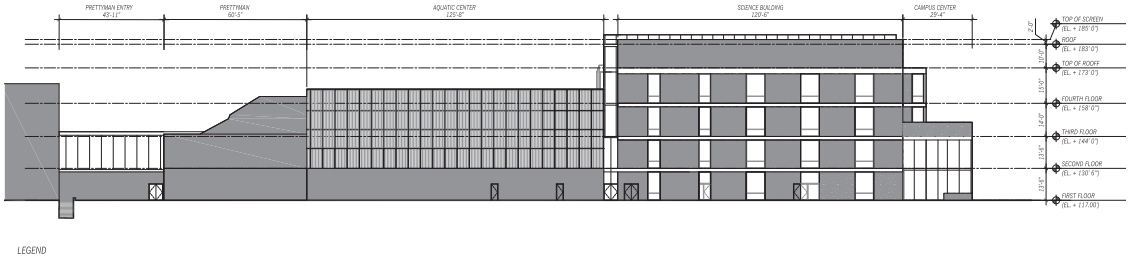
NOTES: BRONX DATUM USED FOR ALL ELEVATIONS.
EXTERIOR TREATMENTS ARE ILLUSTRATIVE AND SUBJECT TO CHANGE.

Proposed Sections
Figure F-12



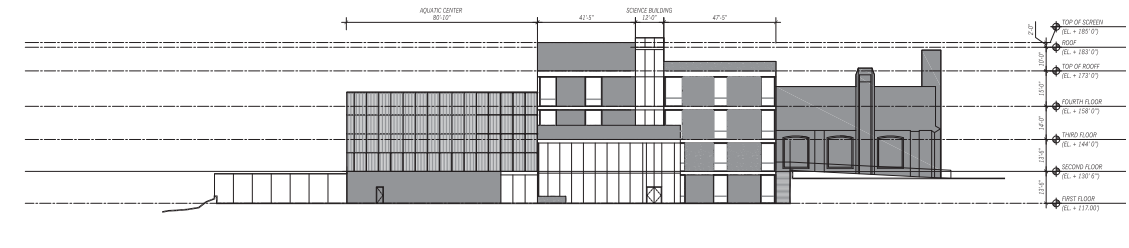
6 MAINTENANCE BUILDING SOUTH ELEVATION

SCALE: 1/32"=1'



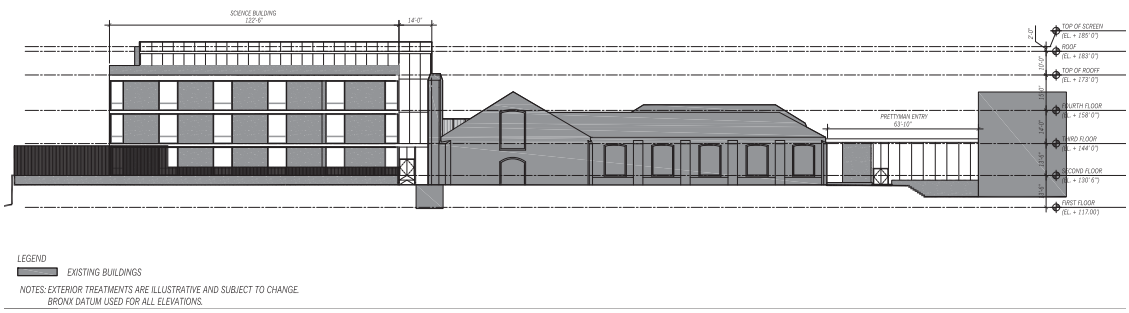
5 NORTH ELEVATION

SCALE: 1/32"=1'



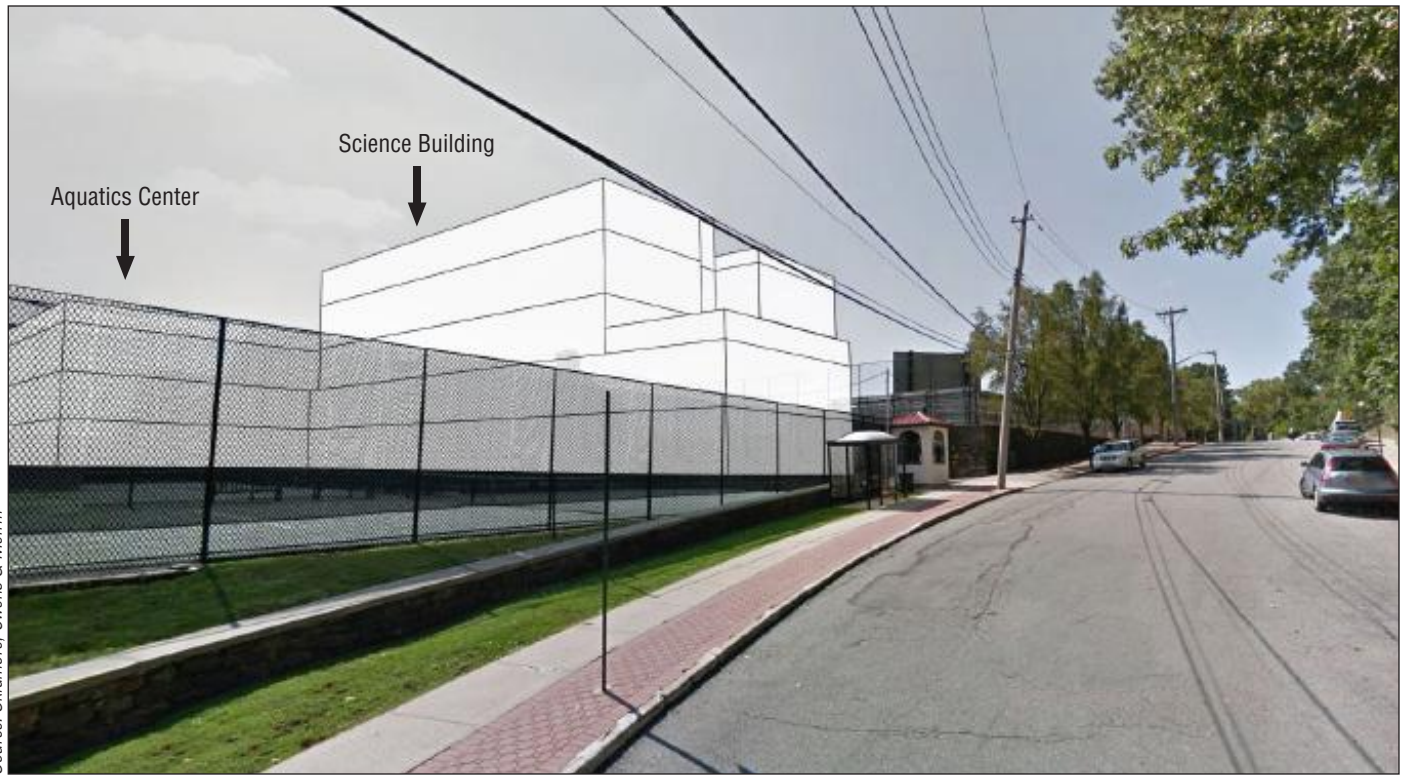
4 WEST ELEVATION

SCALE: 1/32"=1'



Illustrative Proposed Elevations
Figure F-13

Existing / No-Action Condition



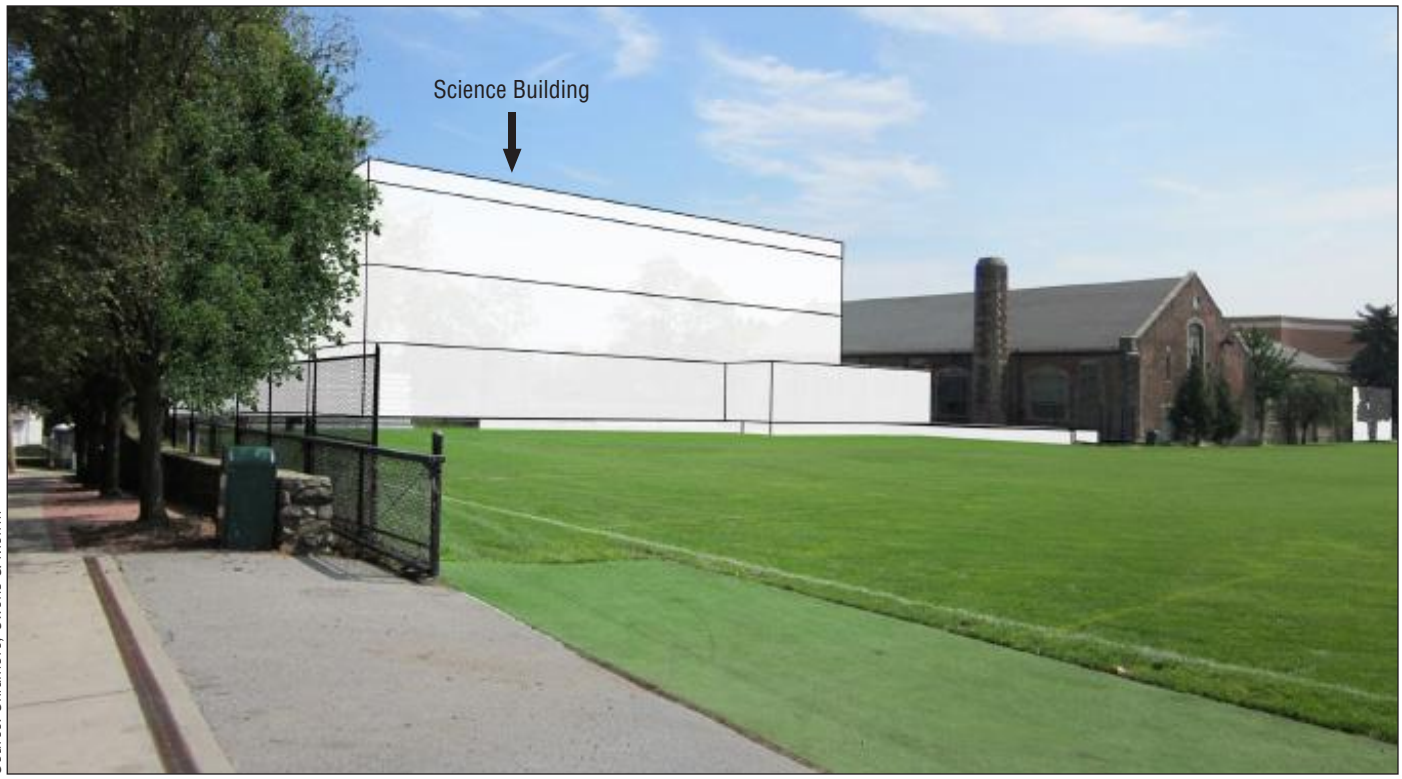
Source: Skidmore, Owens & Merrill

With Action Condition (*for illustrative purposes only*)

View A:
Facing Southeast Along Tibbett Avenue
Figure F-14

8.4.16

Existing / No-Action Condition



With Action Condition (*for illustrative purposes only*)

Source: Skidmore, Owens & Merrill

View B:
Facing Northeast Along Tibbett Avenue

Existing / No-Action Condition

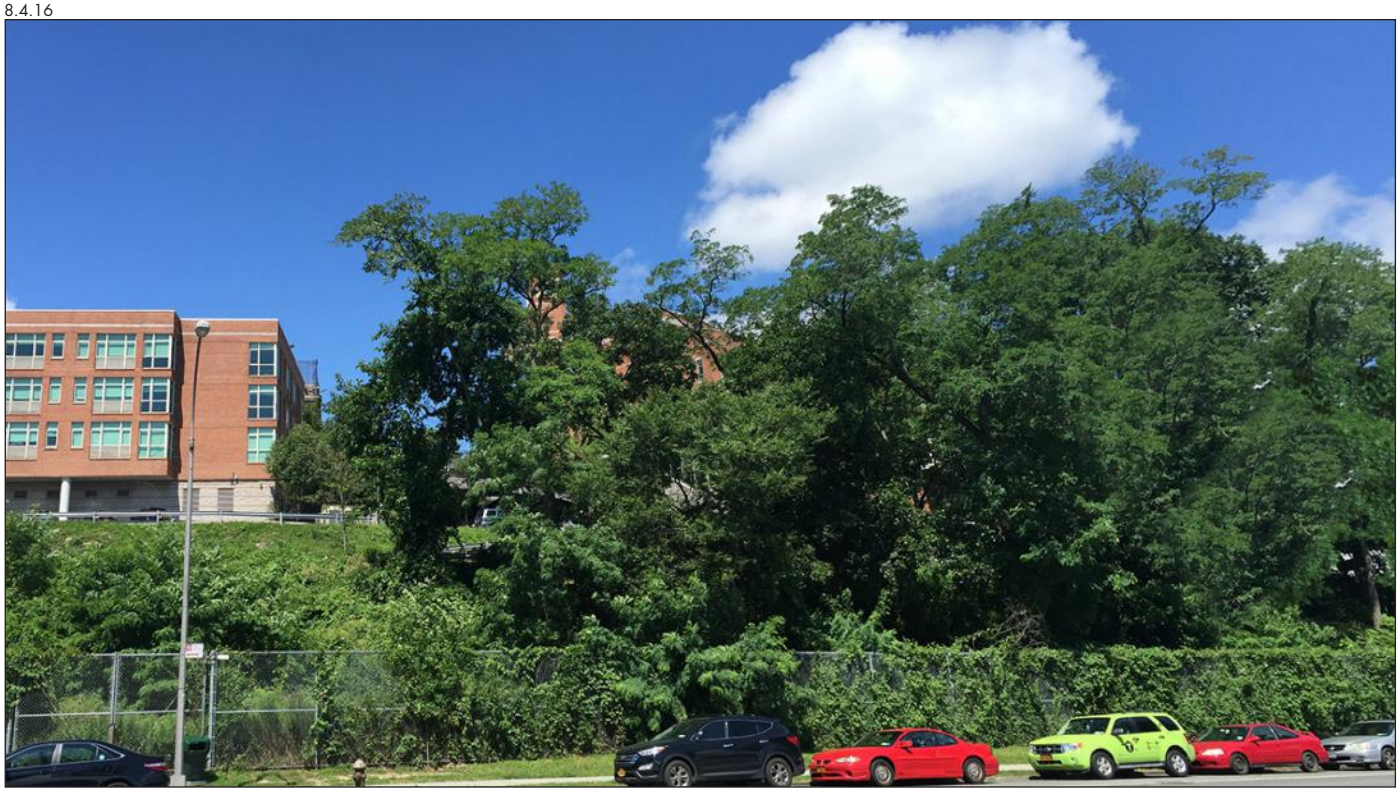
Source: Skidmore, Owens & Merrill

With Action Condition (*for illustrative purposes only*)

***NOTE**: There is no publicly accessible view to the proposed Prettyman Vestibule*

Facing North from
246th Street and Post Road
Figure F-16

8.4.16



Existing / No-Action Condition

With Action Condition (*for illustrative purposes only*)

Source: Skidmore, Owens & Merrill

View D:
Facing West from Broadway
Figure F-17

VISUAL RESOURCES

PROJECT AREA AND DEVELOPMENT SITE

While the proposed project would renovate existing buildings and construct several new buildings, these would be located within the existing campus setting and would not impact any visual resources in the project area. Four Acre Field located to the west of Tibbett Avenue is not near the development site and would remain in its current condition. Spence Cottage is located across the Main Field from the development site and the proposed project would not change the context of the visual resource. The limited views of the cottage from the east would likewise not be altered by the proposed project. Some of the large trees along the northern boundary of the project area may be removed with the proposed project, possibly opening up views to the development site and project area. However, publicly accessible views from north of the development site are limited, and the possible removal of these trees would not adversely affect the urban design and visual resources of the project area or study area.

STUDY AREA

The proposed project would locate new buildings well within the existing campus and would not block views of any visual resource or create any relationship with existing visual resources within the study area.

Overall, the proposed project would not result in significant adverse impacts on urban design or visual resources, or the pedestrian's experience of these characteristics of the built and natural environment. The proposed project would not adversely impact the vitality, the walkability, or visual character of the area, and does not merit further analysis of urban design and visual resources. ✷

Appendix A: Previous CPC Authorization

ADDRESS	231 West 246th Street, Bronx, NY 10471						
BLOCK	5806			5814			5816
LOT	681 & 698			1401*			1710
ZONING DISTRICT	R1-2	R4	Total	R4	R6/C2-2	Total	R1-2/NA-2
LOT AREA	123,469	50,117	173,586 sf	398,696	67,838	466,534 sf	161,009 sf total
ZONING MAP	1d			1c & 1d			1c & 1d

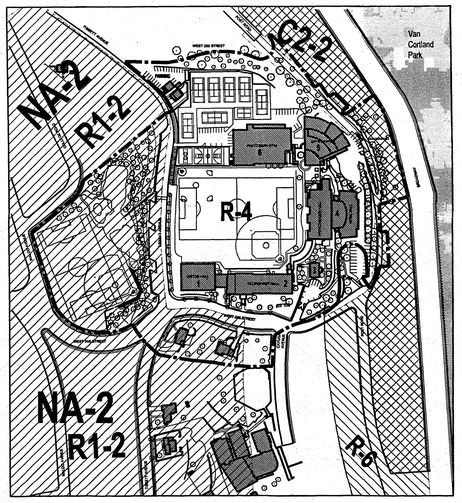
* (Per Zoning Lot Certification 11/21/95)

ZONING ANALYSIS FOR BLOCK 5814

SECT	ITEM	Permitted/Required				Proposed	
		R4		R6/C2-2		R4 & R6/C2-2	
	Use Regulations						
22-001 32-001	Use groups permitted in Residence Dist. Use groups permitted in Commercial Dist.	1-4		1-4 1-9, 14		3 (cf): schools	
	Bulk Regulations		sq. ft.		sq. ft.		
24-11	Maximum floor area ratio (community fac.)	2.0 FAR	797,392	4.8 FAR	325,622	0.89 FAR	352,603
24-11	Maximum lot coverage: corner 1 (13,967 sf)	60%	8,380	70%	n/a		not affected
	corner 2 (9,725 sf)	60%	5,835			77.29%	7,517
	interior of through lot in R4(375,004 sf)	55%	206,253			29.63%	111,111
	interior of through lot in R6/C2-2(67,838 sf)			65%	44,095	8.63%	5,987
24-12	Lot coverage applies 23' above curb level						
	Yard Regulations						
24-33	Permitted obstructions	1 story/23'		1 story/23'			
24-34	Front Yard	15 feet		none		Not Comply	
24-35	Side Yard: aggregate width of walls<80'	2 side yards 8 feet		none req'd, 8' min			
	aggregate width of walls>80'	2 side yards 10%					
24-36	Rear Yard, except corner of through lot	30 feet		30 feet		Comply	
32-26				20 feet			
24-382	Rear Yard equivalent on through lot	(a) midway; or		(a) midway; or			
	2 open areas 30' each	(b) at streets		(b) at streets			
		(c) at side lot lines		(c) at side lot lines			
	Height & Setback Regulations						
24-521	Front setbacks where front yards are req'd					Not Comply	
	Height above front yard line	35 feet				(see diagram)	
	Sky exposure plane (wide or narrow street)	1:1					
24-522	Front setbacks where no front yards						
33-431	Front wall max. height			60' (4 or 6 stories)			
	Initial setback: wide street			15'			
	Sky exposure plane (wide street)			5.6:1			
	Parking & Loading						
25-18	Max. permitted spaces: lot area/400 sf		997		170		114
25-19	Greater parking by Comm. of Buildings						
25-31	Min. required off-street parking		none		none		
25-72	Min. required off-street loading berths		none		none		

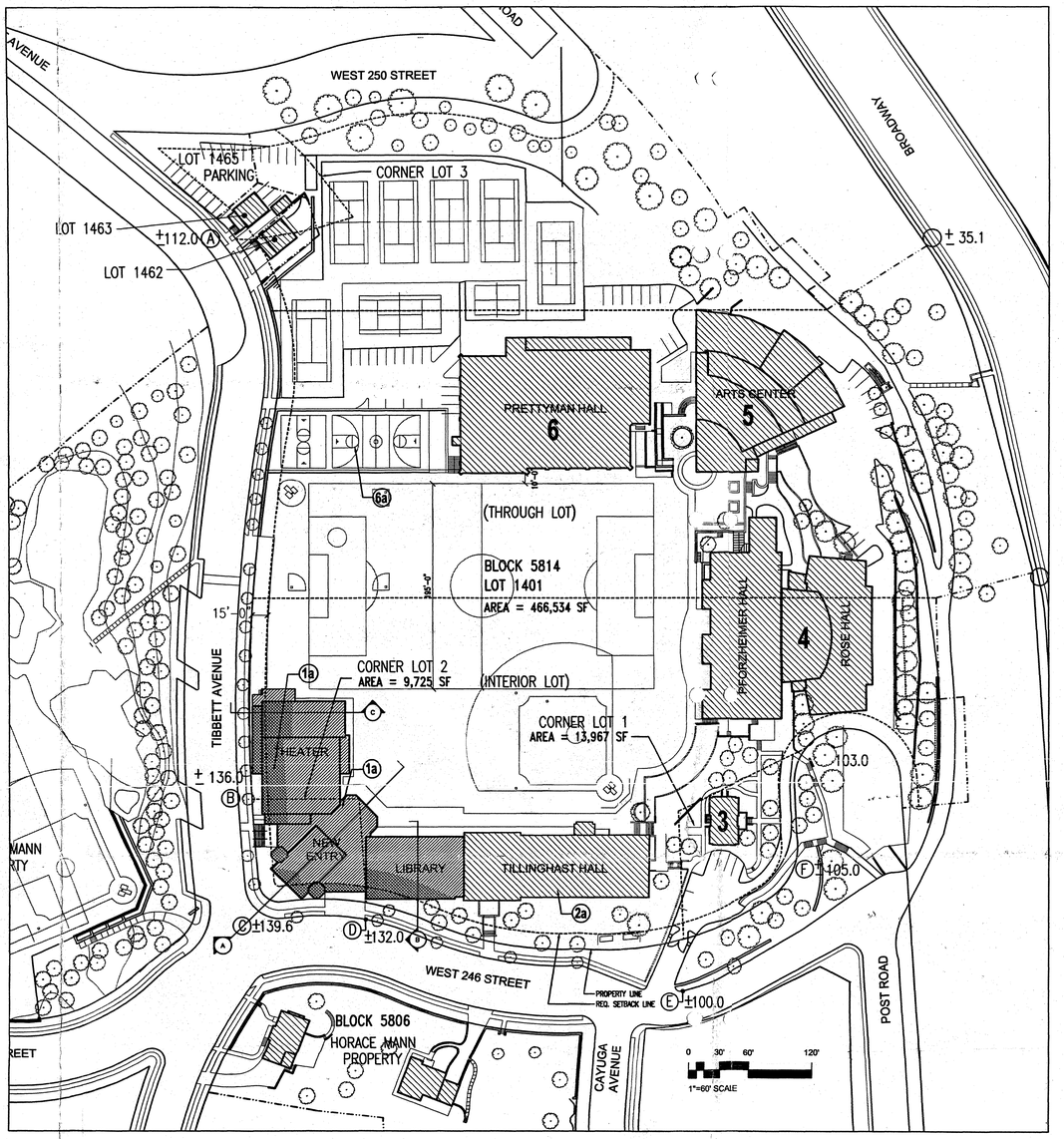
FLOOR AREA & LOT COVERAGE SCHEDULE FOR BLOCK 5814

#	BUILDING	CO #	Gross Area (SF)	Zoning Floor Area	Coverage in R4 (SF)			R6/C2-2
				R4 & R6/C2-2	Corner 1	Corner 2	Int/Thru	Int/Thru
1	Gross Hall (To be Removed)	42464	22,860	22,350		5,958	4,444	
2	Tillinghast	42464	72,036	68,550			12,885	
3	Spence Cottage	13060	2,184	2,186	1,350			
4	Pforzheimer & Middle School	-	73,425	68,875			22,160	1,646
5	Arts and Dining	-	57,600	53,160			11,451	4,341
6	Prettyman Gym	50557	20,370	15,550			20,370	
	Subtotal Existing		-	230,671	1,350	5,958	71,310	-
	Total Existing		248,475	230,671		78,618		5,987
1a	New Addition		65,710	65,710				
	Area of rights					6,795	13,292	
	Encroachment					722	1,269	
	Total New Addition					7,517	14,561	
2a	Tillinghast		(25,146)	(24,085)			(1,857)	
	Subtotal Proposed		-	41,625		7,517	12,704	-
	Total Proposed		40,564	41,625		20,221		-
	Subtotal Existing and Proposed Per Zone and Lot			272,296	1,350	13,475	91,322	-
	Total Existing and Proposed		289,039	272,296		106,147		5,987



1 EXISTING SITE PLAN/ ZONING DISTRICTS
1"=200'
0 100' 200' 400'

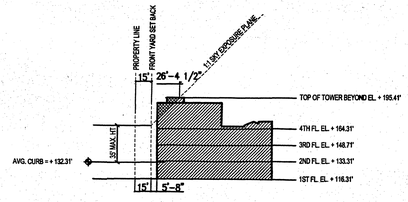
LEGEND:
- Property Line
- Large Scale Community Facility Boundary
- Zoning Lot Line
- Corner Lot/ 15' Frontyard line
- Existing building
- Proposed addition
- Encroachment to Set back & height
- NA-2/R1-2
- R6
- C2-2
- R4



2 PROPOSED YARDS AND COVERAGE
1"=60'

NOTE:

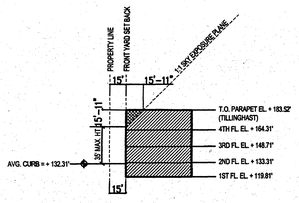
This drawing was built by scaling an old hand-drawn 1"=50' paper survey, prepared in 1950 (with 40 years of revisions) by Wheeler and updated in 1996 or 1997 by Nicholetti. It is NOT a digital survey, provided by a surveyor. Measurements and calculations of existing conditions are complied from drawing BD-002 by Gruzen Samton Architects Planners & Interior Designers LLP dated, May 08, 2000



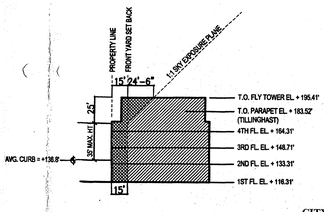
A SECTION AT CORNER
1"=60'

AVERAGE GRADE OF SOUTH ELEVATION NEW ADDITION:

AVG. CURB = 139.6'+125.0'/2 = 132.31'



B SECTION AT CENTER OF LIBRARY
1"=60'



C SECTION AT FLY TOWER
1"=60'

AVERAGE GRADE OF WEST ELEVATION: ZR 79-21

AVG. CURB = 134'+139.6'/2 = 136.8

CITY PLANNING COMMISSION
22 READE STREET, NEW YORK, NY 10007

N 000617 ZAM
AUTHORIZATION

APPROVED 04/25/01 (CAL. NO. 23)

SUBJECT TO VERIFICATION BY THE DEPARTMENT OF BUILDINGS FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF THE ZONING RESOLUTION OF THE CITY OF NEW YORK.

CITY PLANNING COMMISSION COPY

Tillinghast Renovation and Addition

HORACE MANN SCHOOL - Riverdale, NY

Graham Gund Architects, Inc.
Architects and Planners
47 Thorndike St., E. Cambridge, MA 02141 (617)577-9600
CONSULTANT:

STATE OF NEW YORK
GRAHAM GUND
No. 012624
PROFESSIONAL ARCHITECT

REVISIONS:

DATE:	MARCH 8, 2001
SCALE:	AS NOTED
DRAWN BY:	MF, DT
CHECKED BY:	JP

SHEET TITLE:
ZONING ANALYSIS
PROPOSED SITE PLAN

SHEET NUMBER:
A1.20

Appendix B: Enrollment Data

Enrollment Summary

	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15
Total	1,616	1,599	1,603	1,612	1,630	1,610	1,659	1,681	1,707	1,730	1,745	1,751	1,756	1,756	1,757	1,756	1,784	1,782	1,783	1,816	1,782	1,782

Appendix C: Agency Correspondence

Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: DEPARTMENT OF CITY PLANNING / 77DCP327X
Project:
Date received: 4/19/2016

Properties with no Architectural or Archaeological significance:

1) ADDRESS: 281 WEST 246 STREET, BBL: 2058161701
2) ADDRESS: 4401 CAYUGA AVENUE, BBL: 2058060681
3) ADDRESS: 4662 TIBBETT AVENUE, BBL: 2058141462
4) ADDRESS: 4664 TIBBETT AVENUE, BBL: 2058141463
5) ADDRESS: 4670 TIBBETT AVENUE, BBL: 2058141465
6) ADDRESS: 231 WEST 246 STREET, BBL: 2058141401

Within the radius: LPC designated Fieldston HD.

5/3/2016

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 31411_FSO_GS_05032016.doc

NYC Environmental Protection

Vincent Sapienza P.E
Acting Commissioner

Angela Licata
Deputy Commissioner of Sustainability

59-17 Junction Blvd
Flushing, NY 11373

Tel. (718) 595-4398
Fax. (718) 595-4422
alicata@dep.nyc.gov

July 20, 2016

Mr. Robert Dobruskin
Director, Environmental Assessment and Review Division
New York City Department of City Planning
120 Broadway, 31st Floor
New York, New York 10271

Re: Horace Mann School Expansion
231 West 246th Street
Block 5814, Lots 1102, 1401, 1462, 1463, 1465
Block 5806 p/o Lot 681
Block 5816 p/o Lot 1701
CEQR # 16DCP175X (previously 77DCP327X)
Bronx, New York 10471

Dear Mr. Dobruskin:

The New York City Department of Environmental Protection, Bureau of Sustainability (DEP) has reviewed the June 2016 Remedial Action Plan (RAP) and the June 2016 Construction Health and Safety Plan (CHASP) prepared by Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., on behalf of The Horace Mann School (applicant) for the above referenced project. It is our understanding that the applicant is proposing a minor modification to a previously- approved Large Scale Community Facility Development to facilitate a 100,993-gross square foot (gsf) Use Group 3 expansion of its Upper School campus, located in the Fieldston neighborhood of the Bronx, Community District 8. The expansion would result in the construction of a new 58,550 gsf science center, a 32,943-gsf aquatics center, a new entry into the existing Prettyman Gymnasium, new tennis courts as well as a 5,000 gsf maintenance building of. In addition, the applicant proposes to improve access and connections between other existing Upper School buildings. The property is currently occupied by two two-story dwellings, eight tennis courts, three parking areas, a driveway, one-story garage, storage trailer, two storage sheds, courtyard, baseball field, and two-story gymnasium.

During the February 2016 fieldwork activities, AARCO Environmental Services Corp advanced 25 soil borings (SB01 through SB24 and SB07B) to a depth ranging from 3 to 18 feet (ft.) below ground surface (bgs). Seven Environmental Site Investigation (ESI) soil samples and 75 Waste Characterization Study (WCS) soil samples (50 grab and 25 composite), including two composite and four grab duplicates were collected from the borings. Two ESI groundwater samples, including one duplicate, and one WCS groundwater sample were also collected from two existing geotechnical observation wells on site. The ESI soil samples and groundwater samples and were collected and analyzed for volatile organic compounds (VOCs) via United States Environmental Agency (EPA) Method

8260B, semi-volatile organic compounds (SVOCs) via EPA Method 8270C, Polychlorinated Biphenyls (PCBs) via EPA Method 8082, Pesticides via EPA Method 8081A, Herbicides via EPA Method 8151A, and Target Analyte List (TAL) metals (filtered and unfiltered for groundwater samples). Twenty-five (25) WCS grab soil samples were collected and analyzed for VOCs via EPA Method 8260B. An additional twenty-five WCS grab soil samples were collected and analyzed for Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO). Twenty-five (25) WCS composite soil samples were collected and analyzed for SVOCs via EPA Method 8270C, PCBs via EPA Method 8082, Pesticides via EPA Method 8081A, Herbicides via EPA Method 8151A, and TAL metals. Two soil vapor samples and one ambient air sample were also collected at the site and analyzed for VOCs via EPA Method TO-15.

The ESI soil analytical results revealed VOCs, SVOCs, PCBs and Pesticides were either non-detect (ND) or below their respective NYSDEC 6 NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs). Four Metals (copper, lead, mercury and zinc) and one pesticide (4,4'-DDT) were detected above their respective NYSDEC Unrestricted and/or Restricted Residential Use SCOs. The WCS soil analytical results revealed PCBs were wither ND or below their NYSDEC Unrestricted Use SCOs. Four VOCs (2-butanone, n-propylbenzene, naphthalene, and acetone), seven SVOCs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, indeno(1,2,1-cd)pyrene, benzo(k)fluoranthene and dibenzo(a,h)anthracene), two pesticides (4,4'-DDE and 4,4'-DDT), and five metals (arsenic, copper, mercury, nickel and zinc) were detected above their respective NYSDEC Unrestricted Use SCOs. The WCS soil analytical results also revealed TPH GRO and DRO concentrations ranged from 0.58 to 390 mg/kg and from 5.18 to 5,590 mg/kg respectively. The groundwater analytical results revealed VOCs, SVOCs, Herbicides, Pesticides, and PCBs were either ND or below their respective NYSDEC Division of Water Technical Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations for Class GA. Five Metals (chromium, iron, lead, manganese and sodium) were detected above their respective NYSDEC Division of Water TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations for Class GA. The soil vapor analytical results revealed that twenty VOCs including 1,2,4-trimethylbenzene, acetone, benzene, carbon disulfide, chloromethane and tetrachloroethene were detected in the soil vapor samples. However, these results were below the New York State Department of Health (NYSDOH) indoor Air Guideline Values.

The June 2016 RAP proposes proper handling, transportation, and disposal of excavated material and construction/demolition debris from the site, in accordance with applicable NYSDEC regulations; excavated soils that are temporarily stockpiled onsite will be placed onto a layer of a minimum 10-mil poly sheeting and covered with 6-mil poly sheeting, which will be securely anchored to the ground or floor surface, upon reaching their capacity. Active stockpiles that have not reached their capacity will be covered at the end of each work day; air monitoring procedures; dust control procedures; removal and/or closure of all known or found underground and/or aboveground storage tanks including dispensers, piping, and fill ports, in accordance with applicable NYSDEC regulations; a groundwater management plan to include dewatering procedures if necessary, as per DEP's Bureau of Wastewater Treatment Wastewater Quality Control Permit; post-excavation soil sampling, if grossly-impacted soil is encountered onsite, as per the NYSDEC DER-10 requirements; the installation of two feet of certified clean fill across portions of the site in any landscaped/grass covered areas not capped with concrete/asphalt; the reuse of material excavated from within the Site during construction provided impacts (i.e., petroleum staining and odor) are not observed. General backfill and reused material will be capped with two feet of clean material or impervious surface

cover (e.g., asphalt and concrete); as well as the installation of a vapor barrier system, a minimum thickness of 20 mil, beneath the lowest level building slabs across the development footprint and along the subsurface sidewalls from the foundation grade to surface grade.

Based upon our review of the submitted documentation, we have the following comments and recommendations to DCP:

DEP finds the June 2016 RAP and CHASP, which addresses worker and community health and safety during development **acceptable.** DCP should instruct the applicant that at the completion of the project, a Professional Engineer (P.E.) certified Remedial Closure Report should be submitted to DEP for review and approval for the proposed project. The P.E. certified Remedial Closure Report should indicate that all remedial requirements have been properly implemented (i.e., proper transportation/disposal manifests and certificates from impacted soils removed and properly disposed of in accordance with all NYSDEC Regulations and proof of installation of engineering control system).

Future correspondence and submittal related to this project should include the following CEQR number **16DCP175X**. If you have any questions, you may contact Ms. Cassandra Scantlebury at (718) 595-6756.

Sincerely,

Maurice S. Winter
Deputy Director, Site Assessment

cc: E. Mahoney
M. Winter
T. Estesen
W. Yu
M. Wimbish
C. Lee (DCP)
O. Abinader (DCP)
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