



## STATE ENVIRONMENTAL QUALITY REVIEW NEGATIVE DECLARATION

**Date:** March 10, 2015

**Lead Agency:** Dormitory Authority State of New York  
515 Broadway  
Albany, New York 12207-2964

**Applicant:** Barnard College  
3009 Broadway  
New York, New York 10027

This notice is issued pursuant to the *State Environmental Quality Review Act* (“SEQRA”), codified at Article 8 of the *New York Environmental Conservation Law* (“ECL”), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Codes, Rules and Regulations* (“N.Y.C.R.R.”), which collectively contain the requirements for the *New York State Environmental Quality Review* (“SEQR”) process.

**The Dormitory Authority State of New York (“DASNY”), as lead agency, has determined that the Proposed Action described below will not have a significant adverse effect on the environment and a Draft Environmental Impact Statement will not be prepared.**

**Title of Action:** Barnard College  
*Teaching and Learning Center (2015 Financing Project)*  
(Independent Colleges and Universities)

**SEQR Status:** Type I Action – 6 N.Y.C.R.R. § 617.4(b)(9)

**Review Type:** Coordinated Review

### ***Proposed Action***

The Dormitory Authority State of New York (“DASNY”) has received a funding request from Barnard College (“Barnard” or the “College”) pursuant to DASNY’s Independent Colleges and Universities Program for its Teaching and Learning Center (2015 Financing Project). For purposes of *State Environmental Quality Review (“SEQR”)*, the Proposed Action would consist of DASNY’s authorization of the issuance of approximately \$170,000,000 in fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

### ***Proposed Project***

The proceeds of the bond issuance would be used to finance the construction of a new, approximately 132,600-gross-square-foot (“gsf”), Teaching and Learning Center (the “Proposed Project”) on the Barnard College campus. The Proposed Project would include the demolition of the existing 65,000-gsf Lehman Hall, as well as the renovation of portions of Barnard Hall, to serve as swing space during construction of the *Teaching and Learning Center*.

Construction of the proposed Teaching and Learning Center would commence in March 2016 and completed by August 2018.

The Proposed Project would also involve refunding of all or a portion of DASNY’s Barnard College Insured Revenue Bonds, Series 2004 and Series 2007A, as well as a series of campus-wide renovation and maintenance projects at various buildings.

### ***Location of Proposed Project***

The Proposed Project would be located on the Barnard College campus bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York (the “Project Site”).

### ***Description of the Institution***

Founded in 1889, Barnard College is an independent, undergraduate, liberal arts college for women affiliated with Columbia University (“Columbia”). With 375 faculty members, current enrollment is approximately 2,400 students of which 90 percent live in Barnard or Columbia residence facilities. From its inception, Barnard has had as its primary commitment the academic, personal, and professional success of women. Women number over 65 percent of the faculty and are well represented in the administration. Barnard’s relationship with Columbia as well as ties to the Julliard School, the Manhattan School of Music and the Jewish Theological Seminary of America, give students a wide range of educational options.

### **Reasons Supporting This Determination**

**Overview.** DASNY completed this environmental review in accordance with the procedures set forth in the *State Environmental Quality Review Act* (“SEQRA”), codified at Article 8 of the *New York Environmental Conservation Law* (“ECL”), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Codes, Rules and Regulations* (“N.Y.C.R.R.”), which collectively contain the requirements for the SEQR process. The environmental review followed the 2014 *City Environmental Quality Review* (“CEQR”) *Technical Manual*<sup>1</sup> for evaluating the Proposed Project, unless stated otherwise.

The Proposed Project was also reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“SHPA”), especially the implementing regulations of Section 14.09 of the *Parks, Recreation, and Historic Preservation Law* (“PRHPL”). Additionally, the Proposed Project was reviewed in conformance with the *State Smart Growth Public Infrastructure Policy Act* (“SSGPIPA”).

Representatives of DASNY reviewed the *SEQR Environmental Assessment Form-Part I* (“EAF-Part I”) and supporting documentation for the Proposed Project (attached), and made a determination that the Proposed Project was a Type I Action pursuant to 6 N.Y.C.R.R. § 617.4(b)(9). On February 6, 2015, DASNY circulated a lead agency request letter and the *EAF-Part I* to the involved agencies and interested parties. There being no objection to DASNY assuming SEQR lead agency status, it conducted a coordinated review among the involved agencies.

DASNY representatives visited the Project Site and environs and discussed the Proposed Project’s possible environmental effects with representatives of Barnard and the involved agencies. Based on the above, and the additional information set forth below, DASNY as lead agency has analyzed the relevant areas of environmental concern and determined that the Proposed Project would not have a significant adverse effect on the environment and a Draft Environmental Impact Statement will not be prepared.

**General Findings.** The purpose of the Proposed Project is to provide a modern academic facility for Barnard College. Barnard’s Strategic Plan states that upgrading its physical plant and improving the appearance and functionality of the College campus and improving and consolidating the College’s Information Technology systems is necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard’s commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design, creating a learning space based around digital media,

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<sup>1</sup> [www.nyc.gov/html/oec/html/ceqr/technical\\_manual\\_2014.shtml](http://www.nyc.gov/html/oec/html/ceqr/technical_manual_2014.shtml)

virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy. The Proposed Project would also support Barnard's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching.

In addition to the Proposed Project described above, Barnard is also seeking financing for certain refunding, renovation and maintenance projects at various buildings on or in the vicinity of its Manhattan campus. These components of the proposed financing are described below:

*Refunding.* This component of the proposed financing would involve a refunding of all or a portion of DASNY's Barnard College Insured Revenue Bonds, Series 2004 and Series 2007A (approximately \$58,200,000). Refinancing of existing debt is a Type II action under SEQR as specifically designated by 6 N.Y.C.R.R. § 617.5(c)(23).

*Renovation and Maintenance Projects.* This component of the proposed financing would involve elevator upgrades across campus; interior renovations in Altschul Hall; energy saving infrastructure upgrades and capacity upgrades across campus and in Altschul Hall; fire alarm master plan and upgrade of systems across buildings; additional proximity readers and cameras for public safety; and renovation of common bathrooms in academic buildings. Replacement, rehabilitation or reconstruction of a structure or facility, in kind, on the same site, including upgrading buildings to meet building or fire codes, is a Type II action under SEQR as specifically designated by 6 N.Y.C.R.R. § 617.5(c)(2).

DASNY's overall SEQR classification for all elements of the proposed financing is Type I.<sup>2</sup> The *Refunding* and *Renovation and Maintenance Projects* are Type II actions as specifically designated by SEQR.<sup>3</sup> With regard to the Type II actions associated with the proposed financing, these "actions have been determined not to have significant impact on the environment or are otherwise precluded from environmental review under *Environmental Conservation Law*, article 8."<sup>4</sup> Therefore, no further SEQR determination or procedure is required for any component of the Proposed Project identified as Type II. It is the determination of DASNY that these components of the Proposed Project would not cumulatively result in significant adverse environmental impacts.

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<sup>2</sup> 6 N.Y.C.R.R. § 617.4(b)(9).

<sup>3</sup> 6 N.Y.C.R.R. § 617.5(c)(2 and 23).

<sup>4</sup> 6 N.Y.C.R.R. § 617.5(a).

Hence, the environmental review which follows focuses on the *Teaching and Learning Center*, referred to hereafter as the “Proposed Project.”

**Zoning.** According to the *Zoning Resolution of the City of New York (“ZRCNY”)*, the Project Site is zoned R8 General Residence District. The Proposed Project would conform with all bulk and use requirements within the R8 zoning district. The proposed use is permitted as of right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable floor area ratio (“FAR”) for the Development Site. Based on 6.5 FAR for community facilities in R8 districts and a lot area of 189,466 square feet, the maximum potential development on the Project Site is approximately 1,231,529 zoning square feet (“zsf”); accounting for the floor area of existing campus buildings as indicated on recent New York City Department of Buildings (“NYCDOB”) filings, while the Proposed Project would increase zoning floor area on the Development Site, the FAR on the Project Site would still be within the allowable FAR for such uses.

No zoning change would be required in order to facilitate the Proposed Project. No significant adverse zoning impacts would occur.

**Land Use.** The Project Site, the Barnard College campus, consists primarily of educational buildings and student residences interspersed with open space, pedestrian walkways, and outdoor seating areas. Land uses within a 400-foot study radius are characterized by institutional uses (Columbia University, Teachers College, Union Theological Seminary, Riverside Church, Interchurch Center, St. Hilda’s and St. Hugh’s School, and Korean Methodist Church and Institute) followed by residential. Commercial uses within the study area are limited to ground-floor neighborhood retail stores located along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street. Open spaces within the study area largely consist of the Columbia University and Barnard College campuses, which contain substantial amounts of landscaped space, outdoor seating areas, and open lawns suitable for light recreation activities.

The Proposed Project would result in the expansion of an existing institutional land use on the Development Site. The Proposed Project would not alter or displace any existing land uses. The Proposed Project would represent an intensification of the existing institutional uses in the vicinity; however, it would not represent a substantial change in land use. No significant adverse land use impacts would occur.

**Public Policy.** The Proposed Project was reviewed for its compliance with the relevant public policy initiatives that guide development within the project study area.

*State Smart Growth Public Infrastructure Policy Act Consistency Assessment.* The Proposed Project was reviewed to determine its general consistency with each of the smart growth public infrastructure criteria. As described in the *DASNY Smart Growth Impact Statement Assessment Form (“SGISAF”)*, included as an appendix to the *SEQR Supplemental Report*, the

Proposed Project would be developed in general consistency with each of the smart growth public infrastructure criteria.

Overall, the Proposed Project would be developed in compliance with the relevant public policy initiatives that guide development within the project study area.

**Socioeconomic Conditions.** The Proposed Project would not introduce or displace any residents, nor would it displace more than 100 employees or a business or institution. No increase in enrollment would occur as a result of the Center's construction; the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. The Proposed Project would be consistent with and would contribute to the existing institutional uses on the Barnard College campus. Therefore, the Proposed Project does not meet the threshold for further analysis and would not result in any significant adverse impacts on socioeconomic conditions.

**Community Facilities and Services.** The Proposed Project would not introduce any new residential population, or result in the creation of a sizable new neighborhood. The Proposed Project would not have any direct or indirect effects on nearby community facilities; no significant adverse community facilities impacts are expected and, thus, no further analysis is needed.

The Project Site falls within the jurisdiction of New York City Police Department ("NYPD") 26<sup>th</sup> Precinct, located at 520 West 126<sup>th</sup> Street, located approximately 0.53 mile from the Project Site. Fire Department of the City of New York ("FDNY") Engine Company 47, located at 502 West 113<sup>th</sup> Street, would provide a first response in the event of a fire or emergency.

**Open Space.** An open space assessment is appropriate if a project would have potential direct or indirect effects on open space. Direct effects occur if there is a physical loss of public space, the use of an open space is changed so it no longer serves the same user populations, public access to open space is limited, or there is an increase in noise or air pollutant emissions, odors, or shadows on a public space that affects its usefulness. Indirect effects occur when the population introduced by the proposed project would be large enough to noticeably diminish the ability of the open space to serve the future population. The Proposed Project would not physically change or eliminate any open space or reduce its utilization or aesthetic value, and would not introduce any substantial new user population that would create or exacerbate an over-utilization of existing open space resources. No significant adverse impacts to parks and open space would occur as a result of the Proposed Project.

**Cultural Resources.** The Proposed Project was reviewed in conformance with the *New York State Historic Preservation Act of 1980 ("SHPA")*, especially the implementing regulations of Section 14.09 of the *Parks, Recreation, and Historic Preservation Law ("PRHPL")*, as well as with the requirements of the Memorandum of Understanding ("MOU"), dated March 18, 1998,

between DASNY and the New York State Office of Parks, Recreation, and Historic Preservation (“OPRHP”). The Proposed Project has been submitted to OPRHP and the New York City Landmarks Preservation Commission (“LPC”) for review.

*Archaeological Resources.* The Development Site would require excavation for the proposed building. DASNY is consulting with LPC and OPRHP for their determinations of the potential archaeological sensitivity of the Development Site. If LPC or OPRHP determines the development parcel to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report would be prepared. As relevant, based on the conclusions of the Phase 1A, and in consultation with OPRHP and LPC, a suitable treatment plan would be devised for any areas of potential sensitivity. The treatment plan could include construction monitoring or field testing, depending on the nature of the potential resources identified and the extent of construction that would take place in specific locations.

*Architectural Resources.* Lehman Hall was previously determined by OPRHP to be not eligible for listing on the State and National Registers of Historic Places (“S/NR”); therefore, its demolition under the Proposed Project would not constitute an adverse impact. In a letter dated March 6, 2015, OPRHP noted that it would not object to the building’s demolition.

The S/NR-listed Barnard Hall is located within 90 feet of the Development Site. To avoid potential inadvertent construction-related impacts on this architectural resource, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a Construction Protection Plan (“CPP”) would be developed in consultation with LPC and OPRHP and implemented by a professional engineer prior to any demolition or construction. The CPP would follow the New York City Department of Buildings *Technical Policy and Procedure Notice (“PPN”) #10/88* regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines adjacent historic structures as being contiguous or within a lateral distance of 90 feet from a lot under development or alteration. The CPP would set forth measures for the protection and avoidance of structural and architectural damage for this resource.

OPRHP, in its letter of March 6, 2015, indicated that it is likely that the renovation of the Barnard Hall gymnasium would constitute an adverse impact to this historic building. OPRHP has requested an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall. The alternatives analysis is being prepared by DASNY. The final resolution of any cultural resources aspects of the Proposed Project is subject to *SHPA* and its Section 14.09 implementing regulations. DASNY and Barnard look forward to the development of a Letter of Resolution (“LOR”) with OPRHP, thus allowing the Proposed Project to proceed.

Besides Barnard Hall, there are no study area architectural resources located within 90 feet of the Development Site; therefore, the proposed project would not have any adverse physical impacts on resources in the study area.

The design of the proposed Teaching and Learning Center would include materials chosen to complement the brick and stone of the nearby historic buildings on the Project Site, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources on the Project Site and the modern design of the proposed building. The proposed Teaching and Learning Center would be taller and larger than the existing Lehman Hall; however, it would be similar in height to several existing buildings on Barnard's campus, most notably Altschul Hall and Sultzberger Hall, and its total area also would be comparable to other campus buildings. Overall, the proposed building would be consistent with the bulk, uses, and arrangements of other buildings on the Barnard campus.

Many existing buildings near the Project Site include a variety of building materials that characterize the period during which the buildings were built. The proposed building would be designed likewise to characterize the current period in architecture and building technology. The proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the Morningside Heights neighborhood. At approximately 210 feet, the proposed building would be of comparable height or shorter than a number of buildings in the study area, including the Interchurch Center, at 237 feet in height, and the 229-foot-tall Northwest Science Building at the southeast corner of West 120th Street and Broadway.

Overall, the Proposed Project would not be expected to have any significant adverse physical, visual, or contextual impacts on historic resources.

*Agency Review.* DASNY has submitted the Proposed Project to OPRHP and LPC for review. In a memo dated February 9, 2015, LPC concluded that the Development Site has no architectural or archaeological significance, and deferred its review to OPRHP. DASNY's consultation with OPRHP is ongoing.

The purpose and need for the Proposed Project is articulated in the College's Strategic Plan. Barnard College has core objectives which include: dedication to women's education; devotion to the liberal arts; maintaining a mutually beneficial relationship with Columbia University; recruitment and support of top tier faculty; recruitment and intellectual nourishment of top-tier students; nurturing and expanding diversity within its community; commitment to an innovative curriculum that aligns with the College's mission; and providing a distinctive educational experience for all students. The Proposed Project also serves a necessary public interest — education, in general, and the training of students, in particular. In order to achieve these goals, Barnard College notes in its Strategic Plan that upgrading its physical plant and improving the appearance and functionality of the College's campus and improving and



consolidating the College's Information Technology systems will be necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard's commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design; creating a learning space based around digital media, virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy.

The Proposed Project would also support the College's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the newly created second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

DASNY, in exercising its discretion under *SEQR*, has made a determination that the Proposed Project will not engender a significant adverse impact. While there is certainly an impact, it is DASNY's opinion is that it is neither significant nor adverse. While *SHPA* requires that historic preservation policy be given primary consideration in formulating recommendations or alternatives, it also notes, however, that other factors such as cost, program needs, safety, efficiency, code requirements or alternative sites may also be considered. The Proposed Project has not faced any known community opposition. The Proposed Project would not result in the removal of any of the architecturally distinguished buildings that make up the area, since OPRHP has previously determined Lehman Hall, which would be demolished, is not eligible for listing on the S/NR. The new Teaching and Learning Center would be of comparable height or shorter than a number of buildings in the study area as well as Barnard's campus. Cladding materials would be chosen to complement the nearby historic buildings, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources in the surrounding area and the modern design of the new Teaching and Learning Center. The Development Site is located within 90 feet of Barnard Hall (S/NR-eligible), which could potentially be adversely affected by ground-borne, construction-period vibrations or other unanticipated potential construction-related impacts. Therefore, to avoid potential adverse

physical impacts on this building, the Proposed Project would develop and implement a construction protection plan (“CPP”) in consultation with OPRHP.

With respect to the renovation of the Lefrak Gymnasium within Barnard Hall, including the building of a second floor within the gymnasium, Barnard College evaluated several alternatives, before deciding upon the current plan. DASNY has reviewed these alternatives and it is the opinion of DASNY that there are no feasible and prudent alternatives to the Proposed Project when issues related to programmatic, efficiency and cost factors are taken into consideration, but it is nonetheless in the public interest to proceed with the undertaking. Furthermore, DASNY will require Barnard College to prepare a Historic American Building Survey (“HABS”) to mitigate the impact of installing a second floor in the gymnasium.

It is the opinion of DASNY that the Proposed Project would have no adverse impact on historic or cultural resources listed in or eligible for inclusion in the S/NR.

**Urban Design and Visual Resources.** 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. According to 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 comply with existing zoning; therefore, no further analysis is warranted, and the Proposed Project would therefore not result in significant adverse impacts to urban design and visual resources.

**Shadows.** According to the *CEQR Technical Manual*, a shadow is defined as the circumstance in which a building or other built structure blocks the sun from the land. A shadow assessment prepared pursuant to *CEQR Technical Manual* guidelines considers actions that result in shadows long enough to reach a publicly accessible open space except within an hour and a half of sunrise or sunset. Additionally, shade cast on buildings by trees and other natural features are not defined as shadows that would be considered under a *CEQR Technical Manual* impact analysis. A shadow assessment is required for actions that would result in the construction of new structures greater than 50 feet in height or additions to existing structures that are located adjacent (including across the street) to publicly accessible parks, historic resources, or important natural features.

A preliminary screening assessment must first be conducted to ascertain whether a project’s shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed building representing the longest shadow that could be cast.

If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.

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

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

Given the height of the Proposed Project and its proximity to several sunlight-dependent resources, the three-tiered preliminary assessment concluded that a detailed shadow analysis was necessary.

For the detailed analysis, a No Action condition is established, containing existing buildings and any future developments planned in the area, to model the baseline shadows. The future condition with the proposed project and its shadows can then be compared to the baseline condition to determine the incremental shadows that would result with the proposed project.

Three-dimensional representations of the existing buildings in the study area were developed using data obtained from the New York City Department of Information Technology and Telecommunications (“DoITT”) and photos taken during project site visits, and were added to the three-dimensional model used in the Tier 3 assessment.

Shadows are in constant movement. The computer simulation software produces an animation showing the movement of shadows over the course of each analysis period. The analysis determines the time when incremental shadow would enter each resource, and the time it would exit.

Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

The detailed analysis showed that on December 21, shadow would fall on the Hudson River for the initial 7 minutes of the analysis day. This minimal duration of new shadow would not impact the river.

Incremental shadow would fall onto portions of Riverside Park for the first hour and 15 minutes of the analysis day. The winter months are not within New York City's growing season, and the new shadow would therefore not affect the vegetation. During the hour and 15 minute duration of new shadow, adjacent areas of Riverside Park would remain in sun for any users braving the winter morning weather and seeking sun, and the impact would therefore not be significant for recreational use.

During the spring, summer and fall analysis periods, the intervening buildings west of Claremont Avenue would prevent incremental project-generated shadow from reaching Riverside Park. Similarly, in the late afternoons, when project-generated shadow could otherwise fall onto a portion of Columbia University's campus, the intervening campus buildings along the east side of Broadway already cast shadows on those areas, and no incremental shadow would occur in any season.

Shadow would fall on a small section of one of the Broadway Malls adjacent to West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall seasons, ranging from approximately one to two hours in duration. This relatively brief period of new shadow would not significantly impact the vegetation of the Malls, due to the amount of sunlight available to the resource in the remainder of the day. In addition, the project-generated shadows would not be anticipated to adversely affect the usability of the Malls, given that they are used more as a visual resource than an open space resource. In any case, the incremental shadow would mostly not fall on the benches at the intersection of Broadway and West 119<sup>th</sup> Street, and during the periods when it would, other nearby benches within sight would remain in sun for users seeking sunlit seating. Therefore the new shadow would not significantly impact the Malls.

Overall, no significant adverse shadow impacts would occur as a result of the Proposed Project.

**Natural Resources.** The Project Site is fully developed with a four-story building, paved areas, and a lawn area that would remain in the future with the Proposed Project. As such, natural resources within the project site are limited to the few urban-adapted species of wildlife that utilize building exteriors as habitat and are ubiquitous throughout New York City. Specifically, these include house sparrows (*Passer domesticus*), rock pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), and Norway rats (*Rattus norvegicus*). The Proposed Project would not have the potential to result in significant adverse impacts to the urban-tolerant wildlife species using the Project Site. While individual wildlife may be adversely affected should suitable habitat not be available nearby, the loss of some individuals would not adversely affect populations of these wide-spread, urban-tolerant species within the metropolitan region. Overall, the Proposed Project would not result in any significant adverse impacts to natural resources within or near the project site, and no further analysis is required.

**Hazardous Materials.** The Proposed Project was evaluated for its potential hazardous materials impacts. A *Phase I Environmental Site Assessment ("ESA")* of the Development Site was performed in March 2015 in accordance with American Society for Testing and Materials ("ASTM") Standard E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. The ESA included a visual inspection; a review of historical land use maps, prior reports and local records; and a review of State and federal regulatory databases relating to use, generation, storage, treatment and/or disposal of hazardous materials.

The Phase I ESA identified no "*Recognized Environmental Conditions*" ("RECs"), i.e., the presence or likely presence of hazardous substances or petroleum in the ground or groundwater. Identified environmental concerns included off-site reported spills and hazardous waste generators with limited potential to affect the project site), and the potential presence (typical of older buildings) of asbestos-containing materials ("ACM"), lead-based paint, and fluorescent lighting fixtures and other electrical equipment that could include polychlorinated biphenyls ("PCBs").

**Recommendations.** The Proposed Project would entail demolition of the existing Lehman Hall, excavation for the construction of a new building at its location, and interior renovation in portions of Barnard Hall. Although these activities could increase pathways for human exposure, impacts would be avoided by performing the project in accordance with the following:

- During any future subsurface disturbance, excavated soil should be handled and disposed of in accordance with applicable regulatory requirements. If dewatering is necessary for the proposed construction, water would be discharged to sewers in accordance with New York City Department of Environmental Protection ("NYCDEP") requirements.
- Any suspect ACM that would be disturbed by the Proposed Project would be surveyed for asbestos by a NYC-certified asbestos investigator. All such ACM would be removed and disposed of prior to the disturbance in accordance with local, state and federal requirements.
- Any activities with the potential to disturb lead-based paint would be performed in accordance with applicable requirements (including federal Occupational Safety and Health Administration regulation 29 C.F.R. 1926.62 - *Lead Exposure in Construction*).
- Unless there is labeling or test data indicating that any suspect PCB-containing electrical equipment and fluorescent lighting fixtures do not contain PCBs, and that any fluorescent lighting bulbs do not contain

mercury, if disposal is required, it would be conducted in accordance with applicable federal, state and local requirements.

With these measures, the Proposed Project would not result in any significant adverse impacts related to hazardous materials.

**Infrastructure.** The Proposed Project was assessed for its potential effects upon water supply, wastewater collection and treatment and storm water management systems.

**Water Supply.** According to the water and sewer generation rates provided in the 2014 *CEQR Technical Manual*, the Proposed Project would generate a water demand of approximately 35,802 gallons per day (“gpd”).

According to the *CEQR Technical Manual*, a preliminary infrastructure assessment is not required if the project does not meet the following thresholds:

- If the project would result in an exceptionally large demand for water (e.g., those that are projected to use more than one million gallons per day, such as power plants, very large cooling systems, or large developments); or,
- Is located in an area that experiences low water pressure (e.g. areas at the end of the water supply distribution system, such as the Rockaway Peninsula or Coney Island).

The Proposed Project would not result in an exceptionally large demand for water and would not be located at the end of the water supply distribution system. As such, water infrastructure impacts are not anticipated and a detailed assessment is not required.

**Sanitary Sewage.** The Proposed Project would generate sanitary sewage at a rate commensurate with domestic water consumption, approximately 35,802 gpd. Sanitary sewage from the Project Site would be conveyed to the North River Wastewater Pollution Control Plant (“WPCP”), which has a rated capacity of 170 million gallons per day (“mgd”). The amount of sanitary sewage generated would not be expected to exceed the WPCP’s capacity or affect its treatment efficiency, and is not expected to overburden the local conveyance system. According to the *CEQR Technical Manual*, a preliminary sanitary sewage infrastructure analysis is not required if the Proposed Project does not exceed the following thresholds:

- If the project exceeds 400 residential units or 150,000 square feet of commercial, public facility, and institution and/or community facility space or more in Brooklyn;
- Is located in a separately sewered area;
- Is located an area that is partially sewered or currently unsewered;

- Involves development on a site five acres or more with a large amount of impervious surfaces;
- Would involve development on a site one acre or larger where the amount of impervious surface would increase and 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, and Westchester Creek; or,
- Would involve construction of a storm water outfall that requires federal and/or state permits.

The Proposed Project would not involve the construction of 400 or more residential units, would not involve development on a site that is one acre or larger, where the amount of impervious surfaces would increase, and the project site is not located within the Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchinson River, Newtown Creek or Westchester Creek drainage area.

No significant adverse impacts are anticipated as a result of the Proposed Project and no additional analyses are required.

*Solid Waste and Sanitation Services.* A solid waste assessment determines whether a project has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity or otherwise be inconsistent with the city's Solid Waste Management Plan ("SWMP" or "Plan") or with state policy related to the city's integrated solid waste management system. The city's solid waste system includes waste minimization at the point of generation, collection, treatment, recycling, composting, transfer, processing, energy recovery, and disposal. As the Proposed Project would not result in any additional student, staff, faculty, or visitor populations, it is not expected to generate a substantial amount of solid waste as defined in the *CEQR Technical Manual*. Therefore, the Proposed Project would not affect the city's capacity to handle solid waste, and no further analysis is required.

*Energy.* All new structures requiring heating and cooling in the City of New York are subject to the *New York City Energy Conservation Code*. Therefore, the need for a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. However, a project's operational energy consumption is often calculated. It is expected that the Proposed Project, when operational, would consume approximately 33.343 million British Thermal Units ("BTU") per year.<sup>5</sup> This would not be considered a significant demand for energy. Further, the Proposed Project would incorporate

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<sup>5</sup> A BTU is the amount of heat energy needed to raise the temperature of one pound of water by one degree Fahrenheit. This is the standard measurement used to state the amount of energy that a fuel has as well as the amount of output of any heat generating device.

measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. Therefore, the Proposed Project would not result in significant adverse impacts to the consumption or supply of energy.

**Transportation.** The Proposed Project was evaluated for its potential effects on the transportation system. The objective of the traffic, parking, transit, and pedestrian analyses was to determine whether the Proposed Project would have a significant impact on street and roadway conditions, parking facilities, public transportation facilities and services, and pedestrian flows.

The Proposed Project would replace an outdated, functionally obsolete library building with a new state-of-the-art library and academic building. There would be no increase in the number of students as a result of the Proposed Project. Due to the replacement nature of the project, no new activities would be introduced to the Project Site that would generate significant new vehicle trips. Employee staffing is not expected to increase as a result of the Proposed Project, as existing staff would be relocated to the new building. Accordingly, no further traffic analysis is required, and no significant traffic, parking, transit or pedestrian impacts would result.

**Air Quality.** An air quality screening analysis was performed following the *CEQR Technical Manual* guidance to determine if the Proposed Project has the potential to cause air quality impacts. The Proposed Project is not expected to significantly alter traffic conditions, and the maximum hourly incremental traffic from the Proposed Project would not exceed the *CEQR Technical Manual’s* carbon monoxide (“CO”) screening threshold of 170 peak-hour trips at nearby intersections in the study area, nor would it exceed the fine particulate matter (“PM<sub>2.5</sub>”) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the 2014 *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project-generated traffic is not warranted.

The Proposed Project would include a new boiler installation for the new Teaching and Learning Center. Therefore, a stationary source screening analysis was conducted to evaluate potential future pollutant concentrations from the proposed heating and hot water system. This screening analysis, detailed in the attached Supplemental Report, found that emissions from the Proposed Project would not exceed the threshold for a detailed air quality analysis, therefore no significant adverse stationary-source air quality impacts are expected as a result of the Proposed Project.

**Greenhouse Gas Emissions.** The 2014 *CEQR Technical Manual* requires a greenhouse gas (“GHG”) consistency assessment for large projects under Environmental Impact Statement (“EIS”) review that would result in the development of 350,000 square feet or greater, or for



projects on a case-by-case basis to determine its consistency with the city's GHG reduction goals.<sup>6</sup> In addition, the 2014 *CEQR Technical Manual* guidance suggests that a GHG emissions assessment may be necessary for projects that involve: (1) power generation (not including emergency backup power, renewable power, or small-scale-cogeneration); or (2) fundamental change to the city's solid waste management system by changing solid waste transport mode, distances or disposal technologies.<sup>7</sup> The Proposed Project does not require the preparation of an EIS and is not expected to result in significant inconsistencies with the city's GHG reduction goals. The Proposed Project would not involve excessive power production or alter the solid waste management system. Therefore, no significant adverse impacts related to GHG emissions are anticipated as a result of the Proposed Project.

Although a detailed GHG assessment was not warranted, it is expected that the Proposed Project would be compatible with the city's policies to reduce GHG emission.

**Noise.** The Proposed Project was evaluated for its potential mobile-source and stationary-source noise impacts. 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<sup>8</sup> increase in noise levels). However, ambient noise levels adjacent to the Development Site were considered to address *CEQR* noise abatement requirements for the proposed building.

**Attenuation Measures.** The proposed Teaching and Learning Center as well as the proposed renovations to Barnard Hall would be designed and constructed using standard construction methods and materials, including acoustically-rated windows and air conditioning as an alternate means of ventilation. The proposed building's façades, including these elements, would be expected to provide a composite Outdoor-Indoor Transmission Class ("OITC") such that interior noise levels would be 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative uses. Furthermore, because the exterior L10(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 systems (i.e., heating, ventilation, and air conditioning) 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 generating noise that would significantly increase ambient levels.

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<sup>6</sup> As part of the city's PlaNYC and the *New York City Climate Protection Act* (Local Law 22 of 2008), the city has a goal of reducing citywide greenhouse gas emissions by 30 percent below 2005 levels by 2030.

<sup>7</sup> 2014 *CEQR Technical Manual*, p. 18-7.

<sup>8</sup> The A-weighted decibel scale is used almost exclusively in vehicle noise measurement because it reflects the frequency range to which the human ear is most sensitive (1,000-6,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA.

**Neighborhood Character.** Neighborhood character is a term used to describe the various elements that contribute to a community or neighborhood — such as land use, architectural design, visual resources, historic resources, socioeconomics, traffic and noise — from which an area derives its distinct “personality.” A neighborhood character assessment considers how a proposed action may affect the context and feeling of a neighborhood by collectively accounting for its effects on the contributing elements. In general, this assessment is warranted for actions with the potential to result in significant adverse impacts in one of the technical areas, or if it may moderately effect several of these areas. The Proposed Project does not have the potential to result in any significant adverse impacts to any of the above-mentioned areas or the potential for any combination of moderate effects in more than one area, therefore no neighborhood character assessment is warranted.

**Public Health.** Public health involves the activities that society undertakes to protect and improve the health and well-being of the population. Public health may be jeopardized by poor air quality, exposure to hazardous materials, noise, and contaminants in soil and water. As demonstrated in earlier sections, the Proposed Project is not anticipated to result in any significant adverse impacts to air quality, water quality, hazardous materials, or noise. Hence, the Proposed Project would not result in any significant adverse impacts to public health and no further analysis is warranted.

**Construction Impacts.** The Proposed Project would involve construction activities at the Development Site. As with all construction projects, work at the Development Site would result in temporary disruptions to the surrounding area, including occasional noise and dust. The overall construction duration for the Proposed Project is expected to be approximately three years. The renovation of the LeFrak Gymnasium is expected to commence in summer 2015 and would take approximately six months to complete. The Gymnasium would provide campus swing space for the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The demolition of the existing Lehman Hall and construction of the new Teaching and Learning Center expected to take place from March 2016 to August 2018. The most intense construction activities in terms of noise levels and air pollutant emissions (viz., demolition, excavation, and foundation work, during which a number of large nonroad diesel engines would be employed) would last for only a portion of the overall construction duration — approximately one year.

Construction of the Proposed Project would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 a.m. and 6:00 p.m. on weekdays. If work is required outside of normal construction hours, necessary approvals would be obtained from the appropriate agencies (i.e., the New York City Department of Buildings [“NYCDOB”] and NYCDEP). 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's ("NYCDOT") Office of Construction Mitigation and Coordination ("OCMC"). Through implementation of the measures described above, the temporary 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.

**For Further Information:**

**Contact:** Jack D. Homkow  
Director  
Office of Environmental Affairs

**Address:** Dormitory Authority State of New York  
One Penn Plaza, 52<sup>nd</sup> Floor  
New York, New York 10119-0098

**Telephone:** (212) 273-5033  
**Fax:** (212) 273-5121

**Full Environmental Assessment Form  
Part 1 – Project and Setting**

**Instructions for Completing Part 1**

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

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

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

**A. Project and Sponsor Information**

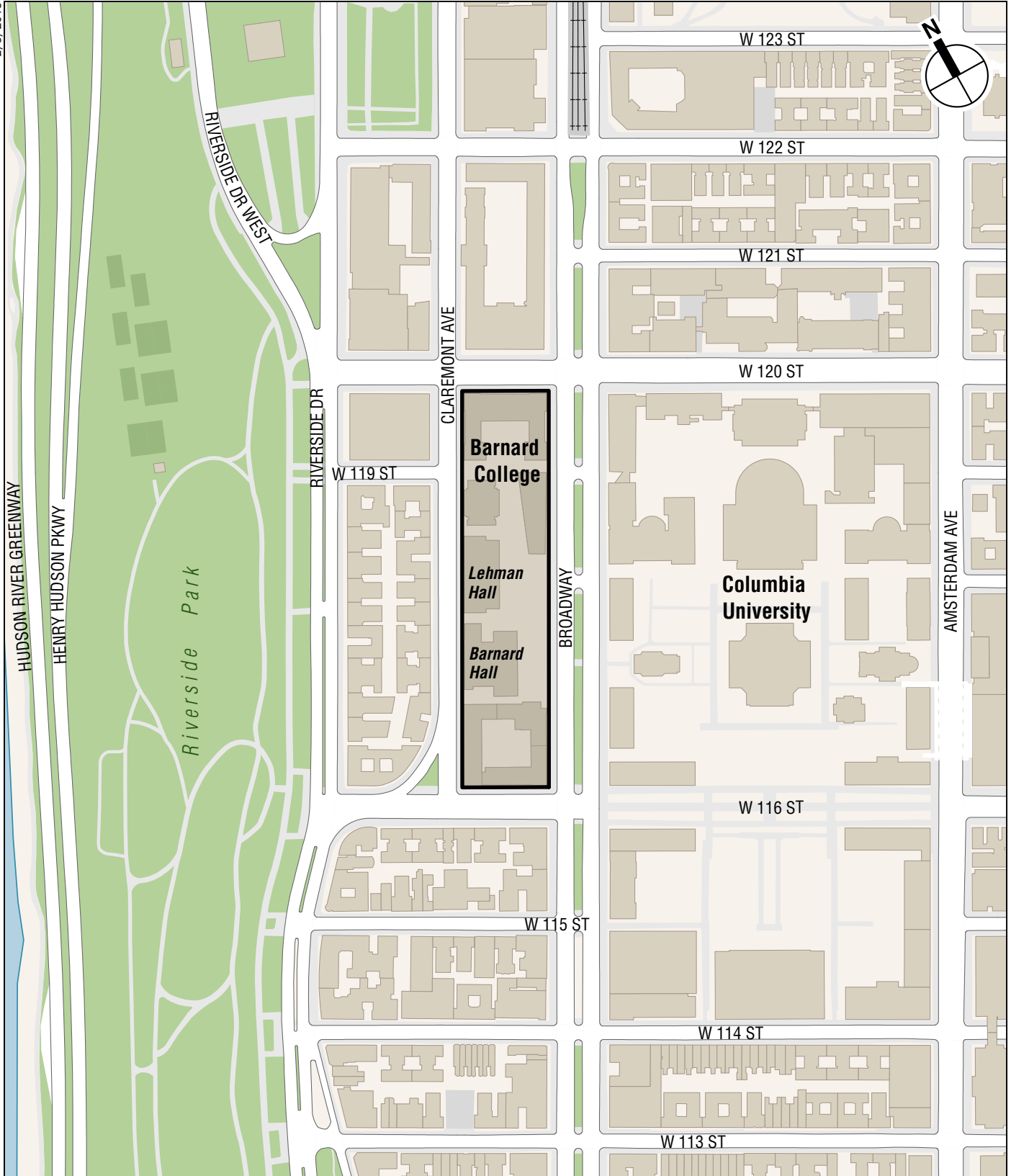
Name of Action or Project: <b>Barnard College Teaching and Learning Center</b>		
Project Location (describe, and attach a general location map): <b>Lehman Hall and Barnard Hall—Barnard College Campus (superblock bounded by West 120th Street, West 116th Street, Broadway, and Claremont Avenue), Borough of Manhattan, New York. See Figure 1, “Project Location.”</b>		
Brief Description of Proposed Action (include purpose or need): <b>See Attachment A, “Project Description” and Figure 2, “Campus Map.” Barnard College (“Barnard”) is proposing to construct a new, approximately 133,000 gross square foot Teaching and Learning Center building to replace the existing Lehman Hall (the “Proposed Project”). The Proposed Project would also include interior renovations to the existing Barnard Hall, for use as swing space during construction of the proposed new building. Demolition of Lehman Hall is anticipated to commence in January 2016, and the proposed Teaching and Learning Center would be occupied by August 2018. The Proposed Project would serve Barnard’s existing population, and would not result in an increase in population.  The Proposed Action would consist of DASNY’s authorization of the issuance of bonds on behalf of Barnard to finance the Proposed Project.</b>		
Name of Applicant/Sponsor: <b>Barnard College</b>	Telephone: <b>212-854-6831</b>	E-Mail: <b>rgoldberg@barnard.edu</b>
Address: <b>3009 Broadway</b>		
City/PO: <b>New York</b>	State: <b>NY</b>	Zip Code: <b>10027</b>
Project Contact (if not same as sponsor; give name and title/role): <b>Barnard College—Robert Goldberg, Chief Operating Officer</b>	Telephone:	E-Mail:
Address: <b>3009 Broadway</b>		
City/PO: <b>New York</b>	State: <b>NY</b>	Zip Code: <b>10027</b>
Property Owner (if not same as sponsor): <b>N/A</b>	Telephone: <b>212-854-6031</b>	E-Mail: <b>gbeltron@barnard.edu</b>
Address:		
City/PO:	State:	Zip Code:

**B. Government Approvals**

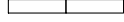
<b>B. Government Approvals Funding, or Sponsorship.</b> ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
<b>Government Entity</b>	<b>If Yes: Identify Agency and Approval(s) Required</b>	<b>Application Date (Actual or projected)</b>
a. City Council, Town Board, or Village Board of Trustees <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
b. City, Town or Village Planning Board or Commission <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
c. City Council, Town or Village Zoning Board of Appeals <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
d. Other local agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
e. County agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
f. Regional agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
g. State agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DASNY Authorization of Issuance of Bonds	
h. Federal agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
i. Coastal Resources		
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes,		
ii. If the project site located in a community with an approved Local Waterfront Revitalization Program?		<input type="checkbox"/> Yes <input type="checkbox"/> No
iii. Is the project site within a Coastal Erosion Hazard Area?		<input type="checkbox"/> Yes <input type="checkbox"/> No

**C. Planning and Zoning**

<b>C.1. Planning and zoning actions.</b>	
Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>• <b>If Yes</b>, complete sections C, F and G.</li> <li>• <b>If No</b>, proceed to question C.2 and complete all remaining sections and questions in Part 1.</li> </ul>	
<b>C.2. Adopted land use plans.</b>	
a. Do any municipally adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, identify the plan(s):	
<u>N/A</u>	
_____	
_____	
c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, identify the plan(s):	
<u>N/A</u>	
_____	
_____	
_____	



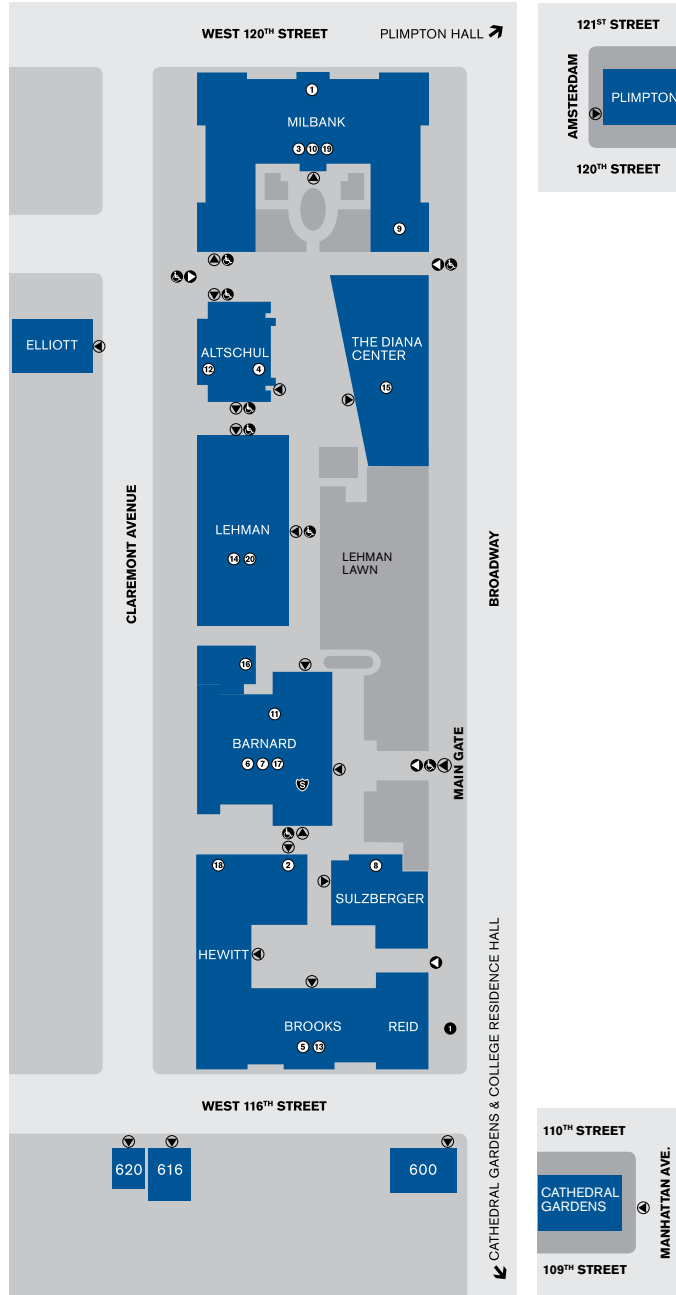
 Project Site

0 200 FEET  




# BARNARD CAMPUS

- ① **ADMISSIONS OFFICE**  
Milbank Hall
  - ② **ADMISSIONS VISITOR CENTER**  
Sulzberger Annex
  - ③ **ARTHUR ROSS GREENHOUSE**  
Milbank Hall 513
  - ④ **ALTSCHUL ATRIUM**  
Altschul Hall
  - ⑤ **HEALTH SERVICES**  
Brooks Hall, Lower Level
  - ⑥ **HELD LECTURE HALL**  
Barnard Hall 304
  - ⑦ **JAMES ROOM**  
Barnard Hall 418
  - ⑧ **HELENE KAPLAN TOWER MEETING ROOMS**  
Sulzberger Hall, 17<sup>th</sup> Floor
  - ⑨ **MINOR LATHAM PLAYHOUSE**  
Milbank Hall, 1st Floor
  - ⑩ **KRUEGER LECTURE HALL**  
Milbank Hall 405
  - ⑪ **LE FRAK GYMNASIUM**  
Barnard Hall, 1st Floor
  - ⑫ **LEHMAN AUDITORIUM**  
Altschul Hall 202
  - ⑬ **LEWIS PARLOR**  
Brooks Hall, 1st Floor
  - ⑭ **SLOATE MEDIA CENTER**  
Lehman Hall, 3rd Floor
  - ⑮ **THE BARNARD STORE**  
Diana Center
  - ⑯ **STRENG DANCE STUDIO**  
Barnard Annex
  - ⑰ **SULZBERGER PARLOR**  
Barnard Hall, 3rd Floor
  - ⑱ **VAGELOS ALUMNAE CENTER**  
Hewitt Hall
  - ⑲ **ELLA WEED ROOM**  
Milbank Hall 223
  - ⑳ **WOLLMAN LIBRARY**  
Lehman Hall
- 
- ⓪ **CAMPUS ENTRANCE**
  - ➔ **BUILDING MAIN ENTRANCE**
  - ♿ **WHEELCHAIR ENTRANCE**
  - 🔒 **SECURITY / INFORMATION**
  - 🚇 **SUBWAY**



<b>C.3. Zoning</b>	
a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance? If Yes, what is the zoning classification(s) including any applicable overlay district?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<u><b>R8 residential zoning district</b></u>	
b. Is the use permitted or allowed by a special or conditional use permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
c. Is a zoning change requested as part of the proposed action? If Yes,	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
i. What is the proposed new zoning for the site? _____	
<b>C.4. Existing community services.</b>	
a. In what school district is the project site located?	<u><b>New York City Community School District 3</b></u>
b. What police or other public protection forces serve the project site?	<u><b>New York Police Department (NYPD)</b></u>
c. Which fire protection and emergency medical services serve the project site?	<u><b>New York City Fire Department (FDNY)</b></u>
d. What parks serve the project site?	<u><b>Riverside Park, Morningside Park, Sakura Park</b></u>

**D. Project Details**

<b>D.1. Proposed and Potential Development</b>	
a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?	<u><b>Institutional (Barnard College Teaching and Learning Center)</b></u>
b. a. Total acreage of the site of the proposed action?	<u><b>±4.35</b></u> acres
b. Total acreage to be physically disturbed?	<u><b>±1.05</b></u> acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?	<u><b>±4.35</b></u> acres
c. Is the proposed action an expansion of an existing project or use?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)?	<u><b>±200%</b></u> Units: <u><b>The existing 65,000 sf Lehman Hall would be replaced by the proposed 133,000 sf Teaching and Learning Center</b></u>
d. Is the proposed action a subdivision, or does it include a subdivision?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes,	
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)	<u><b>N/A</b></u>
ii. Is a cluster/conservation layout proposed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
iii. Number of lots proposed?	<u><b>N/A</b></u>
iv. Minimum and maximum proposed lot sizes? Minimum <u><b>N/A</b></u> Maximum <u><b>N/A</b></u>	
e. Will proposed action be constructed in multiple phases?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
i. If No, anticipated period of construction:	<u><b>Approx. 36</b></u> months
ii. If Yes:	
• Total number of phases anticipated	<u><b>N/A</b></u>
• Anticipated commencement date of phase 1 (including demolition)	<u><b>N/A</b></u> month <u><b>N/A</b></u> year
• Anticipated completion date of final phase	<u><b>May</b></u> month <u><b>2018</b></u> year
• Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:	<u><b>N/A</b></u>



f. Does the project include new residential uses? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes, show number of units proposed.				
	<u>One Family</u>	<u>Two Family</u>	<u>Three Family</u>	<u>Multiple Family (four or more)</u>
Initial Phase	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
At completion of all phases	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
g. Does the proposed action include new non-residential construction (including expansions)? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span>				
If Yes,				
i. Total number of structures <b>One</b>				
ii. Dimensions (in feet) of largest proposed structure: <b>±190'</b> height; <b>±142'</b> width; and <b>±235'</b> length				
iii. Approximate extent of building space to be heated or cooled: <b>Approx. 132,600</b> square feet				
h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes,				
i. Purpose of the impoundment: <u>N/A</u>				
ii. If a water impoundment, the principal source of the water: <input type="checkbox"/> Ground Water <input type="checkbox"/> Surface water streams <input type="checkbox"/> Other specify: <u>N/A</u>				
iii. If other than water, identify the type of impounded/contained liquids and their source. <u>N/A</u>				
iv. Approximate size of the proposed impoundment. Volume: <u>N/A</u> million gallons; surface area: <u>N/A</u> acres				
v. Dimensions of the proposed dam or impounding structure: <u>N/A</u> height; <u>N/A</u> length				
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):				
<u>N/A</u>				
<b>D.2. Project Operations</b>				
a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading, or installation of utilities or foundations where all excavated materials will remain onsite) <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes:				
i. What is the purpose of the excavation or dredging? <u>N/A</u>				
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?				
<ul style="list-style-type: none"> <li>• Volume (specify tons or cubic yards): <u>N/A</u></li> <li>• Over what duration of time? <u>N/A</u></li> </ul>				
iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.				
<u>N/A</u>				
iv. Will there be onsite dewatering or processing of excavated materials? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If yes, describe.				
<u>N/A</u>				
v. What is the total area to be dredged or excavated? <u>N/A</u> acres				
vi. What is the maximum area to be worked at any one time? <u>N/A</u> acres				
vii. What would be the maximum depth of excavation or dredging? <u>N/A</u> feet				
viii. Will the excavation require blasting? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
ix. Summarize site reclamation goals and plan:				
<u>N/A</u>				
b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes,				
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):				
<u>N/A</u>				

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

iii. Will proposed action cause or result in disturbance to bottom sediments?  Yes  No  
 If Yes, describe: N/A

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

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

 v. Describe any proposed reclamation/mitigation following disturbance:  
N/A

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c. Will the proposed action use, or create a new demand for water? (*see footnote 1*)  Yes  No  
 If Yes:  
 i. Total anticipated water usage/demand per day: N/A<sup>1</sup> gallons/day  
 ii. Will the proposed action obtain water from an existing public water supply?  Yes  No  
 If Yes:  

- Name of district or service area: New York City Department of Environmental Protection (NYCDEP)
- Does the existing public water supply have capacity to serve the proposal?  Yes  No
- Is the project site in the existing district?  Yes  No
- Is expansion of the district needed?  Yes  No
- Do existing lines serve the project site?  Yes  No

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

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

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

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

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

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

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d. Will the proposed action generate liquid wastes?  Yes  No  
 If Yes:  
 i. Total anticipated liquid waste generation per day: N/A<sup>1</sup> gallons/day  
 ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):  
Sanitary wastewater would be handled by the NYCDEP combined sewer system.

<sup>1</sup> The Proposed Project entails construction of a new building to replace Lehman Hall and interior renovations to Barnard Hall and would not result in an increase in population that would result in a net increase in water consumption or demand for water/sewer infrastructure.

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

If Yes:

- Name of wastewater treatment plant to be used: **North River NYCDEP Wastewater Treatment Plant**
- Name of district: **N/A— NYCDEP system**
- Does the existing wastewater treatment plant have capacity to serve the project?  Yes  No
- Is the project site in the existing district?  Yes  No
- Is expansion of the district needed?  Yes  No
- Do existing sewer lines serve the project site?  Yes  No
- Will line extension within an existing district be necessary to serve the project?  Yes  No

If yes:

- Describe extensions or capacity expansions proposed to serve this project:  
**N/A**

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

If Yes:

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

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

**N/A**

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

**None.**

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

If Yes:

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

**N/A** Square feet or **N/A** acres (impervious surface)

**N/A** Square feet or **N/A** acres (parcel size)

ii. Describe types of new point sources

**N/A**

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

**As with existing conditions, any stormwater runoff would flow to the NYCDEP combined sewer system.**

- If to surface waters, identify receiving water bodies or wetlands: **N/A**
- Will stormwater runoff flow to adjacent properties?  Yes  No

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

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

If Yes, identify:

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

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

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation): **N/A**

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

If Yes,

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

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

- <1,000 Tons/year (short tons) of Carbon Dioxide (CO<sub>2</sub>)
- <0.01 Tons/year (short tons) of Nitrous Oxide (N<sub>2</sub>O)
- NA Tons/year (short tons) of Perfluorocarbons (PFCs)
- NA Tons/year (short tons) of Sulfur Hexafluoride (SF<sub>6</sub>)
- NA Tons/year (short tons) of Carbon Dioxide equivalent of Hydrofluorocarbons (HFCs)
- <0.002 Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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

If Yes,

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

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

N/A

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

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

N/A

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

If Yes:

i. When is the peak traffic expected (check all that apply):  Morning  Evening  Weekend  
 Randomly between hours of N/A to N/A.

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

iii. Parking spaces: Existing: 0 Proposed: 0 Net increase/decrease: 0

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

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

N/A

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

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

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

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

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: N/A

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

Consolidated Edison electrical grid

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

<p>l. Hours of operation. Answer all items which apply.</p> <p>i. During Construction:</p> <ul style="list-style-type: none"> <li>• Monday – Friday: <b><u>7am to 6pm</u></b></li> <li>• Saturday: <b><u>No regular hours</u></b></li> <li>• Sunday: <b><u>No regular hours</u></b></li> <li>• Holidays: <b><u>No regular hours</u></b></li> </ul>	<p>ii. During Operations:</p> <ul style="list-style-type: none"> <li>• Monday – Friday: <b>8am to 10pm</b></li> <li>• Saturday: <b>8am to 10pm</b></li> <li>• Sunday: <b>8am to 10pm</b></li> <li>• Holidays: <b>Varies</b></li> </ul>
<p>m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Provide details including sources, time of day and duration:</p> <p style="text-align: center;"><b>As with all construction projects, construction of the Proposed Project could result in increases in ambient noise levels due to on-site equipment operation and worker vehicles and trucks traveling to and from the project site. However, noise from construction activities is regulated by the New York City Noise Control Code and by the U.S. Environmental Protection Agency (EPA). The New York City Noise Control Code requires the adoption and implementation of a noise mitigation plan, limits construction (absent special circumstances) to weekdays between the hours of 7 AM and 6 PM, and sets noise limits for certain pieces of construction equipment.</b></p> <hr/> <p>ii. Will proposed action remove existing natural barriers that could act as a noise barrier or screen? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>Describe:</p> <p style="text-align: center;"><u>N/A</u></p>	
<p>n. Will the proposed action have outdoor lighting? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:</p> <p style="text-align: center;"><b>All outdoor lighting will conform with the applicable regulations as defined by the New York City Building Code and the Housing Maintenance Code.</b></p> <hr/> <p>ii. Will proposed action remove existing natural barrier that could act as a light barrier or screen? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>Describe:</p> <p style="text-align: center;"><u>N/A</u></p>	
<p>o. Does the proposed action have the potential to produce odors for more than one hour per day? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: <u>N/A</u></p>	
<p>p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or any amount in underground storage)? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If Yes,</p> <p>i. Product(s) to be stored <u>N/A</u></p> <p>ii. Volume(s) <u>N/A</u> per unit time <u>N/A</u> (e.g., month, year)</p> <p>iii. Generally describe proposed storage facilities</p> <p style="text-align: center;"><u>N/A</u></p>	
<p>q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span></p> <p>If Yes:</p> <p>i. Describe proposed treatment(s):</p> <p style="text-align: center;"><u>N/A</u></p> <hr/> <p>ii. Will the proposed action use Integrated Pest Management Practices? <span style="float: right;"><input type="checkbox"/> Yes <input type="checkbox"/> No</span></p> <p style="text-align: center;"><u>N/A</u></p>	

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? (see footnote 1)  Yes  No

If Yes:

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

- Construction: N/A tons per N/A (unit of time)
- Operation: N/A tons per N/A (unit of time)<sup>1</sup>

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

- Construction:  
N/A

- Operation:  
N/A<sup>1</sup>

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

- Construction:  
N/A

- Operation:  
N/A<sup>1</sup>

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

If Yes:

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

ii. Anticipated rate of disposal/processing:

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

iii. If landfill, anticipated site life: N/A years

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

If Yes:

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

N/A

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

N/A

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

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

N/A

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

If Yes: provide name and location of facility:

N/A

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

N/A

<sup>1</sup> The Proposed Project entails construction of a new building to replace Lehman Hall and interior renovations to Barnard Hall and would not result in an increase in population that would result in a net increase in solid waste generation.

**E. Site and Setting of Proposed Action**

**E.1 Land uses on and surrounding the project site**

a. Existing land uses.

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

- Urban       Industrial       Commercial       Residential (suburban)       Rural (non-farm)  
 Forest       Agriculture       Aquatic       Other (specify): \_\_\_\_\_

ii. If mix of uses, generally describe:

**Institutional (university campus); Residential; Local Retail; Community Facilities**

b. Land uses and covertypes on the project site.

Land use or covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	±3.0	±3.0	0
• Forested	0	0	0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse, etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	0	0	0
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: <u><b>Landscaped Areas</b></u>	±1.5	±1.5	0

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

i. If yes: explain: N/A

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

If Yes:

i. Identify Facilities:

**Schools: PS 036 Margaret Douglas, PS 125 Ralph Bunche**  
**Hospitals: St Luke's Roosevelt Hospital Center**  
**Day Care Centers: Barnard College, Tompkins Hall Nursery School, Hollingsworth Preschool, Riverside Church, Children's Learning Center Morningside Heights, East Harlem Block Nursery, Broadway Presbyterian Church, Bank Street College of Education, The Family Annex, Columbia Greenhouse Nursery School**  
**Senior Center: Jackie Robinson Senior Center**

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

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: N/A feet
- Dam length: N/A feet
- Surface area: N/A acres
- Volume impounded: N/A gallons OR acre-feet

ii. Dam's existing hazard classification: N/A

iii. Provide date and summarize results of last inspection:

N/A

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

If Yes:

i. Has the facility been formally closed?  Yes  No

- If yes, cite sources/documentation: N/A

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

N/A

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

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g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store, and/or dispose of hazardous waste?  Yes  No  
 If Yes:  
 i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:  
N/A

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h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? (To be determined; a Phase I Environmental Site Assessment will be prepared and summarized for the Environmental Review)  Yes  No  
 If Yes:  
 i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:  Yes  No  
 Yes – Spills Incidents database Provide DEC ID number(s):  
 Yes – Environmental Site Remediation database Provide DEC ID number(s):  
 Neither database  
 ii. If site has been subject of RCRA corrective activities, describe control measures:  
 \_\_\_\_\_  
 iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database?  Yes  No  
 If yes, provide DEC ID number(s):  
 iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):  
 \_\_\_\_\_  
 v. Is the project site subject to an institutional control limiting property uses?  Yes  No  

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

 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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**E.2. Natural Resources On or Near Project Site**

a. What is the average depth to bedrock on the project site? To be determined feet

b. Are there bedrock outcroppings on the project site?  Yes  No  
 If Yes, what proportion of the site is comprised of bedrock outcroppings? N/A %

c. Predominant soil type(s) present on project site: To be determined \_\_\_\_\_ %  
 \_\_\_\_\_ %  
 \_\_\_\_\_ %

d. What is the average depth to the water table on the project site? Average: \_\_\_\_\_ feet

e. Drainage status of project site soils:  Well Drained: 100 % of Site  
 Moderately Well Drained: \_\_\_\_\_ % of Site  
 Poorly Drained: \_\_\_\_\_ % of Site

f. Approximate proportion of proposed action site with slopes: :  0-10%: 100 % of Site  
 10-15%: \_\_\_\_\_ % of Site  
 15% or greater: \_\_\_\_\_ % of Site

g. Are there any unique geologic features on the project site?  Yes  No  
 If Yes, describe:  
N/A  
 \_\_\_\_\_  
 \_\_\_\_\_



h. Surface water features:

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

If Yes to either i or ii, continue. If No, skip to E.2.i.

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

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

- Streams: Name N/A Classification N/A
- Lakes or Ponds: Name N/A Classification N/A
- Wetlands: Name N/A Approximate Size N/A  
Wetland No. (if regulated by DEC) N/A

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

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

N/A

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

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

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

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

If Yes:

- i. Name of aquifer: N/A

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

House sparrow European starling rock pigeon  
eastern gray squirrel Norway rat

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

If Yes:

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

N/A

- ii. Source(s) of description or evaluation: N/A

iii. Extent of community/habitat:

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

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

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
q. Is the project site or adjoining area currently used for hunting, trapping, fishing, or shell fishing? If yes, give a brief description of how the proposed action may affect that use: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>E.3. Designated Public Resources On or Near the Project Site</b>	
a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Sections 303 and 304? If Yes, provide county plus district name/number: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
b. Are agricultural lands consisting of highly productive soils present? i. If Yes: acreage(s) on project site? <u>N/A</u> ii. Source(s) of soil rating(s) <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? If Yes: i. Nature of the natural landmark: <input type="checkbox"/> Biological Community <input type="checkbox"/> Geological Feature ii. Provide brief description of landmark, including values behind designation and approximate size/extent: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
d. Is the project site located in or does it adjoin a state-listed Critical Environmental Area? If Yes: i. CEA name: <u>N/A</u> ii. Basis for designation: <u>N/A</u> iii. Designating agency and date: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? If Yes: i. Nature of historic/archaeological resource: <input type="checkbox"/> Archaeological Site <input checked="" type="checkbox"/> Historic Building or District ii. Name: <b>S/NR-listed resources include: Barnard Hall and Milbank Hall on the Project Site; Brooks and Hewitt Halls (Barnard College) and Riverside Park and Drive are one block west from the Project Site. Pupin Physics Laboratories and Low Library are separated from Project Site by Broadway-facing buildings on Columbia University's campus.</b> iii. Brief description of attributes on which listing is based: <u>NYSDEC Mapper Summary Report, OPRHP Cultural Resource Information System</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
g. Have additional archaeological or historic site(s) or resourced been identified on the project site? If Yes: i. Describe possible resource(s): <u>N/A</u> ii. Basis for identification: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

If Yes:

i. Identify resource: Barnard Hall, Riverside Park and Drive, Pupin Physics Laboratories, Columbia University, Union Theological Seminary, Low Memorial

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

iii. Distance between project and resource: Between 0 and 5 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666?  Yes  No

If Yes:

i. Identify the name of the river and its designation: N/A

ii. Is the activity consistent with development restrictions contain in 6NYCRR Part 666?  Yes  No

**F. Additional Information**

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


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

**G. Verification**

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

Applicant/Sponsor Name GAIL A. BELTRONE

Date 2/5/15

Signature 

Title VICE PRESIDENT CAMPUS SERVICES  
BARNARD

## **CHAPTER 1. PROJECT DESCRIPTION**

### ***Introduction***

The Proposed Project is being reviewed pursuant to the *State Environmental Quality Review Act* (“*SEQRA*”), codified at Article 8 of the *New York Environmental Conservation Law* (“*ECL*”), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Code, Rules and Regulations* (“*N.Y.C.R.R.*”), which collectively contain the requirements for the *State Environmental Quality Review* (“*SEQR*”) process. The environmental review of the Barnard College Teaching and Learning Center project (“Proposed Project”) follows *SEQRA*, and the *New York City Environmental Quality Review* (“*CEQR*”) *Technical Manual* generally is used as a guide with respect to environmental analysis methodologies and impact criteria for evaluating the Proposed Project in this *Supplemental Report*, unless stated otherwise.<sup>1</sup>

The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“*SHPA*”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“*PRHPL*”), as well as with the requirements of the Memorandum of Understanding (“MOU”), dated March 18, 1998, between the Dormitory Authority State of New York (“DASNYS”) and the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”).

### ***Project Location and Site Details***

The Project Site is the Barnard College campus superblock, bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west (“Project Site”). The Development Site (the area where the Proposed Project would be constructed) is occupied by Lehman Hall, located on the western portion of the superblock. Lehman Hall, an existing 4-story, approximately 65,000-gross-square-foot (“gsf”) building constructed in 1959, contains Wollman Library (including Barnard’s main book collection, media and music collection, and administrative services), the Instructional Media Department, Audio Visual Services, and Archives and Special Collections. It is also occupied by the Information Technology help desk and offices, as well as Barnard’s Empirical Reasoning Lab, seminar rooms, instructional technology rooms, a Union office, and offices for the Economics, History, Political Science departments. Lehman Hall connects to its adjacent buildings via underground tunnels.

The Proposed Project would also include the renovation of the existing 9,700-square-foot LeFrak Gymnasium (the “Gymnasium”) in Barnard Hall, located immediately south of the Development Site, to provide campus swing space for the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The 79,000-gross-square-foot Barnard Hall was constructed in 1917 as Students Hall, and contains Barnard’s

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<sup>1</sup> The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

Gymnasium, fitness and dance studios and departments, the Barnard Center for Research on Women, Athena Center, classrooms, public assembly and special event space, and offices for faculty and the security and facilities departments. The Gymnasium is currently used for archery and badminton practice, open sports recreation, special events, and lectures.

### ***Proposed Action and Proposed Project***

DASNY has received a funding request from Barnard College (“Barnard”) pursuant to DASNY’s Independent Colleges and Universities Program for its *Teaching and Learning Center (2015 Financing Project)*. For purposes of *SEQR*, the Proposed Action would consist of DASNY’s authorization of the issuance of fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

The proceeds of the bond issuance would be used to finance the construction of a new, approximately 133,000-gross-square-foot (“gsf”), *Teaching and Learning Center* (the “Proposed Project”) on the Barnard campus bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York (the “Project Site”). The Proposed Project would include the demolition of the existing 65,000-gsf Lehman Hall, as well as the renovation of portions of Barnard Hall, to serve as swing space during construction of the *Teaching and Learning Center*.

Construction of the Proposed Project is expected to begin in Summer 2015, when the LeFrak Gymnasium would be renovated to provide a total of approximately 19,400-square-feet of swing space for the existing uses in Lehman Hall. A second floor, which would line up with existing stairs and elevators, would be installed in the Gymnasium. The first level would be occupied with select library functions including student study space, seminar rooms, and the Empirical Reasoning Lab, and the second would be occupied by 45 faculty offices, conference rooms, restrooms, and a pantry/copy room.

The new, approximately 133,000-gsf, 11-story Teaching and Learning Center building would include common and informal study areas, teaching and learning space, a conference area, space for the history, political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Proposed Project would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard’s population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would support Barnard’s innovative approaches to liberal arts education, provide individual and group study space and access to resources and help for students and faculty, and improve conference space, which would include flexible meeting spaces and smaller break-out rooms.

The Proposed Project would incorporate measures to achieve *Leadership in Energy and Environmental Design* (“*LEED*”) Silver certification under *LEED New Construction and Major Renovations version 3*. The *LEED* rating system, developed by the nonprofit U.S. Green

Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation.

Construction of the proposed Teaching and Learning Center would commence in March 2016 and would be occupied by August 2018. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

### ***Required Approvals***

As described above, for the purposes of New York State *Environmental Quality Review* (“*SEQR*”), the Proposed Action would consist of DASNY’s authorization of the issuance of bonds on behalf of Barnard College to finance the Proposed Project. No other discretionary approvals would be required.

### ***Project Purpose and Need***

Barnard, founded in 1889, was the first college in New York City—and one of the few in the world—where women could receive the same liberal arts education available to men. Today, Barnard has an undergraduate student population of 2,400, and shares the vast resources of Columbia University.

As articulated in its Strategic Plan, Barnard has core objectives which include:

- Dedication to women’s education;
- Devotion to the liberal arts;
- Maintaining a mutually beneficial relationship with Columbia University;
- Recruitment and support of top tier faculty;
- Recruitment and intellectual nourishment of top-tier students;
- Nurturing and expanding diversity within its community;
- Commitment to an innovative curriculum that aligns with the College’s mission; and
- Provide a distinctive educational experience for all students.

In order to achieve these goals, Barnard notes in its Strategic Plan that upgrading its physical plant and improving the appearance and functionality of the College campus and improving and consolidating the College’s Information Technology systems will be necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard’s commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design, creating a learning space based around digital

media, virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy. The Proposed Project would also support Barnard's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching.

## **CHAPTER 2. LAND USE, ZONING, AND PUBLIC POLICY**

### ***Introduction***

This analysis of land use, zoning, and public policy characterizes the existing conditions on and within the 400-foot study area from the Project Site—the Barnard College campus superblock, bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York, in Manhattan Community District 9 (Manhattan Tax Block 1989, Lot 1)—and on the Development Site (the area where the Proposed Project would be constructed); evaluates changes in land use and zoning that are expected to occur independently of the Proposed Project; and examines the Proposed Project’s compatibility and consistency with land use and development trends in the area, as well as public land use and zoning policies. The land use study area generally extends past West 121<sup>st</sup> Street to the north, past Broadway to the east, past West 115<sup>th</sup> Street to the south, and to Riverside Drive to the west. This is the area in which the Proposed Project would have the greatest potential to affect land use trends. Sources used to conduct this analysis include field surveys and evaluation of land use and zoning text and maps.

The Proposed Project would expand and continue an existing land use on the Development Site, which is surrounded by similar uses as part of the Barnard College campus. Overall, no significant adverse impacts on land use, zoning, or public policy are anticipated as a result of the Proposed Project.

### ***Background and History***

Barnard College was established in 1889 as the first college in New York City to provide an Ivy League-caliber undergraduate education to women. For the first nine years of its existence, the College rented a brownstone at 343 Madison Avenue, which provided enough space for six faculty members and 36 students. In 1898, following the lead of Columbia University, the College moved to Morningside Heights, building the campus’s first three buildings—Milbank, Brinckerhoff, and Fiske Halls—on the northern portion of the modern-day campus, from West 119<sup>th</sup> Street to West 120<sup>th</sup> Street between Broadway and Claremont Avenue.

In 1900, the College formalized its relationship with Columbia University, in which Barnard exists both as an independently-chartered institution and as a college within the university. In 1903, benefactors donated the remainder of the campus, which extends south to West 116<sup>th</sup> Street; Lehman Hall, which contains the Wollman Library, was completed in 1959. Today, the College offers nearly 50 academic majors to its student body of approximately 2,400 students. Through the College’s affiliation with Columbia, Barnard students have access to the University’s course offerings, academic facilities, and athletic teams.



### ***Existing Conditions***

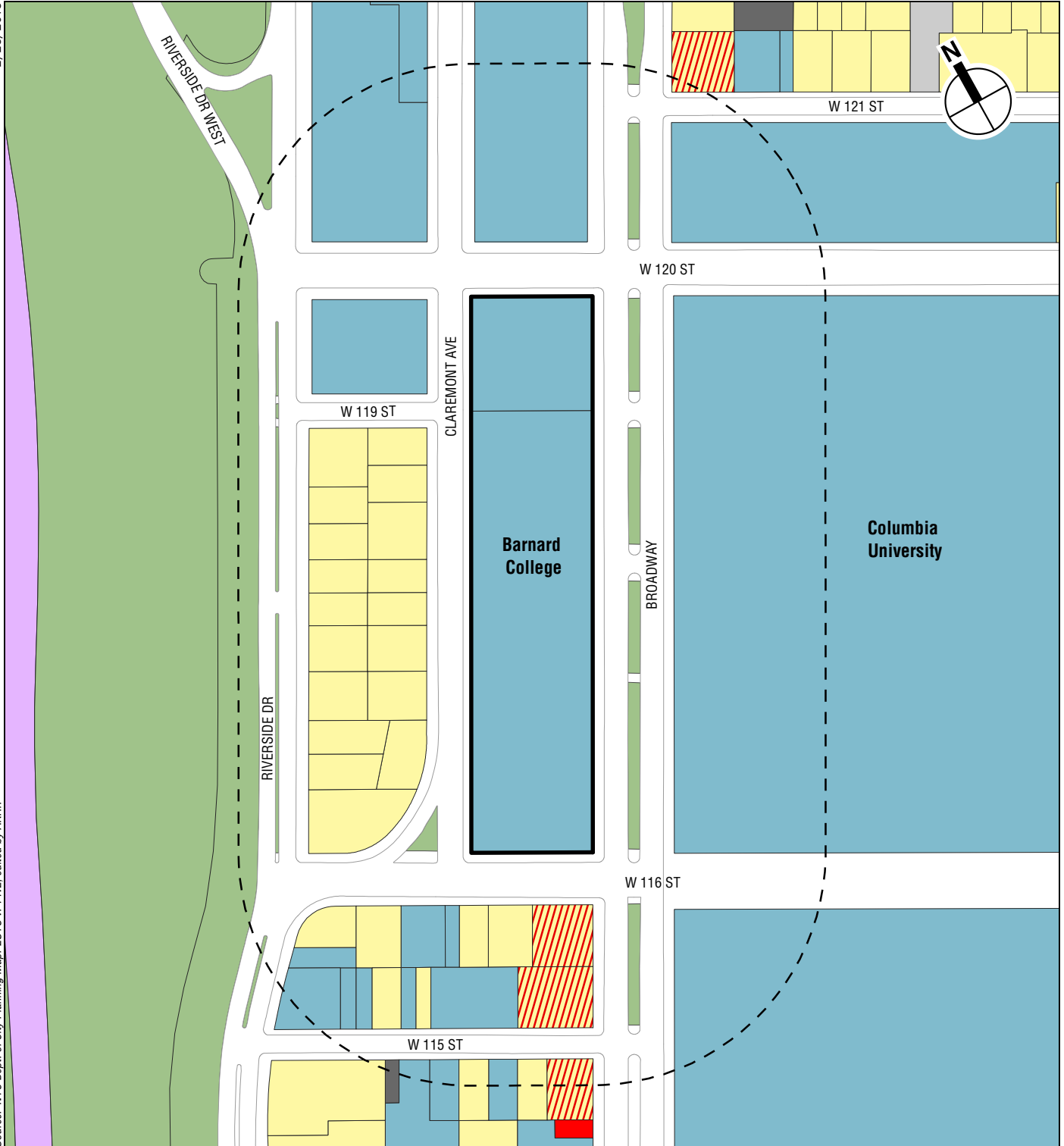
Existing land use patterns and trends are described below for the Development Site, the Project Site, and the surrounding 400-foot study area.

***Development Site Land Use.*** The Development Site is located on the western portion of the Barnard College campus superblock—which is bounded by West 120<sup>th</sup> Street to the north, Broadway to the east, West 116<sup>th</sup> Street to the south, and Claremont Avenue to the west—in the borough of Manhattan, New York County, New York, in Manhattan Community District 9 (Block 1989, Lot 1). The Development Site is currently occupied by Lehman Hall, which houses Barnard College’s Wollman Library, the Instructional Media Department, Audio Visual Services, and Archives and Special Collections. The four-story, approximately 65,000-gross-square-foot (“gsf”) building is also occupied by the College’s Information Technology help desk and offices, the Empirical Reasoning Lab, seminar rooms, instructional technology rooms, a Union office, and offices for the Economics, History, Political Science departments. The west side of the building, which was constructed in 1959, has frontage (but no ingress or egress points) on Claremont Avenue; the rest of the building is adjacent to open space, which is accessible to Barnard College and Columbia University faculty, staff, and students, and pathways that connect to the rest of the Barnard College campus.

***Project Site and Study Area Land Use.*** As discussed in greater detail below, the predominant land uses within the 400-foot study area include institutional, commercial, residential, and open space uses (see **Figure 2-1**). Much of the study area is characterized by educational uses interspersed with open spaces and residential buildings. Commercial uses primarily consist of retail uses located on the ground floor of residential buildings.

As described above, the Development Site is located in the western portion of the Barnard College campus (the Project Site), which consists primarily of educational buildings interspersed with open space, pedestrian walkways, and outdoor seating areas. Directly north of the Development Site is Altschul Hall, which contains Barnard’s laboratories and Biology, Physics and Astronomy, and Neuroscience and Behavior departments. Directly south of the Development site is Barnard Hall, which contains a wide variety of student resources and academic facilities, as well as a swimming pool, track, and gymnasium. As described in Chapter 1, “Project Description,” the Proposed Project would also include the renovation of Barnard Hall’s 9,700-square-foot LeFrak Gymnasium to provide campus swing space for the temporary relocation of the academic uses currently located in Lehman Hall during the construction of the new Teaching and Learning Center.

East of the Project Site across Broadway is the main campus of Columbia University, which occupies the superblock extending north to West 120<sup>th</sup> Street, east to Amsterdam Avenue, south to West 116<sup>th</sup> Street, and west to Broadway. The portion of the approximately 26-acre campus within the 400-foot study area includes the 15-story Pupin building, which houses Columbia’s Astronomy and Physics departments, as well as the Physics Library; the 14-story Northwest Corner building, which is occupied by classrooms, science research labs, and faculty offices; the seven-story Chandler Laboratories, which houses the Chemistry department and the Chemistry Library; the eight-story Havemeyer Hall, which also houses the Chemistry department; the seven-story Mathematics Hall, which houses the Mathematics department and



- Project Site
- Study Area (400-foot boundary)
- Commercial and Office Buildings
- Open Space and Outdoor Recreation
- Parking Facilities
- Public Facilities and Institutions
- Residential
- Residential with Commercial Below
- Transportation and Utility
- Vacant Land

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the Mathematics Library; Earl Hall, a five-story former YMCA that currently houses the University's religious and community service offices; the seven-story Lewisohn Hall, which contains the School of Continuing Education and the School of General Studies; the eight-story Dodge Hall, which contains the Music department, Music Library, and School of the Arts, as well as Miller Theatre; the nine-story Pulitzer Hall (also known as Journalism Hall), which houses the Graduate School of Journalism and the Journalism Library; and the 11-story Furnald Hall, which is a residential dormitory building for undergraduate students.

Teachers College, Columbia University's Graduate School of Education, is located northeast of the Project Site, on the block bounded by West 121<sup>st</sup> Street to the north, Amsterdam Avenue to the east, West 120<sup>th</sup> Street to the south, and Broadway to the west. The portion of the Teachers College campus located within the study area includes Horace Mann Hall, which contains an auditorium, administrative offices, and other academic space; Thompson Hall, which houses administrative offices, a gymnasium, and a swimming pool; and Thorndike Hall, which contains administrative offices.

Directly north of the Project Site across West 120<sup>th</sup> Street is the campus of the Union Theological Seminary, a Christian seminary affiliated with Columbia University, which occupies the superblock bounded by West 122<sup>nd</sup> Street to the north, Broadway to the east, West 120<sup>th</sup> Street to the south, and Claremont Avenue to the west. A substantial portion of the Seminary campus, which largely consists of a single building containing academic and religious spaces, is located within the study area. The Seminary also occupies a building on the northwest corner of the superblock immediately to the west, which is bounded by West 122<sup>nd</sup> Street to the north, Claremont Avenue to the east, West 120<sup>th</sup> Street to the south, and Riverside Drive to the west. The remainder of that superblock is occupied by Riverside Church, an interdenominational church whose facilities include educational and recreational space, in addition to the worship space.

Additional institutional uses in the study area include the Interchurch Center, a 19-story office building that houses a variety of faith-based and non-profit organizations, which is located directly west of the Project Site on the block bounded by West 120<sup>th</sup> Street to the north, Claremont Avenue to the east, West 119<sup>th</sup> Street to the south, and Riverside Drive to the west. Columbia's five-story Casa Hispanica, which houses the University's Spanish and Portuguese departments, is located at 612 West 116<sup>th</sup> Street; the 10-story Watson Hall, which houses the University's Information Technology department and the School of the Arts, is located at 612 West 115<sup>th</sup> Street; and the five-story Kraft Center, which houses the Columbia University/Barnard College Hillel and Jewish life resources, is located at 606 West 115<sup>th</sup> Street. In addition, the St. Hilda's and St. Hugh's School, an independent Episcopalian elementary and middle school, is located at 619 West 114<sup>th</sup> Street, and has an additional entrance on West 115<sup>th</sup> Street, and the Korean Methodist Church and Institute is located at 633 West 115<sup>th</sup> Street.

The majority of the remainder of the study area consists of residential uses. Directly west of the Project Site across Claremont Avenue, on the superblock bounded by West 119<sup>th</sup> Street to the north, Claremont Avenue to the east, West 116<sup>th</sup> Street to the south, and Riverside Drive to the west, is a series of mid- to high-rise buildings, almost all of which are controlled by Columbia University and serve as residential dormitories for students. The two structures on that

superblock not controlled by Columbia University—468 and 440 Riverside Drive—are both high-rise residential buildings. In addition, there are several mid- and high-rise residential buildings located along West 115<sup>th</sup> Street, West 116<sup>th</sup> Street, and Riverside Drive.

Commercial uses within the study area are limited to ground-floor neighborhood retail stores located within the C1-4 overlay districts located along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street.

Open spaces within the study area largely consist of the Columbia University and Barnard College campuses, which contain substantial amounts of landscaped space, outdoor seating areas, and open lawns suitable for light recreation activities.

**Development Site Zoning and Public Policy.** As shown in **Figure 2-2**, the Development Site is located within a R8 General Residence District, according to the *Zoning Resolution of the City of New York*<sup>1</sup>. R8 districts are mapped in built-up, high-density areas that are well served by mass transit; building typologies within R8 districts can range from mid-rise, eight- to ten-story buildings to larger-scale, high-rise buildings with greater setbacks from the street. Bulk is regulated by either height factor or Quality Housing regulations. Height factor regulations produce small multifamily buildings on small zoning lots, and tall buildings set back from the street on larger lots. Quality Housing regulations produce high lot coverage buildings within height limits that reflect the scale of the buildings in the surrounding neighborhood. The allowable floor area ratio (“FAR”) in R8 districts using height factor regulations ranges from 0.94 to 6.02 for residential uses, and is 6.5 for community facility uses (see **Table 2-1**); using Quality Housing regulations, the maximum FAR for residential uses is 7.2 on a wide street or 6.02 on a narrow street, while the maximum for community facility uses is 6.5.

**Table 2-1. Zoning Districts in the Study Area**

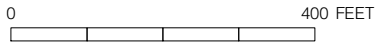
Zoning District	Maximum FAR <sup>1</sup>	Uses/Zone Type
R8	0.94 to 6.02 residential using height factor regulations 7.2 residential using Quality Housing regulations <sup>2</sup> 6.5 community facility	General residence district, higher-density housing
C1-4	2.0 commercial within R8 district	Commercial overlay for local retail within residence district
<p><b>Notes:</b></p> <p><sup>1</sup> 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 a FAR of 1 has an allowable building area of 10,000 square feet. The same lot with an FAR of 10 has an allowable building area of 100,000 square feet.</p> <p><sup>2</sup> Under Quality Housing Program: 7.2 FAR on wide streets outside of Manhattan Core, 6.02 FAR on wide streets within the Manhattan Core, and 6.02 FAR on narrow streets.</p> <p><b>Source:</b> <i>New York City Zoning Resolution.</i></p>		


<sup>1</sup> <http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>



 Project Site

 C1-4 Commercial Overlay District



 Study Area (400-foot boundary)

 Zoning Districts

### ***Project Site and Study Area Zoning and Public Policy***

**Zoning.** The R8 residential district that is mapped on the Development Site is also mapped throughout the study area. There are C1-4 Commercial Overlay Districts mapped along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street. C1-4 commercial overlays are mapped in residence districts along streets that serve local retail needs. As the C1-4 district is mapped over a R8 district, the maximum commercial FAR is 2.0.

*State Smart Growth Public Infrastructure Policy Act.* New York State enacted the *State Smart Growth Public Infrastructure Policy Act* (“SSGPIPA”) in 2010, intended to minimize the unnecessary cost of sprawl development facilitated by the funding or development of new or expanded transportation, sewer and waste water treatment, water, education, housing and other publicly supported infrastructure inconsistent with smart growth public infrastructure criteria. This law requires state infrastructure agencies, such as DASNY, to ensure public infrastructure projects undergo a consistency evaluation and attestation using the 10 smart growth criteria established by the legislation:

- To advance projects for the use, maintenance or improvement of existing infrastructure;
- To advance projects located in municipal centers;
- To advance projects in developed areas or areas designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan;
- To protect, preserve and enhance the state’s resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources;
- To foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, diversity and affordability of housing in proximity to places of employment recreation and commercial development and the integration of all income and age groups;
- To provide mobility through transportation choices including improved public transportation and reduced automobile dependency;
- To coordinate between state and local government and intermunicipal and regional planning;
- To participate in community-based planning and collaboration;
- To ensure predictability in building and land use codes; and
- To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad-based public involvement in developing and

implementing a community plan and ensuring the governance structure is adequate to sustain its implementation.<sup>2</sup>

Most state agencies and authorities, including DASNY, are subject to SSGPIPA when they consider whether to undertake, approve, support or finance the construction or reconstruction of new or expanded public infrastructure.<sup>3</sup> To the extent practicable, projects must align with the 10 smart growth criteria. If the project does not meet the relevant criteria or “compliance is considered to be impracticable”, a statement of justification of such noncompliance should be prepared by the state agency or authority.<sup>4</sup>

### ***The Future Without the Proposed Project***

This section describes conditions that are expected to exist in the 2018 build year for the Proposed Project, assuming that the project is not built.

***Land Use.*** In the future without the Proposed Project, the Development Site would remain unchanged. The Lehman Building would continue to house the Wollman Library and the other academic uses currently operating. There is one other planned development expected to be completed in the study area by the 2018 build year: the construction of a new facility by the Korean Methodist Church on the same site as their existing building. That project would not add any new residents or commercial uses to the study area.

***Zoning and Public Policy.*** No changes in zoning or public policy are currently planned for the Development Site or within the study area. Therefore, it is expected that the existing zoning districts would remain in place. The *Smart Growth Public Infrastructure Policy Act* would continue to influence development.

### ***The Future With the Proposed Project***

***Land Use.*** The Proposed Project would result in the demolition of the existing 4-story, 65,000-gsf Lehman Hall and the construction of a new, approximately 133,000-gsf Teaching and Learning Center. The new 11-story building would occupy the footprint of the existing Lehman Hall, as well as extend northward and southward to abut the adjacent Altschul Hall and Barnard Hall, respectively. The building would consist of a five-story podium on the southern side, adjacent to Barnard Hall, and an 11-story tower on the northern side. As in the existing condition, the building’s frontage onto the Barnard College campus would abut walking paths and landscaped open space. Unlike the existing Lehman Hall, the side of the Center fronting onto Claremont Avenue would have entrances and exits and full-height windows, thus enlivening the streetscape.

As described in Chapter 1, “Project Description,” the Center would include common and informal study areas, teaching and learning space, a conference area, space for the history,

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<sup>2</sup> <https://www.dot.ny.gov/programs/smart-planning/news>

<sup>3</sup> <http://lawoftheland.wordpress.com/2010/10/25/ny-enacts-smart-growth-public-infrastructure-policy-act/>

<sup>4</sup> <http://blog.sprlaw.com/2010/09/smart-growth-public-infrastructure-policy-act-takes-effect-on-september-29-2010/>

political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Proposed Project would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard's population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would provide a new library, individual and group study space, access to resources and help for students and faculty, and improved conference space, including flexible meeting spaces and smaller break-out rooms.

In addition, portions of Barnard Hall, particularly the LeFrak Gymnasium, would be renovated as part of the Proposed Project prior to the commencement of demolition and new construction on the Development Site. The swing space that would be created by the renovation would serve as replacement facilities for College activities during the construction period of the new Center. Upon completion of the Teaching and Learning Center, the swing space would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

The Proposed Project would result in the expansion of an existing institutional land use on the Development Site. The new academic building would provide new facilities for Barnard College that would help alleviate existing facility shortages on other portions of the campus. As no change in land use is proposed, activity on the Development Site would continue to be compatible with the other land uses found in the study area. In addition, the increase in development on the Development Site is not likely to change development trends in the larger study area or introduce new development projects that would not occur absent the Proposed Project. In fact, the new Center would be more similar in scale to newer buildings on the Columbia University campus, across the street from Barnard.

Based on the above information, the Proposed Project would not result in any significant adverse land use impacts.

**Zoning.** The Proposed Project would conform with all bulk and use requirements within the R8 zoning district. The proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable FAR for the Development Site. Based on 6.5 FAR for community facilities in R8 districts and a lot area of 189,466 square feet, the maximum potential development on the Project Site is approximately 1,231,529 zoning square feet; accounting for the floor area of existing campus buildings as indicated on recent New York City Department of Buildings filings, while the Proposed Project would increase zoning floor area on the Development Site, the FAR on the Project Site would still be within the allowable FAR for such uses.

Therefore, the Proposed Project would not result in significant adverse impacts on zoning.



## ***Public Policy***

***State Smart Growth Public Infrastructure Policy Act.*** The Proposed Project would be consistent with the 2010 SSGPIPA and would generally support the smart growth criteria established by the legislation. The compatibility of the Proposed Project with the ten criteria of the SSGPIPA is detailed below.

- ***To advance projects for the use, maintenance or improvement of existing infrastructure.*** The Proposed Project, which would result in the development of a new building to replace the existing academic facility, would connect to the water supply, sewer, and energy infrastructure on the Project Site superblock. Relative to the existing facility, the new building's demands on the New York City water supply, sewers, and energy infrastructure would be negligible. Moreover, the new building's design would adhere to the guidelines for LEED Silver certification, which include best practices for sustainable resource consumption and management. Therefore, the Proposed Project would be supportive of this criterion.
- ***To advance projects located in municipal centers.*** As the Development Site is located within the existing campus of Barnard College, on the Upper West Side of Manhattan in New York City, the Proposed Project would be supportive of this criterion.
- ***To advance projects in developed areas or areas designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan.*** The Proposed Project would add much-needed facilities land within an existing, developed college campus, supporting concentrated infill development. As a result, the Proposed Project would be supportive of this criterion.
- ***To protect, preserve and enhance the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources.*** As shown in Chapters 4, "Historic and Cultural Resources," Chapter 6, "Air Quality," and Chapter 8, "Additional Technical Information," the Proposed Project would not have any significant adverse impacts on the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources. Therefore, the Proposed Project would be supportive of this criterion.
- ***To foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, diversity and affordability of housing in proximity to places of employment recreation and commercial development and the integration of all income and age groups.*** The Proposed Project would foster compact development by constructing facilities on currently-occupied land within an existing college campus. The Proposed Project would also preserve the open space currently on the Barnard College campus, as well as beautify its surrounding area. Therefore, the Proposed Project would be supportive of this criterion.

- ***To provide mobility through transportation choices including improved public transportation and reduced automobile dependency.*** The Project Site is well served by public transportation. The Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line stops at the 116<sup>th</sup> Street station, located directly adjacent to the College; in addition, the MTA-NYCT M4, M60, and M104 bus lines, which provide service along Broadway, and the M5 bus line, which provides service along Riverside Drive, are in close proximity to the College. Columbia University also provides an Intercampus Shuttle service, which is free to Columbia and Barnard students, faculty, and staff, and operates on weekdays. Although the Proposed Project would not provide any new transportation options, it would be supportive of this criterion.
- ***To coordinate between state and local government and intermunicipal and regional planning.*** The planning for, and approval of, the Proposed Project would require coordination between multiple City and State agencies. DASNY, acting as lead agency, is conducting a coordinated review of the Proposed Project in accordance with New York’s *State Environmental Quality Review Act* (“SEQRA”). The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“SHPA”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“PRHPL”), as well as with the requirements of the Memorandum of Understanding (“MOU”), dated March 18, 1998, between the Dormitory Authority State of New York (“DASNY”) and the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”). Other involved and interested parties include, but are not limited to, the NYC Landmarks Preservation Commission, Manhattan Community Board 9 and elected officials. Therefore, the Proposed Project would be supportive of this criterion.
- ***To participate in community-based planning and collaboration.*** In accordance with SEQRA and CEQR guidelines, the EAF will be made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.
- ***To ensure predictability in building and land use codes.*** As described above, the Proposed Project conforms with the R8 zoning district regulations, and would not result in any significant adverse impacts on land use, zoning, or public policy. As described above, the proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable FAR for the Project Site. In addition, the Proposed Project would result in the expansion of an existing institutional land use on the Development Site that would provide new library and academic facilities for Barnard College to continue to provide a top-flight education to its students. As no change in land use is proposed, activity on the Development Site would continue to be compatible with the other land uses found in the study area. For all of these reasons, the Proposed Project would be supportive of this criterion.
- ***To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad-based public involvement in***

*developing and implementing a community plan and ensuring the governance structure is adequate to sustain its implementation.* The Proposed Project would seek LEED Silver certification. In addition, as described above, it would encourage public involvement through the public comment process and through ongoing public consultations in accordance with *SEQRA* and *CEQR* guidelines. For these reasons, the Proposed Project would be supportive of this criterion.

Overall, no significant adverse impacts on land use, zoning, or public policy are anticipated as a result of the Proposed Project.

## CHAPTER 3. SHADOWS

### ***Introduction***

This chapter examines whether the proposed Teaching and Learning Center would cast new shadows on any nearby publicly-accessible sunlight-sensitive resources of concern. According to the *City Environmental Quality Review (“CEQR”) Technical Manual*, sunlight-sensitive resources of concern include public open space, sunlight-dependent features of historic architectural resources, and natural resources that depend on sunlight.

### ***Definitions and Methodology***

This analysis has been prepared in accordance with New York City Environmental Quality Review (“CEQR”) procedures and follows the guidelines of the 2014 *CEQR Technical Manual*.

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

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

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

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

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g. front and back yards, stoops, vacant lots, and any private, non-publicly-accessible open space);

- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist. However, if the condition of project-generated open space is included in the qualitative analysis presented in the Open Space chapter of the EIS, a discussion of how shadows would affect the new space may be warranted.

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

**Methodology.** Following the guidelines of the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, a preliminary screening assessment must first be conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed building representing the longest shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.

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

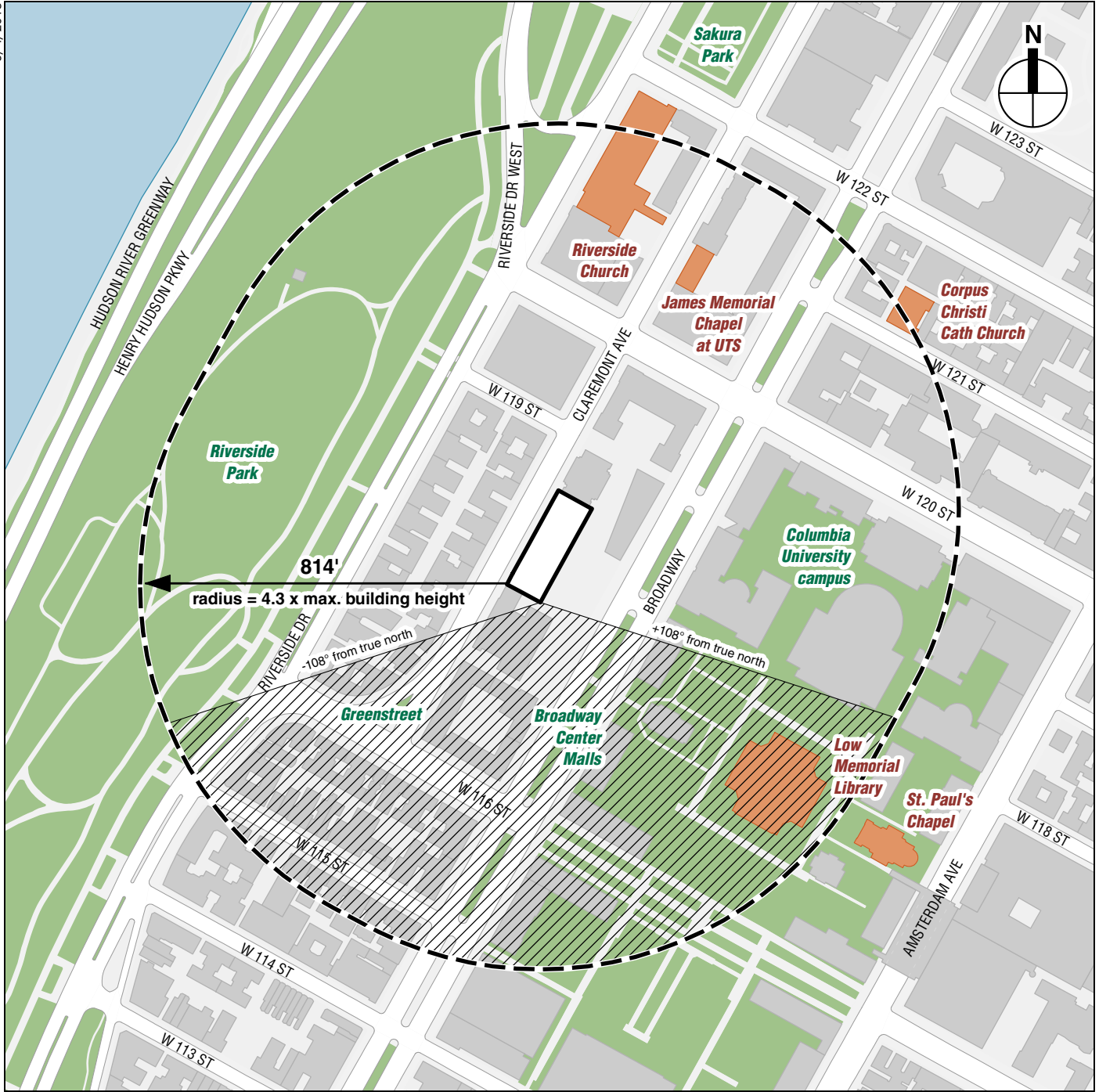
If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the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






### ***Preliminary Screening Assessment***

A base map was developed using Geographic Information Systems ("GIS")<sup>1</sup> showing the location of the proposed project and the surrounding street layout (see **Figure 3-1**). In

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<sup>1</sup> Software: Esri ArcGIS 10.2; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.



-  Proposed building footprint
-  Tier 1: Longest shadow study area boundary
-  Tier 2: Area south of site that could never be shaded by proposed building
-  Publicly-Accessible Open Space
-  Historic Resources with Sunlight-Sensitive Features

0 400 FEET

coordination with the land use and historic resource assessments presented in other chapters of this EAF, potential sunlight-sensitive resources were identified and shown on the map<sup>2</sup>.

**Tier 1 Screening Assessment.** For the Tier 1 assessment, the longest shadow that the proposed structure could cast is calculated, and, using this length as the radius, a perimeter is drawn around the project 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.

Therefore, at a maximum height of 189.25 feet above curb level, including rooftop parapet and mechanical space, the proposed Teaching and Learning Center could cast a shadow up to 814 feet in length (189.25 x 4.3). Using this length as the radius, a perimeter was drawn around the project site (see **Figure 3-1**). Since a number of publicly-accessible sun-sensitive resources lay within the perimeter or longest shadow study area, the next tier of screening assessment was conducted.

**Tier 2 Screening Assessment.** Because of the path that the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City this area lies between -108 and +108 degrees from true north. **Figure 3-1** illustrates this triangular area south of the project site. The complementing area to the north within the longest shadow study area represents the remaining area that could potentially experience new project generated shadow.

As shown in **Figure 3-1**, portions of three publicly-accessible open space resources are located in the remaining longest shadow study area. In addition, three historic resources that have publicly-accessible sunlight-sensitive features are located in the remaining longest shadow study area: Riverside Church, the James Memorial Chapel of the Union Theological Seminary complex, and Corpus Christi Catholic Church. Therefore, the next tier of assessment was conducted.

**Tier 3 Screening Assessment.** The direction and length of shadows vary throughout the course of the day and also differ depending on the season. In order to determine whether project-

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<sup>2</sup> The Union Theological Seminary complex is listed on the New York State and National Registers of Historic Places; in addition, the Brown Memorial Tower and James Memorial Tower and Chapel portions of the complex are a designated New York City Landmark. The stained-glass windows of the James Memorial Chapel and Tower and the Brown Memorial Tower are sunlight-dependent features of the resource. However, based on research and a site visit on March 4, 2015, only the James Memorial Chapel is accessible to the public, while the two towers are not. Also, the Columbia University campus is generally publicly-accessible as an open space. The portion of the campus bounded by Broadway on the west, Amsterdam Avenue on the east, West 114th Street on the south, and an irregular line that includes Schermerhorn Hall, the steps of Uris Hall, and Havemeyer Hall on the north was determined S/NR-eligible as a historic district on May 9, 1980 by the New York State Committee on the Registers. However, the procedures for listing on the NR were being changed at the time and the potential district has not been listed.

generated shadow could fall on a sunlight-sensitive resource, three-dimensional (“3D”) computer modeling software<sup>3</sup> is used in the Tier 3 assessment to calculate and display the proposed project’s shadows on individual representative days of the year. A computer model was developed containing three-dimensional representations of the elements in the base map used in the preceding assessments, the topographic information of the study area, and a reasonable worst-case three-dimensional representation of the proposed project.

**Representative Days for Analysis.** Following the guidance of the *CEQR Technical Manual*, shadows on the summer solstice (June 21), winter solstice (December 21) and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, generally the day halfway between the summer solstice and the equinoxes, i.e. May 6 or August 6, which have approximately the same shadow patterns.

**Timeframe Window of Analysis.** The shadow assessment considers shadows occurring between one and a half hours after sunrise and one and a half hours before sunset. At times earlier or later than this timeframe window of analysis, the sun is down near the horizon and the sun’s rays reach the Earth at very tangential angles, diminishing the amount of solar energy and producing shadows that are very long, move fast, and generally blend with shadows from existing structures until the sun reaches the horizon and sets. Consequently, shadows occurring outside the timeframe window of analysis are not considered significant under CEQR, and their assessment is not required.

**Tier 3 Screening Assessment Results.** Figure 3-2 illustrates the range of shadows that would occur, in the absence of intervening buildings, from the proposed Teaching and Learning Center on the four representative days for analysis. As they move east and clockwise over the landscape, the shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset).

The assessment showed that the proposed building’s shadow would be long enough to reach Riverside Park in the morning on all four analysis days, a section of the Broadway Malls around West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall, and the northwest area of the Columbia University campus in the spring, summer and fall as well. No other open spaces or historic resources could be affected by project-generated shadow.

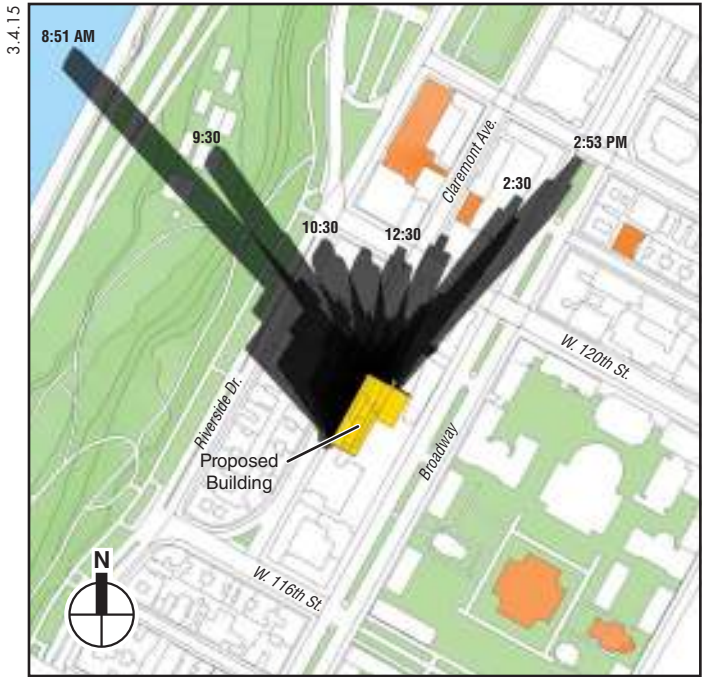
Due to the highly variable topography, the project’s shadow would also be long enough to reach onto the Hudson River, a sunlight-sensitive natural resource, briefly at the start of the winter analysis day.

A detailed analysis was required to determine the extent and duration of new shadows on Riverside Park, the Broadway Malls, the Columbia University campus, and the Hudson River, accounting for intervening buildings and existing shadows.

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<sup>3</sup> MicroStation V8i (SELECTSeries 3)

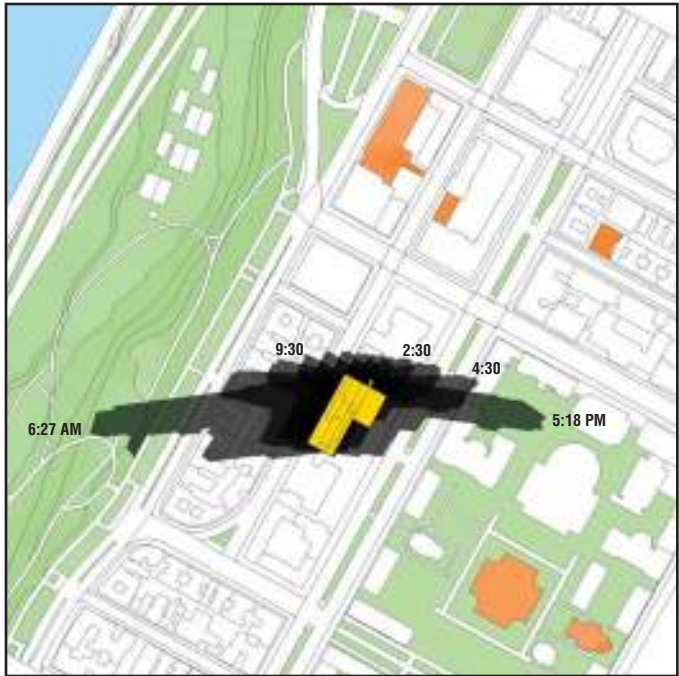




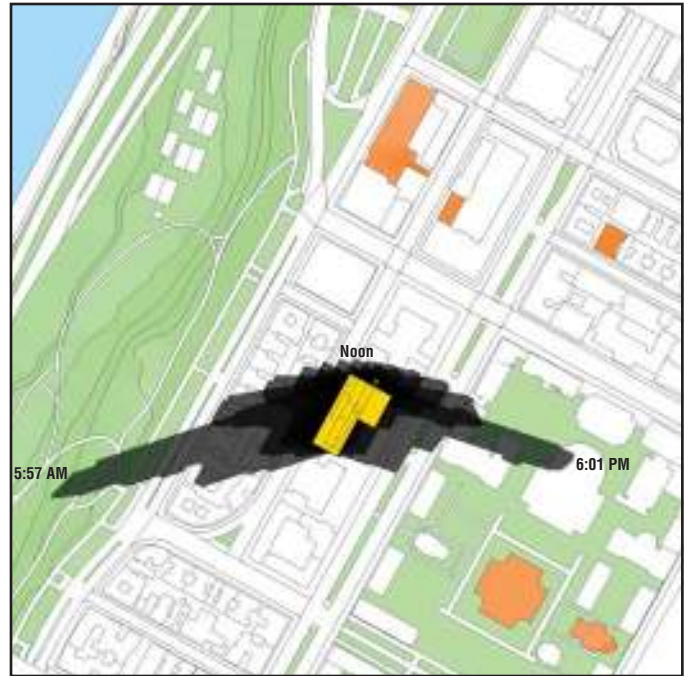
December 21



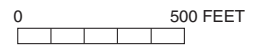
March 21/Sept. 21



May 6/August 6



June 21



- Proposed Building
- Publicly-Accessible Open Space (see Figure 3-1)
- Historic Resource with Sun-Sensitive Features (see Figure 3-1)
- Shadow

Notes:

1. Daylight Saving Time not used per CEQR guidelines.
2. Shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset). The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed project's shadow across the landscape.

### Detailed Shadow Analysis

For the detailed analysis, a No Action condition is established, containing existing buildings and any future developments planned in the area, to model the baseline shadows. The future condition with the proposed project and its shadows can then be compared to the baseline condition to determine the incremental shadows that would result with the proposed project.

Three-dimensional representations of the existing buildings in the study area were developed using data obtained from the New York City Department of Information Technology and Telecommunications (“DoITT”) and photos taken during project site visits, and were added to the three-dimensional model used in the Tier 3 assessment.

Shadows are in constant movement. The computer simulation software produces an animation showing the movement of shadows over the course of each analysis period. The analysis determines the time when incremental shadow would enter each resource, and the time it would exit.

Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

**Table 3-1** summarizes the entry and exit times and total duration of incremental shadows on each affected sun-sensitive resource. **Figure 3-3** documents the results of the analysis by providing graphic representations from the computer animation of times when incremental shadow would fall on a sun-sensitive resource. The figures illustrate the extent of additional, incremental shadow at that moment in time, highlighted in red, and also show existing shadow and remaining areas of sunlight.

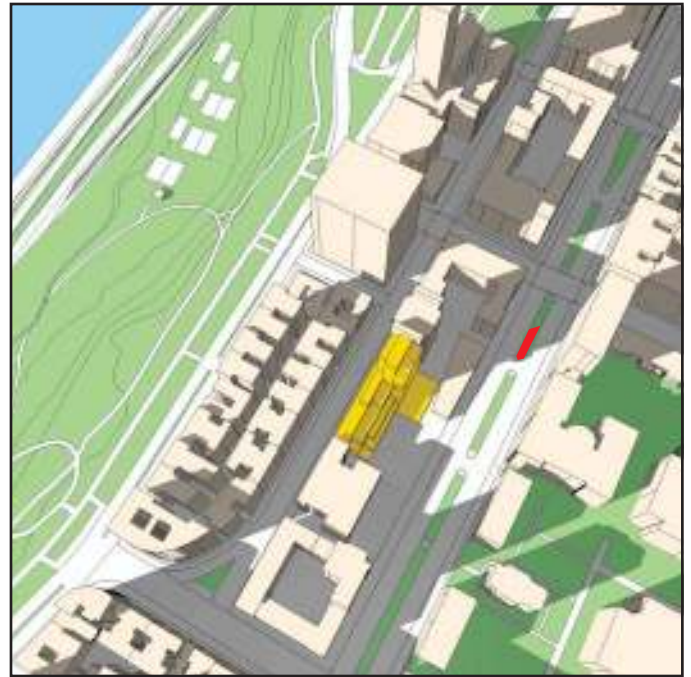
**Table 7-3. Incremental Shadow Durations**

	December 21 8:51 a.m.-2:53 p.m.	March 21 / Sept. 21 7:36 a.m.-4:29 p.m.	May 6 / August 6 6:27 a.m.-5:18 p.m.	June 21 5:57 a.m.-6:01 p.m.
Hudson River	8:51 a.m.-8:58 a.m. Total: 7 min	—	—	—
Riverside Park	8:51 a.m.-10:05 a.m. Total: 1 hr 14 min	—	—	—
Broadway Malls	—	3:35 p.m.-4:29 p.m. Total: 54 min	3:45 p.m.-5:18 p.m. Total: 1 hr 33 min	4:00 p.m.-6:00 p.m. Total: 2 hr
<b>Notes:</b> Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource. Daylight saving time is not used — times are Eastern Standard Time, per <i>CEQR Technical Manual</i> guidelines. However, as Eastern Daylight Time is in effect for the March/September, May/August and June analysis periods, add one hour to the given times to determine the actual clock time.				

The detailed analysis showed that on December 21, shadow would fall on the Hudson River for the initial 7 minutes of the analysis day. This minimal duration of new shadow would not impact the river.



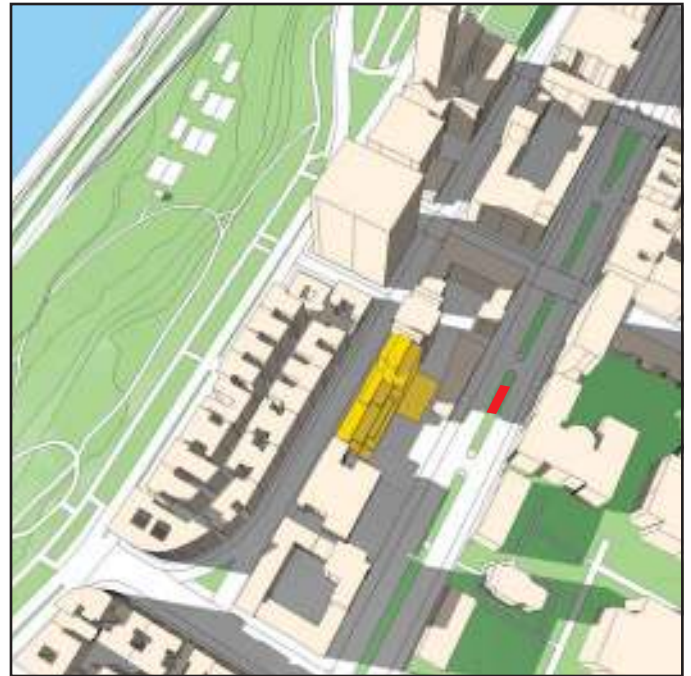
December 21 - 9:30 AM



March 21/Sept. 21 - 4:00 PM



May 6/August 6 - 4:30 PM



June 21 - 5:00 PM

- Proposed Building
- Publicly-Accessible Open Space (see Figure 3-1)
- Incremental Shadow on Sun-Sensitive Resource

Notes:  
 1. Daylight Saving Time not used per CEQR guidelines.



Incremental shadow would fall onto portions of Riverside Park for the first hour and 15 minutes of the analysis day. The winter months are not within New York City's growing season, and the new shadow would therefore not affect the vegetation. During the hour and 15 minute duration of new shadow, adjacent areas of Riverside Park would remain in sun for any users braving the winter morning weather and seeking sun, and the impact would therefore not be significant for recreational use.

During the spring, summer and fall analysis periods, the intervening buildings west of Claremont Avenue would prevent incremental project-generated shadow from reaching Riverside Park.

Similarly, in the late afternoons, when project-generated shadow could otherwise fall onto a portion of Columbia University's campus, the intervening campus buildings along the east side of Broadway already cast shadows on those areas, and no incremental shadow would occur in any season.

Shadow would fall on a small section of one of the Broadway Malls adjacent to West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall seasons, ranging from approximately one to two hours in duration. This relatively brief period of new shadow would not significantly impact the vegetation of the Malls, due to the amount of sunlight available to the resource in the remainder of the day. In addition, the project-generated shadows would not be anticipated to adversely affect the usability of the Malls, given that they are used more as a visual resource than an open space resource. In any case, the incremental shadow would mostly not fall on the benches at the intersection of Broadway and West 119<sup>th</sup> Street, and during the periods when it would, other nearby benches within sight would remain in sun for users seeking sunlit seating. Therefore the new shadow would not significantly impact the Malls.

## CHAPTER 4. HISTORIC AND CULTURAL RESOURCES

### *Introduction*

This section assesses the potential of the Proposed Project to affect historic and cultural resources. The Proposed Project is being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“*SHPA*”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“*PRHPL*”), as well as with the requirements of the Memorandum of Understanding (“*MOU*”), dated March 18, 1998, between the Dormitory Authority State of New York (“*DASNY*”) and the New York State Office of Parks, Recreation and Historic Preservation (“*OPRHP*”).

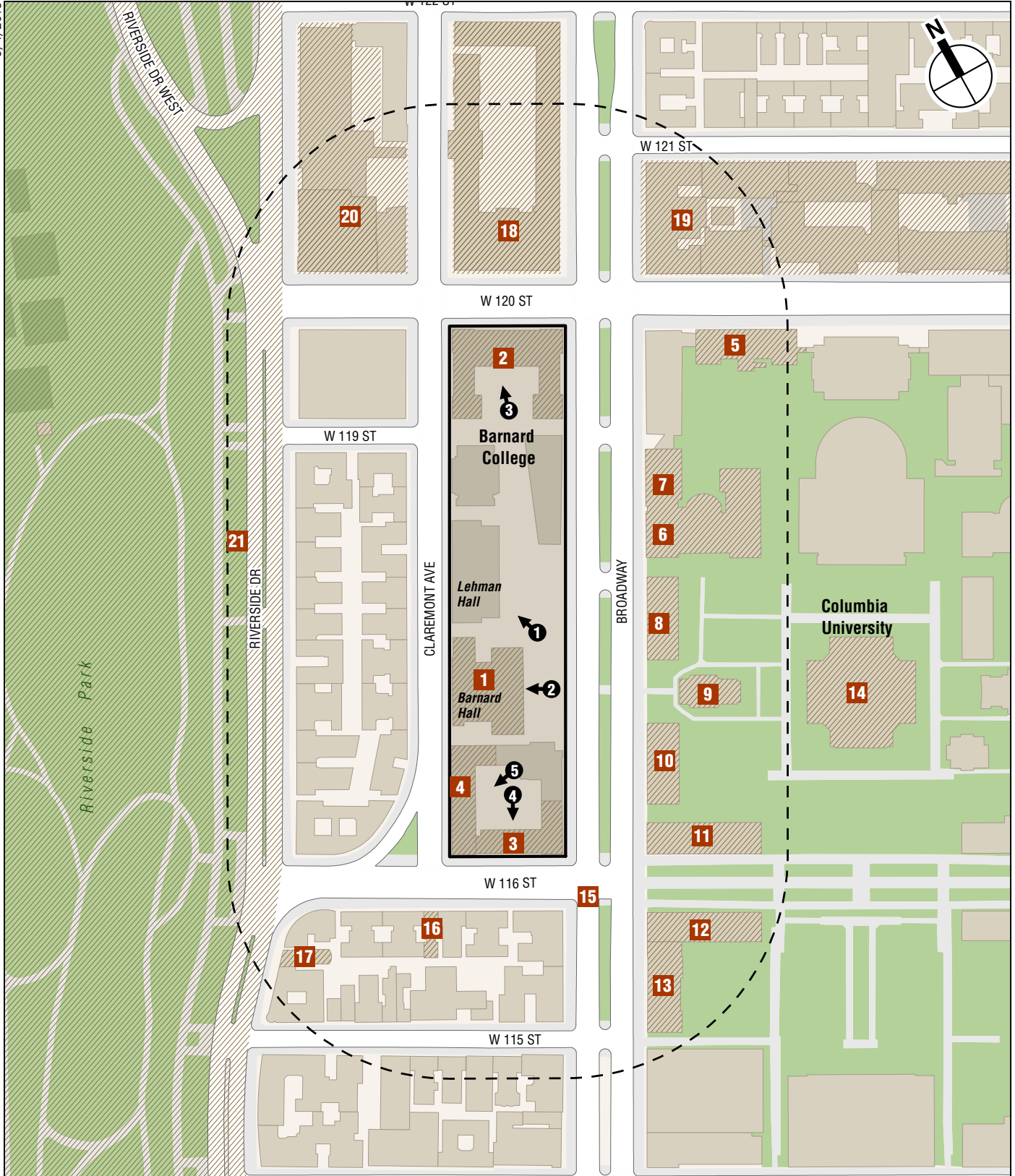
The Development Site is located on a portion of Manhattan Tax Block 1989, Lot 1 on the campus of Barnard College in Morningside Heights, Manhattan. Following the guidelines of the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, the historic resources study area for this project is defined as being within an approximately 400-foot radius of the project site (see **Figure 4-1**). Within the study area, architectural resources that were analyzed include properties listed on the State or National Register of Historic Places (“*S/NR*”) or properties determined eligible for such listing (“*S/NR-eligible*”), New York City Landmarks (“*NYCLs*”) and Historic Districts, properties determined eligible for landmark status, and National Historic Landmarks (“*NHLs*”). Additionally, a survey was conducted to identify any previously undesignated properties in the study area that were then evaluated for their potential *S/NR* or *NYCL* eligibility.

For archaeological resources, the study area is the Development Site, which would require excavation for the construction of the Teaching and Learning Center. *DASNY* has submitted the Proposed Project to the New York State Office of Parks, Recreation and Historic Preservation (“*OPRHP*”) for review. If *OPRHP* determines the Development Site to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared.

In general, potential impacts to architectural resources can include both direct physical effects (e.g., demolition, alteration, or damage from construction on nearby sites) and indirect, contextual effects, such as the isolation of a property from its surrounding environment, or the introduction of visual, audible, or atmospheric elements that are out of character with a property or that alter its setting. The study area for architectural resources is, therefore, larger to account for any potential impacts that may occur where proposed construction activities could physically alter architectural resources or be close enough to them to potentially cause physical damage or visual or contextual impacts.

The Proposed Project is not expected to have significant adverse impacts on archaeological and architectural resources. Although the context of the architectural resources on the Development Site and Project Site and in the study area would be somewhat altered by the addition of a new building to the Development Site, the proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the

3/4/2015



Project Site  
 Study Area (400-foot boundary)

21 Designated Resource  
↑ Photograph View Direction and Reference Number

0 200 FEET

Morningside Heights neighborhood. The proposed building would be of comparable height or shorter than a number of buildings in the study area as well as Barnard's campus. Cladding materials would be chosen to complement the nearby historic buildings, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources in the surrounding area and the modern design of the proposed building.

The Development Site is located within 90 feet of Barnard Hall (S/NR-eligible), which could potentially be adversely affected by ground-borne construction-period vibrations or other unanticipated potential construction-related impacts. Therefore, to avoid potential adverse physical impacts on this building, the Proposed Project would develop and implement a construction protection plan ("CPP") in consultation with OPRHP.

### ***Existing Conditions***

***Development Site.*** The Development Site is located on the western portion of the Barnard College campus superblock (Block 1989, Lot 1) and is currently occupied by Lehman Hall (see View 1 of **Figure 4-2**). Lehman Hall was designed by O'Connor & Kilham and built in 1959, one of the first buildings added to Barnard's campus since 1926. The library/classroom building's design marks a distinct break in architectural style from the campus's earlier, classically-designed buildings. Because of the topography of this area of Manhattan, the building's western, Claremont Avenue façade rises five stories and its eastern facade, at the campus level, rises three stories. The east façade is characterized by a three-story, glass-enclosed space that cantilevers over a columned arcade and is faced in an irregularly gridded concrete *brise soleil*<sup>1</sup>. Lehman Hall was previously determined by OPRHP to be not eligible for listing on the Registers.

As described above, DASNY has submitted the Proposed Project to OPRHP for review. If OPRHP determines the Development Site to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared.

***Project Site and Study Area.*** The Barnard College campus main campus — bounded by Claremont Avenue, Broadway, and West 116<sup>th</sup> and 120<sup>th</sup> Streets — composes the Project Site.

Directly south of the Development Site on Barnard's campus is the 4-story Barnard Hall (S/NR), which contains a wide variety of student resources and academic facilities, as well as a swimming pool, track, and gymnasium (see View 2 of **Figure 4-2**). Barnard Hall, built in 1916, was the first major expansion of Barnard College's academic facilities following the completion of the original Milbank Hall complex in 1898. As defined in the Project Description, the Proposed Project would also include the renovation of Barnard Hall's 9,700-gsf LeFrak Gymnasium to provide campus swing space for the temporary relocation of the academic uses currently located in Lehman Hall during the construction of the new Teaching and Learning Center. Upon completion of the Teaching and Learning Center, the swing space in the first floor

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<sup>1</sup> *Brise soleil* is an architectural feature of a building which reduces heat gain within that building by deflecting sunlight (e.g., a sun baffle outside the windows or extending over the entire surface of a building's façade).



Lehman Hall 1



Barnard Hall 2



of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

Milbank Hall (S/NR) is the original Barnard College building complex that comprises Milbank Hall (1897), Brinkerhoff Hall (1898), and Fiske Hall (1897). Milbank Hall, designed by Lamb & Rich, is located at 600-614 West 120<sup>th</sup> Street and occupies the block bounded by Claremont Avenue, Broadway, and West 119<sup>th</sup> and West 120<sup>th</sup> Streets (West 119<sup>th</sup> Street is closed to traffic). The three interconnected buildings are each four stories with a raised basement that is faced in rusticated limestone. The upper floors are faced in red brick laid in Flemish bond. The detailing and trim are limestone and terra cotta on the first floor and white glazed terra cotta (imitation limestone) on the second through fourth floors. The complex is U-shaped and set around a central courtyard (see View 3 of **Figure 4-3**).

Brooks Hall (S/NR) is located at the southern end of Barnard's campus, along West 116<sup>th</sup> Street. It was built in 1906-1908 and named after the first president of Barnard's Board of Trustees, the Reverend Arthur Brooks. The building is clad in red brick and features a 1-story portico supported by Ionic columns on the ground floor of its north façade (see View 4 of **Figure 4-3**). It was designed by Charles Rich.

Hewitt Hall (S/NR) built in 1924-25, abuts Brooks Hall on the west and fronts on Claremont Avenue. It was designed by McKim Mead & White. According to Andrew Dolkart's *Morningside Heights: A History of its Architecture and Development*, construction of the dormitory was a concerted effort to increase the geographic diversity of students, a euphemism for the admission of elite Protestant students from outside of New York City in place of local students of Eastern European Jewish background. The building is clad in brick, limestone, and terra cotta and has Renaissance-inspired details (see View 5 of **Figure 4-4**).

Within the study area, there are an additional 18 known architectural resources. These are listed in **Table 4-1** and described below.

Pupin Hall/Pupin Physics Laboratory (NHL, S/NR), which was designed by McKim, Mead & White and was built in 1925-1927, is located across Broadway on the Columbia University campus. The basement of this 12-story red brick building with limestone trim, a copper cornice, and a centrally-located rooftop observatory is the site where, on January 25, 1939, the first uranium atom was split in the United States using a cyclotron magnet. This event, along with the splitting of a uranium atom in Denmark ten days earlier on January 15, 1939, marked a turning point in world history and resulted in Federal support of atomic research efforts at Columbia that led to the development of the "Manhattan District Project" and the subsequent production of the atomic bomb.

The portion of the McKim Mead & White-designed Columbia University campus bounded by Broadway on the west, Amsterdam Avenue on the east, West 114<sup>th</sup> Street on the south, and an irregular line that includes Schermerhorn Hall, the steps of Uris Hall, and Havemeyer Hall on the north has been determined S/NR-eligible. This area was determined eligible as a historic district on May 9, 1980, by the New York State Committee on the Registers.



Milbank Hall 3



Brooks Hall 4





Hewitt Hall 5

However, the procedures for listing on the NR were being changed at the time and the potential district has not been listed. The following buildings in the 400-foot study area were designed and built as part of McKim, Mead & White’s 1894 master plan and 1926 expansion of the master plan and, except where noted otherwise, were determined eligible for designation as part of the S/NR-eligible historic district described above.

**Table 4-1. Architectural Resources Within the Project Site and Study Area.**

Ref. No.	Name	Address	NHL	S/NR-listed	S/NR-eligible	NYCL	NYCL-eligible
<b>PROJECT SITE</b>							
<b>Known Architectural Resources</b>							
1.	Barnard Hall	Barnard College, 3005 Broadway		X			
2.	Millbank Hall	Barnard College, 600-614 West 120 <sup>th</sup> Street		X			
3.	Brooks Hall	Barnard College, 3009 Broadway		X			
4.	Hewitt Hall	Barnard College, 3009 Broadway		X			
<b>STUDY AREA</b>							
<b>Known Architectural Resources</b>							
5.	Pupin Hall	Columbia University, 538 West 120 <sup>th</sup> Street	X	X			
6.	Havemeyer Hall	Columbia University, 3000 Broadway			X		
7.	Chandler Hall	Columbia University, 3010 Broadway			X		
8.	Mathematics Hall	Columbia University, 2990 Broadway			X		
9.	Earl Hall	Columbia University, 2980 Broadway			X		
10.	Lewisohn Hall	Columbia University, 2970 Broadway			X		
11.	Dodge Hall	Columbia University, 2960 Broadway		X			
12.	Journalism Hall	Columbia University, 2950 Broadway			X		
13.	Furnald Hall	Columbia University, 2940 Broadway			X		
14.	Low Library	Columbia University	X	X		X <sup>1</sup>	
15.	116 <sup>th</sup> Street-Columbia University Subway Station	116 <sup>th</sup> Street and Broadway		X		X <sup>2</sup>	
16.	Casa Hispanica	612 West 116 <sup>th</sup> Street			X		
17.	Alpha Club	434 Riverside Drive		X			
18.	Union Theological Seminary	Block bounded by Broadway, Claremont Avenue, West 120 <sup>th</sup> and 122 <sup>nd</sup> Streets		X		X <sup>3</sup>	
19.	Teachers College Historic District	Block bounded by Amsterdam Avenue, Broadway, and West 120 <sup>th</sup> and 121 <sup>st</sup> Streets			X		X
20.	Riverside Church	490-498 Riverside Drive		X		X	
21.	Riverside Park and Drive			X		X	
22.	Morningside Heights Historic District				X <sup>4</sup>		X
<b>Notes:</b> See <b>Figure 4-1</b> for reference. <sup>1</sup> NYCL (Interior and Exterior) <sup>2</sup> NYCL Interior Landmark <sup>3</sup> NYCL designation encompasses Brown Memorial Tower, James Tower, and James Memorial Chapel. <sup>4</sup> Determination made by LPC, in comment letter dated 2/12/2015. NHL: National Historic Landmark S/NR-listed: Listed on the New York State and National Registers of Historic Places S/NR-eligible: Determined eligible for listing on the New York State and National Registers of Historic Places NYCL: New York City Landmark							

Havemeyer Hall (S/NR-eligible) is one of twelve classroom buildings designed by McKim, Mead & White as part of the 1894 master plan. Havemeyer Hall was built in 1896-

1897 and has a central pavilion topped by a copper pediment and flanked by two slightly projecting end pavilions. This four-story building has limestone trim and window surrounds that contrast the building's red brick façade. Havemeyer Hall's western façade is along Broadway and features a high granite base. At the building's rear (north) elevation is a projecting, semicircular lecture hall.

Chandler Hall (S/NR-eligible), also designed by McKim, Mead & White, is an extension to Havemeyer Hall that was built in 1925-1928. The addition extends from Havemeyer's northwest, rear façade along Broadway and maintains Havemeyer Hall's original design aesthetic through the use of red brick and limestone detailing. The addition has nine stories.

Mathematics Hall (S/NR-eligible), originally Engineering Hall, was also designed by McKim Mead & White and built in 1896-1897. Like Havemeyer Hall and the other twelve classroom buildings designed as part of the master plan, Mathematics Hall is a four-story red brick building with limestone trim, window surrounds, and vertical elements and is capped by a copper hipped roof.

Earl Hall (S/NR-eligible), located west of Low Memorial Library on Columbia University's Morningside Heights campus, was designed by McKim Mead & White and built in 1900-1902. This small, neo-Georgian red brick building, originally an assembly hall with reading and meeting rooms, resembles a small centralized Italian Renaissance church with its long flight of entrance stairs, limestone portico, and shallow dome.

Lewisohn Hall (S/NR-eligible), located just south of Earl Hall along Broadway, was designed by Arnold Brunner and built in 1904. The design for the building reflected its status as one of the campus's more modest structures, with campus facades that are flatter and less heavily detailed. The Broadway elevation was designed with a high granite base, contributing to the effect of a walled enclosure. As required by McKim Mead & White's master plan, the building uses the same dark red brick and white limestone found on other campus structures, but its detailing is more sculptural, reflecting Brunner's taste for French Beaux-Arts design.

Dodge Hall (S/NR), located at the northeast corner of West 116<sup>th</sup> Street and Broadway, near one of the two main entrances to the campus, was designed by McKim Mead & White. It was designed with a 2-story colonnade on second and third stories of its West 116<sup>th</sup> Street elevation. The building also has a monumental entrance portico facing north onto the campus.

Journalism Hall (S/NR-eligible), located directly south of Dodge Hall at the southeast corner of West 116<sup>th</sup> Street and Broadway, was constructed in 1912-1913 with funding from Joseph Pulitzer. It was designed by McKim Mead & White, and incorporated colonnades similar to those employed at Dodge Hall. The attic level of the building was redesigned in the 1990s by Pasanella + Klein Stolzman + Berg, with an addition of overscaled dormers and a tall elevator bulkhead.

Furnald Hall (S/NR-eligible), located just south of Journalism Hall and oriented with its longer facades parallel to Broadway, was built in 1912-1913 as Columbia's third dormitory. It was built in conjunction with the construction of Journalism Hall, thus saving money by building the neighboring structures concurrently. It was designed by McKim Mead & White.

Low Library (NHL, S/NR, NYCL-interior and exterior), centrally located on Columbia University's Morningside Heights campus just east of Earl Hall, was designed by McKim, Mead & White and constructed from 1895 to 1897. Modeled on the Pantheon in Rome and designed in the form of a Greek cross, Low Library was the first major building constructed after Columbia's relocation uptown from East 49<sup>th</sup> Street and Madison Avenue. The building, which was constructed with Roman stone, is largely characterized by its Ionic portico, which consists of ten fluted columns supporting a cornice and attic story. Above the central part of the building, an octagonal-shaped drum supports a round, low dome. The neo-Classical structure was conceived as the focal point of the new campus, both visually and academically; in addition to its central location along the long axis of the campus, the Library is set back from College Walk by several flights of steps, two landings, and a wide esplanade with landscaped areas.

The 116<sup>th</sup> Street-Columbia University Subway Station (S/NR-listed, NYCL-interior), at the intersection of West 116<sup>th</sup> Street and Broadway, is one of a number of landmarked subway station interiors designed by the architecture firm of Heins & LaFarge. In the station interiors, Heins & LaFarge were required to use white tile and light-colored brick except where color was introduced for effect. Color was used for mosaic sign panels and terra-cotta and faience plaques, which were provided by the Rookwood Pottery of Cincinnati and the Grueby Faience Company of Boston. The plaques were designed with an attribute unique to each station. For the 116<sup>th</sup> Street-Columbia University station, the plaques incorporate the seal of Columbia University. The significant elements of the subway station interior are the mosaic and glazed tiles, faience plaques and moldings, brick wainscoting, and platform columns surfaced with glazed tile. The station was recently restored.

612 West 116<sup>th</sup> Street (S/NR-eligible) was constructed in 1906 for the Delta Phi fraternity. It is now the Casa Hispanica of Columbia University. Designed by Thomas Nash, the 5-story structure is clad in stone and has classical details, including a colonnade of Doric columns at the second story. The mansard roof is covered with slate tiles. Two small porthole windows at the fifth floor are surrounded by a copper wreath.

The Alpha Club (S/NR) at 434 Riverside Drive was constructed in 1896 and designed by the firm of Wood, Palmer and Hornbostel. It is now in residential use. The small 5-story Beaux-Arts style building is clad in red brick with stone quoins. It has a hipped roof with copper-clad dormer windows. The building's central bay of windows is surrounded with heavily carved stone ornament. The entrance to the building is on the side façade, with a brick and stone-enclosed entryway along Riverside Drive.

Union Theological Seminary (S/NR), a Protestant seminary founded in 1836, is located on a full city block bounded by Broadway, Claremont Avenue, West 120<sup>th</sup> Street (a.k.a. Reinhold Niebuhr Place), and West 122<sup>nd</sup> Street. The Gothic seminary quadrangle was designed by Allen & Collens (1906-1907). The seminary encompasses Brown Memorial Tower at the northwest corner of Broadway and West 120<sup>th</sup> Street. The tower's base dates from 1908-1910 and the tower dates from 1927-1928. James Tower (1908-1910) and James Memorial Chapel (1908-1910) are located along the seminary's Claremont Avenue elevation. The seminary buildings are faced in Manhattan schist that was quarried on the site. The buildings have limestone trim.

Brown Memorial Tower, the James Tower and James Memorial Chapel also compose a New York City Landmark.

Teachers College (S/NR-eligible, NYCL-eligible) occupies a full block bounded by Amsterdam Avenue, Broadway, and West 120<sup>th</sup> and 121<sup>st</sup> Streets. It was the first educational institution to move to Morningside Heights. The college progressively constructed a campus on the full block, commencing with the mid-block construction of its original building — the Main Hall in 1892 and followed by Macy Hall in 1894 — designed in the High-Victorian Gothic style by William A. Potter. Whittier Hall was designed by Bruce Price in 1901, and was the first dormitory built in Morningside Heights. It is an 11-story red brick building set on a two-story limestone base, designed in the Tudor Gothic style. It is crowned by brick gables, and the structure is adorned with elaborate limestone ornament including belt courses, quoins, turrets, and finials. The library and other campus buildings on West 121<sup>st</sup> Street are of a similar architectural character, though built in the early- to mid-twentieth century. These structures are also faced in red brick, with gables, and also decorated with stone ornament. The one non-contributing building on the block is Thorndike Hall, an 11-story building faced in cast stone/concrete. Teachers College has been determined eligible for listing on the S/NR and designation as a NYCL as an historic district.

Riverside Church (S/NR, NYCL), located at 490-498 Riverside Drive, was designed by Henry C. Pelton and Allen & Collens. It was constructed in 1928-30. Financed primarily by John D. Rockefeller, Jr., Riverside Church is one of the best-known religious structures in New York. Built during an era when most houses of worship were literally being overshadowed by corporate and residential skyscrapers, the 392-foot tower has a strong presence on the Upper West Side skyline. The architects loosely based their design on Chartres Cathedral, employing a limestone curtain wall to disguise the steel frame that was used to speed construction and support the immense weight of the 72-bell carillon.

Riverside Park and Drive (S/NR, NYCL), which runs for nearly four miles along the western edge of Manhattan through the study area, was initially established in 1865 as a way of increasing real estate values on the Upper West Side. Riverside Drive (NYCL) was originally laid out in 1870. In 1873, the New York City Parks Department asked Frederick Law Olmsted to draw up a formal plan for the park and drive. Olmsted's concept was to treat the park and the drive as a single design that would take advantage of the natural beauty of the site. The curving drive was landscaped with trees, walkways, and viewing sites, and the hillside leading down toward the New York Central's railroad tracks and the Hudson River was planted. The wide, straight walkway within the park (located on top of the railroad tracks) and the paths and playgrounds alongside the river were not part of Olmsted's design but were laid out by Clifton Lloyd in 1934-37, at the time of the construction of the Henry Hudson Parkway. In addition to these resources, the staff of the New York City Landmarks Preservation Commission ("LPC") has studied a possible Morningside Heights historic district. The district does not have firm boundaries; however, the area generally being considered for designation is bounded by Broadway, Riverside Drive, West 110<sup>th</sup> Street and Riverside Church. The potential district has not been calendared for a public hearing nor heard by the Commission but has been identified as NYCL-eligible and S/NR-eligible by LPC.

### ***The Future Without the Proposed Project***

In the future without the Proposed Project, the Teaching and Learning Center would not be constructed, and the renovation of portions of Barnard Hall to serve as swing space during project construction would not take place. No excavation of the Development Site would occur.

There is one other planned development expected to be completed in the study area by the 2018 build year — the construction of a new facility by the Korean Methodist Church on the same site as their existing building at 633 West 115<sup>th</sup> Street.

The status of historic resources could change in the future without the proposed project. S/NR-eligible historic resources could be listed on the Registers, NYCL-eligible properties could be calendared for a designation hearing, and properties pending designation as New York City Landmarks could be designated. It is possible that some historic resources in the study area could deteriorate, while others could be restored. In addition, future projects could affect the settings of historic resources, or accidentally damage such resources through adjacent construction.

### ***The Future With the Proposed Project***

***Development Site.*** The Development Site would require excavation for the proposed building. As described above, DASNY is consulting with LPC and OPRHP for their determinations of the potential archaeological sensitivity of the Development Site. If LPC or OPRHP determines the development parcel to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared. As relevant, based on the conclusions of the Phase 1A, and in consultation with OPRHP and LPC, a suitable treatment plan would be devised for any areas of potential sensitivity. The treatment plan could include construction monitoring or field testing, depending on the nature of the potential resources identified and the extent of construction that would take place in specific locations.

In a letter dated March 6, 2015 (see Appendix B), OPRHP noted that Lehman Hall is not S/NR-eligible and that it would not object to the building's demolition.

***Project Site and Study Area.*** Barnard Hall is located within 90 feet of the Development Site. To avoid potential inadvertent construction-related impacts on this architectural resource, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a CPP would be developed in consultation with LPC and OPRHP and implemented by a professional engineer prior to any demolition or construction. The CPP would follow the New York City Department of Buildings *Technical Policy and Procedure Notice* (“PPN”) #10/88 regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines adjacent historic structures as being contiguous or within a lateral distance of 90 feet from a lot under development or alteration. The CPP would set forth measures for the protection and avoidance of structural and architectural damage for this resource.

OPRHP, in its letter of March 6, 2015, indicated that it is likely that the renovation of the Barnard Hall gymnasium, including the building of a second floor within the gymnasium, would



constitute an adverse impact to this historic building. OPRHP has requested an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall. The alternatives analysis is being prepared by DASNY.

During preliminary project planning, Barnard analyzed its library services, and academic, faculty and staff relocation needs in an effort to determine the type and amount of space that would be needed during the demolition of Lehman Hall and the subsequent construction of the Teaching and Learning Center. Initially, the College sought to relocate the faculty offices at nearby locations that might have additional office space for rent. Requests went out to several nearby institutions, including the Interchurch Center; Jewish Theological Seminary; Teacher's College; Manhattan School of Music; Columbia University and Union Theological Seminary ("UTS"). None of the institutions contacted had viable space available to meet Barnard's needs.

Next, available assets on campus were evaluated including the Barnard Hall pool, taken out of commission a couple of years ago; Sulzberger Annex; space above the Vagelos Alumnae Center; space in Milbank Hall for a recently vacated print services department and the underutilized LeFrak gymnasium in Barnard Hall. Further analysis revealed that the Barnard Hall pool would not be large enough to house the entire program required, nor would a combination of the pool in conjunction with Sulzberger Annex. As a result, the gymnasium was evaluated for a program fit. It was determined that by constructing two floors in the gym, Barnard would achieve enough square footage to allow for most of the program. Sulzberger Annex and Milbank Hall were added to complete the swing space program. As planning for the swing space in the gymnasium progressed, Barnard realized that by making the space permanent, the College could realize its goals of providing space for the Information Technology Department and additional administrative functions as well as that of providing better on-campus public assembly space.

The final resolution of any cultural resources aspects of the Proposed Project is subject to *SHPA* and its Section 14.09 implementing regulations. DASNY and Barnard look forward to the development of a Letter of Resolution ("LOR") with OPRHP regarding the subject building.

Besides Barnard Hall, there are no study area architectural resources located within 90 feet of the Development Site; therefore, the Proposed Project would not have any adverse physical impacts on resources in the study area.

The design of the proposed Teaching and Learning Center would include materials chosen to complement the nearby historic buildings on the Project Site, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources on the Project Site and the modern design of the proposed building. The proposed Teaching and Learning Center would be taller and larger than the existing Lehman Hall; however, it would be similar in height to several existing buildings on Barnard's campus, most notably Altschul Hall and Sultzberger Hall, and its total area also would be comparable to other campus buildings. Overall, the proposed building would be consistent with the bulk, uses, and arrangements of other buildings on the Barnard campus.

Many existing buildings near the Project Site include a variety of building materials that characterize the period during which the buildings were built. The proposed building would be

designed likewise to characterize the current period in architecture and building technology. The proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the Morningside Heights neighborhood. At approximately 210 feet, the proposed building would be of comparable height or shorter than a number of buildings in the study area, including the Interchurch Center, at 237 feet in height, and the 229-foot-tall Northwest Science Building at the southeast corner of West 120<sup>th</sup> Street and Broadway.

Overall, the proposed project would not be expected to have any significant adverse physical, visual, or contextual impacts on historic resources.

## **CHAPTER 5. HAZARDOUS MATERIALS**

### ***Introduction***

This attachment presents the findings of the hazardous materials assessment and identifies potential issues of concern that could pose a hazard to workers, the community, and/or the environment during or after development of the Proposed Project. The Development Site currently contains a five-story (plus basement) Lehman Hall, as well as portions of Barnard and Milbank Halls. The Proposed Project would entail demolition of Lehman Hall, followed by the construction of a new building at its location, as well as internal renovation in portions of Barnard and Milbank Halls. Excavation is anticipated only for the construction of the new building.

A *Phase I Environmental Site Assessment* (“ESA”) of the Development Site was performed in March 2015 [to come] in accordance with ASTM Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice. The ESA included a visual inspection; a review of historical land use maps, prior reports and local records; and a review of State and federal regulatory databases relating to use, generation, storage, treatment and/or disposal of hazardous materials.

### ***Existing Conditions***

***Subsurface Conditions.*** The Development Site is approximately 120 to 130 feet above sea level, sloping down to the northwest. Bedrock in the vicinity of the project site is shallow, and is anticipated to be approximately 0 to 30 feet below grade. The tunnels for the Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line pass beneath Broadway approximately 160 feet east of the Development Site.

Based on surface topography, groundwater would be anticipated to be encountered approximately 120 feet below grade and to flow west towards the Hudson River; however, shallower groundwater perched on bedrock may be present. Additionally, the actual groundwater depth and flow direction may be influenced by dewatering for the nearby subway tunnels, and perhaps other factors. Groundwater in Manhattan is not used as a source of potable water (the municipal water supply uses upstate reservoirs).

***Hazardous Materials Assessment.*** The Phase I ESA identified no “*Recognized Environmental Conditions*” (“RECs”), i.e., the presence or likely presence of hazardous substances or petroleum in the ground or groundwater. Identified environmental concerns included off-site reported spills and hazardous waste generators with limited potential to affect the project site), and the potential presence (typical of older buildings) of *asbestos-containing materials* (“ACM”), lead-based paint, and fluorescent lighting fixtures and other electrical equipment that could include *polychlorinated biphenyls* (“PCBs”).

### ***The Future Without The Proposed Project***

In the future without the Proposed Project, the Development Site would remain in its current condition. Currently, there are no known significant health risks associated with the Development Site. Likewise, there would be no significant health risks at the Development Site in the future without the Proposed Project. Legal requirements (including New York State Department of Environmental Conservation [NYSDEC] and United States Environmental Protection Agency [EPA] regulations) pertaining to any ACM, lead-based paint, and potential PCB-containing equipment would continue to apply.

### ***The Future With The Proposed Project***

The Proposed Project would entail demolition of the existing Lehman Hall, excavation for the construction of a new building at its location, and interior renovation in portions of Barnard and Milbank Halls. Although these activities could increase pathways for human exposure, impacts would be avoided by performing the project in accordance with the following:

- During any future subsurface disturbance, excavated soil should be handled and disposed of in accordance with applicable regulatory requirements. If dewatering is necessary for the proposed construction, water would be discharged to sewers in accordance with New York City Department of Environmental Protection (NYCDEP) requirements.
- Any suspect ACM that would be disturbed by the Proposed Project would be surveyed for asbestos by a NYC-certified asbestos investigator. All such ACM would be removed and disposed of prior to the disturbance in accordance with local, state and federal requirements.
- Any activities with the potential to disturb lead-based paint would be performed in accordance with applicable requirements (including federal Occupational Safety and Health Administration regulation 29 CFR 1926.62 - Lead Exposure in Construction).
- Unless there is labeling or test data indicating that any suspect PCB-containing electrical equipment and fluorescent lighting fixtures do not contain PCBs, and that any fluorescent lighting bulbs do not contain mercury, if disposal is required, it would be conducted in accordance with applicable federal, state and local requirements.

With these measures, the Proposed Project would not result in any significant adverse impacts related to hazardous materials.

## **CHAPTER 6. AIR QUALITY**

### ***Introduction***

The potential for air quality impacts associated with the Proposed Project is assessed in this chapter. The Proposed Project, located on the Barnard College campus superblock, would include renovations on the existing buildings and a new 11-story Teaching and Learning Center building at the Development Site, which is currently occupied by Lehman Hall.

According to the *CEQR Technical Manual*, an air quality analysis is necessary if a project would result in direct or indirect impacts on ambient air quality. Direct impacts stem from emissions generated directly by the project such as stationary sources (e.g., emissions from fuel burned on site for heating systems). Indirect impacts are caused indirectly by a project, such as emissions generated by on-road vehicle engines (mobile sources). The Proposed Project is not expected to significantly alter traffic conditions, and the maximum hourly incremental traffic from the Proposed Project would not exceed the *CEQR Technical Manual's* 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<sub>2.5</sub>) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the 2014 *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project-generated traffic is not warranted. However, the Proposed Project would include a new boiler installation for the new Teaching and Learning Center. Therefore, a stationary source screening analysis was conducted to evaluate potential future pollutant concentrations from the proposed heating and hot water system.

Based on the air quality assessment performed and described in the sections below, there would be no potential for significant adverse air quality impacts from the heating and hot water systems from the Proposed Project.

### ***Heating and Hot Water Systems Screening Analysis***

The Proposed Project would include a heat and hot water system that would potentially be able to utilize either No. 2 fuel oil or natural gas. A screening analysis was performed using the EPA-approved AERSCREEN model (version 14147 EPA, 2014). The AERSCREEN model predicts worst-case one-hour impacts downwind from a point, area, or volume source. AERSCREEN generates application-specific worst-case meteorology, using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo, Bowen ratio, and surface roughness. The AERSCREEN model was used to calculate ambient concentrations of criteria pollutants from the Proposed Project downwind of the stack.

The current design includes the operation of a 170-bhp dual-fuel boiler to provide space heating and two 400 MBH boilers, with one in use and another as backup, to provide domestic hot water. Emission rates were calculated based on the proposed floor area and the energy consumption factor specified in the *CEQR Technical Manual Air Quality Appendix*. Short-term emissions were estimated by assuming 100 heating days. Emissions from the use of both No. 2

fuel oil and natural gas were assessed. Emission rates and stack parameters used in the screening analysis are presented in **Table 6-1**. As shown, emission rates based on the use of No. 2 fuel oil are the highest and were therefore assumed in the analysis as the worst case scenario.

**Table 6-1. HVAC Emission Rates and Stack Parameters**

<b>Parameter</b>	<b>Value</b>
<i>Stack Parameters:</i>	
Stack Height (ft)	200
Stack Diameter (ft) <sup>(1)</sup>	1.88
Exhaust Velocity (m/s) <sup>(2)</sup>	4.60
Exhaust Temperature (°F) <sup>(2)</sup>	300
<i>Emission Rates (g/s):</i> <sup>(3)</sup>	
<b>No. 2 Fuel Oil</b>	
PM <sub>2.5</sub> , 24-Hour	0.0064
PM <sub>2.5</sub> , Annual	0.0018
PM <sub>10</sub> , 24-Hour	0.0072
SO <sub>2</sub> , 1-Hour	0.0006
SO <sub>2</sub> , 3-Hour	0.0006
NO <sub>x</sub> , 1-Hour	0.0601
NO <sub>x</sub> , Annual	0.0165
<b>Natural Gas</b>	
PM <sub>2.5</sub> , 24-Hour	0.0031
PM <sub>2.5</sub> , Annual	0.0009
NO <sub>x</sub> , 1-Hour	0.0696
NO <sub>x</sub> , Annual	0.0112
<b>Notes:</b>	
1. The current design includes two stacks in close proximity that are modeled as collocated stacks for screening purposes.	
2. The exhaust flow rate and temperature were based on a DEP permit database for similar size boiler systems.	
3. The emission rates are based on AP-42 emission factors.	
<b>Sources:</b> EPA AP-42 Section 1.4	

Based on the design of the Proposed Project, the boiler exhaust stack will be located approximately 60 feet from the nearest receptor location on Altschul Hall, which is adjacent to the proposed building, at the nearest height at which there would be operable windows. At the minimum stack height required by building code, approximately 192 feet (i.e., 3 feet above the parapet of the proposed new Teaching and Learning Center), concentrations predicted by the AERSCREEN model might exceed screening levels at one location; therefore, a stack height of 200 feet above grade was identified at which no significant air quality impacts would occur and the project is committed to implementing this minimum stack height.

Based on the assumptions described above, the concentrations predicted by the AERSCREEN model, presented in **Table 6-2**, are below the applicable thresholds. Therefore,

with a stack height of at least 200 feet above grade, the Proposed Project would not result in any potential adverse air quality impacts.

**Table 6-2. Maximum Modeled Pollutant Concentration ( $\mu\text{g}/\text{m}^3$ )**

Using No. 2 Fuel Oil					
Pollutant	Averaging Period	Maximum Modeled Impact	Background <sup>(1)</sup>	Total Concentration	NAAQS / Threshold
PM <sub>2.5</sub>	24-hour	3.2	24	N/A	5.5 <sup>(3)</sup>
PM <sub>2.5</sub>	Annual	0.1	N/A	N/A	0.3
PM <sub>10</sub>	24-hour	3.6	37	41	150
SO <sub>2</sub>	1-hour	0.5	81	82	196
SO <sub>2</sub>	3-hour	0.5	162	163	1300
NO <sub>2</sub>	1-hour	41	112	176	188
NO <sub>2</sub>	Annual	0.7	41	42	100
Using Natural Gas					
Pollutant	Averaging Period	Maximum Modeled Impact	Background <sup>(1)</sup>	Total Concentration	NAAQS / Threshold
PM <sub>2.5</sub>	24-hour	1.6	24	N/A	5.5 <sup>(3)</sup>
PM <sub>2.5</sub>	Annual	0.1	N/A	N/A	0.3 <sup>(4)</sup>
NO <sub>2</sub>	1-hour	28	112	140	188
NO <sub>2</sub>	Annual	0.7	41.1	42	100

**Notes:**  
 N/A — Not Applicable  
 (1) In accordance with the form of the standards, 1-hour NO<sub>2</sub> background is the maximum daily 98<sup>th</sup> percentile background concentration, averaged over the most recent three years for which monitoring data are available. The annual NO<sub>2</sub> background is based on the maximum annual average measured over the most recent five years. The 3-hour SO<sub>2</sub> background levels are based on maximum second-highest concentrations recorded over the five year period. The 24-hour average PM<sub>10</sub> background concentration is based on the maximum second-highest 24-hour average concentration measured over the most recent 3-year period. The 1-hour average SO<sub>2</sub> concentration is based on the 3-year average of the annual 99<sup>th</sup> percentile of the daily maximum 1-hour SO<sub>2</sub> concentrations.  
 (2) Includes a 1-hour conversion ratio of NO<sub>2</sub> to NO<sub>x</sub> of 80 percent.  
 (3) 24-hour PM<sub>2.5</sub> *de minimis* criteria, which is half the difference between the background concentration and the 24-hour standard of 35  $\mu\text{g}/\text{m}^3$ .  
 (4) Annual PM<sub>2.5</sub> *de minimis* criteria

## CHAPTER 7. NOISE

### *Introduction*

This chapter considers the potential of the Proposed Project to result in significant adverse noise impacts.

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<sup>1</sup> increase in noise levels). However, ambient noise levels adjacent to the Development Site were considered to address CEQR noise abatement requirements for the proposed building.

### *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 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 discernible, 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 7-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (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 being twice as loud as that in 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.

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<sup>1</sup> The A-weighted decibel scale is used almost exclusively in vehicle noise measurement because it reflects the frequency range to which the human ear is most sensitive (1,000 to 6,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA.



**Table 7-1. 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
<b>Note:</b>	A 10 dBA increase in level doubles the perceived loudness, and a 10 dBA decrease halves it.
<b>Sources:</b>	Cowan, James P. <i>Handbook of Environmental Acoustics</i> , Van Nostrand Reinhold, New York, 1994. Egan, M. David, <i>Architectural Acoustics</i> . McGraw-Hill Book Company, 1988.

**Sound Level Descriptors.** Because the dBA sound pressure level unit 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  $L_{50}$ .

As per the *CEQR Technical Manual*,  $L_{10}$  is the noise descriptor used for this noise impact evaluation.

**Noise Standards and Criteria**

**New York CEQR Noise Criteria.** The *CEQR Technical Manual* provides attenuation requirements for buildings based on exterior noise levels (see **Table 7-2**, “Required Attenuation Values to Achieve Acceptable Interior Noise Levels”). These noise attenuation values for buildings are designed to ensure interior noise levels of 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative uses.

**Table 7-2. Required Attenuation Values to Achieve Acceptable Interior Noise Levels**

Noise Level With Proposed Project	Marginally Unacceptable				Clearly Unacceptable
	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation <sup>A</sup>	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)^B$ dB(A)
<b>Notes:</b> <sup>A</sup> The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms 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. <sup>B</sup> Required attenuation values increase by 1 dB(A) increments for $L_{10}$ values greater than 80 dBA. <b>Source:</b> New York City Department of Environmental Protection.					


**Existing Noise Levels**

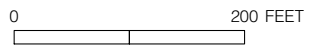
Existing noise levels at the Development Site were measured at two locations. Site 1 was located along Claremont Avenue adjacent to the project site. Site 2 was located on the Lehman Lawn adjacent to the project site. The measurement locations are shown in **Figure 7-1**.

At all receptor sites, existing noise levels were measured for 20-minute intervals during the two weekday peak periods expected to produce the highest levels of ambient noise—a.m. (7:00 a.m. to 8:30 a.m.) and midday (12:00 p.m. to 1:30 p.m.). These time periods represent the times when the greatest level of traffic would be expected on the southbound lanes of Broadway adjacent to the project site, which is the dominant noise source at the site. Measurements were taken on Tuesday, March 3, 2015.

**Equipment Used During Noise Monitoring.** Measurements were performed using a Brüel & Kjær Sound Level Meter (SLM) Type 2260, a Brüel & Kjær ½-inch microphone Type 4189, and a Brüel & Kjær Sound Level Calibrator Type 4231. The Brüel & Kjær SLM is a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). The microphone was mounted on a tripod at a height of approximately 12 feet for the elevated measurement location and approximately 5 feet above the ground for the at-grade measurement locations, and was mounted at least approximately 5 feet away from any large reflecting surfaces. The SLM was 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



-  Project Site
-  Noise Survey Locations



were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. The sound level metrics recorded 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 existing noise level measurements are summarized in **Table 7-3**.

**Table 7-3. Existing Noise Levels (in dBA)**

Site	Measurement Location	Time	$L_{eq}$	$L_1$	$L_{10}$	$L_{50}$	$L_{90}$
1	Claremont Avenue between West 120 <sup>th</sup> Street and West 116 <sup>th</sup> Street	a.m.	60.2	70.3	63.4	55.9	52.6
		midday	58.2	65.6	61.0	56.4	53.4
2	West Boundary of Lehman Lawn	a.m.	60.1	69.0	62.5	58.5	53.8
		midday	59.3	65.9	62.2	57.9	55.1

**Note:** Measurements were conducted by AKRF Acoustics Department on March 3, 2015.

At all receptor sites, vehicular traffic noise on the adjacent roadways was the dominant noise source. Measured levels are moderate and reflect the level of adjacent vehicular activity. In terms of the *CEQR* criteria, the existing noise levels at Sites 1 and 2 would be in the “acceptable” category.

**Noise Attenuation Measures**

The proposed *Teaching and Learning Center* as well as the proposed renovations to Barnard Hall would be designed and constructed using standard construction methods and materials, including acoustically-rated windows and air conditioning as an alternate means of ventilation. The proposed buildings’ façades, including these elements, would be expected to provide a composite Outdoor-Indoor Transmission Class<sup>2</sup> (“OITC”) such that interior noise levels would be 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative 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 systems (i.e., heating, ventilation, and air conditioning) 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 generating noise that would significantly increase ambient levels.

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<sup>2</sup> 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.

## **CHAPTER 8. ADDITIONAL TECHNICAL INFORMATION**

The environmental review of the Barnard College Teaching and Learning Center (“Proposed Project”) follows the *State Environmental Quality Review Act* (“*SEQRA*”), and the *New York City Environmental Quality Review* (“*CEQR*”) *Technical Manual* generally is used as a guide with respect to environmental analysis methodologies and impact criteria for evaluating the Proposed Project in this Supplemental Report, unless stated otherwise.<sup>1</sup> This section provides a summary of the environmental analysis areas that were evaluated using the screening procedures in the *CEQR Technical Manual*.

### ***Socioeconomic Conditions***

The socioeconomic character of an area includes its population, housing, and economic activity. According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a project may reasonably be expected to create substantial socioeconomic changes within the area affected by the project that would not occur in the absence of the project. Projects that would result in the following conditions would trigger a *CEQR/SEQRA* analysis of socioeconomic conditions:

- Direct displacement of a residential population so that the socioeconomic profile of the neighborhood would be substantially altered. Displacement of less than 500 residents would not typically be expected to affect socioeconomic conditions in a neighborhood.
- Direct displacement of more than 100 employees; or the direct displacement of a business or institution that is unusually important as follows: it has a critical social or economic role in the community, it would have unusual difficulty in relocating successfully, it is of a type or in a location that makes it the subject of other regulations or publicly adopted plans aimed at its preservation, it serves a population uniquely dependent on its services in its present location, or it is particularly important to neighborhood character.
- Introduction of substantial new development that is markedly different from existing uses, development, and activities within the neighborhood. Such a project could lead to indirect displacement. Residential development of 200 units or fewer or commercial development of 200,000 square feet or less would typically not result in significant socioeconomic impacts.
- Projects that are expected to affect conditions within a specific industry, such as a citywide regulatory change that could adversely impact the economic and operational conditions of certain type of businesses.

The Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot Teaching and Learning Center; in addition, portions of Barnard Hall would be renovated to serve as replacement “swing space” during the construction of the new Center. The Proposed Project would not introduce or displace any residents, nor would it displace more than 100 employees or a business or

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<sup>1</sup> The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

institution. No increase in enrollment would occur as a result of the Center's construction; the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. The Proposed Project would be consistent with and would contribute to the existing institutional uses on the Barnard College campus. Therefore, the Proposed Project does not meet the threshold for further analysis and would not result in any significant adverse impacts on socioeconomic conditions.

### ***Community Facilities and Services***

The *CEQR Technical Manual* states that a community facilities assessment is appropriate if a project would have a direct effect on a community facility, or if it would have an indirect effect by introducing new populations that would overburden existing facilities.

As explained below, the Proposed Project would not result in significant indirect effects on community facilities and services, such as public schools, libraries, hospitals, child-care centers, or police and fire protection.

- **Schools:** The *CEQR Technical Manual* specifies that if a project introduces more than 50 elementary and/or intermediate school students or 150 or more high school students who are expected to attend public schools, there may be a significant impact to educational facilities. The Proposed Project would not generate any residential units. Therefore, no further analysis is warranted.
- **Libraries:** The *CEQR Technical Manual* recommends an analysis of potential impacts to libraries if a project would increase the service population by more than 5 percent. The Proposed Project would not result in an increase to the population compared to the No Action condition, and would not generate any new residents. Therefore, further analysis is not necessary, and it is expected that there would be no significant adverse impacts to libraries.
- **Health Care Facilities:** The *CEQR Technical Manual* recommends an analysis of potential indirect impacts to public health care facilities if a project would introduce a sizeable new neighborhood. The Proposed Project would not generate any new residents. Therefore, further analysis is not necessary, and the Proposed Project would not result in significant adverse impacts to health care facilities.
- **Child-Care Facilities:** The *CEQR Technical Manual* recommends an analysis of potential impacts to publicly-funded group child-care and Head Start centers if a project would generate more than 20 eligible children under age 6 and living in low- to moderate-income residential units. As noted above, the Proposed Project would not generate any new low- or moderate-income residential units and, therefore, further analysis is not necessary.
- **Police and Fire Protection:** The *CEQR Technical Manual* recommends an analysis of potential impacts to police and fire services if a project would affect the physical operations of, or access to and from a precinct house or a station house, or if it would introduce a sizable new neighborhood. The Proposed Project would not directly affect

the operations of a police or fire station, nor would it introduce a sizeable new neighborhood. Therefore, no further analysis is necessary.

As described above, the Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot *Teaching and Learning Center*, as well as the renovation of portions of Barnard Hall. The Proposed Project would not result in an increase in population on the Project Site or on the Barnard College Campus. Therefore the Proposed Project would not result in a significant adverse community facilities impact, and no further analysis is necessary.

### ***Open Space***

The *CEQR Technical Manual* requires an analysis of potential impacts on open space when a project would have a direct effect on open space, or when it would have an indirect effect by generating: more than 50 residents or 125 workers in an area identified as underserved for open space resources; more than 350 residents or 750 workers in an area identified as well-served; or more than 200 residents or 500 employees in an area not identified as either underserved or well-served by open space resources.

The Proposed Project would not directly affect open space, nor would it result in a change in population that could have an indirect effect on open space. The Proposed Project would not displace any existing public open spaces, but would instead replace the existing Lehman Hall with a new Teaching and Learning Center. The Proposed Project would not result in an increase to Barnard's population, and the Project Site is located in an area that is not identified as either underserved or well-served by open space resources. Therefore, the Proposed Project would not have the potential to result in any significant adverse impacts to open space, and no further analysis is necessary. Urban Design and Visual Resources 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. According to 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 comply with existing zoning; therefore, no further analysis is warranted, and the Proposed Project would therefore not result in significant adverse impacts to urban design and visual resources.

### ***Natural Resources***

A natural resources assessment is conducted when a natural resource is present on or near a development site and the Proposed Project may involve the direct or indirect disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetlands, including freshwater and tidal wetlands; terrestrial resources, such as grasslands and thickets; shoreline resources, such as

beaches, dunes, and bluffs; gardens and other ornamental landscaping; and natural resources that may be associated with built resources, such as old piers and other waterfront structures.

The Project Site is fully developed with a four-story building, paved areas, and a lawn area that would remain in the future with the Proposed Project. As such, natural resources within the project site are limited to the few urban-adapted species of wildlife that will utilize building exteriors as habitat and are ubiquitous throughout New York City. Specifically, these include house sparrows (*Passer domesticus*), rock pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), and Norway rats (*Rattus norvegicus*). The Proposed Project would not have the potential to result in significant adverse impacts to the urban-tolerant wildlife species using the Project Site. While individual wildlife may be adversely affected should suitable habitat not be available nearby, the loss of some individuals would not adversely affect populations of these wide-spread urban-tolerant species within the metropolitan region. Overall, the Proposed Project would not result in any significant adverse impacts to natural resources within or near the project site, and no further analysis is required.

### ***Water and Sewer Infrastructure***

A *CEQR Technical Manual* water and sewer infrastructure assessment analyzes whether a project may adversely affect the city's water distribution or sewer system and, if so, assess the effects of such projects to determine whether their impact is significant, and present potential mitigation strategies and alternatives. According to the *CEQR Technical Manual*, only projects that increase density or change drainage conditions on a large site require a water and sewer infrastructure analysis.

A water supply assessment would be required for projects with an exceptionally large demand for water (over 1 million gallons per day) or for projects located in an area that experiences low water pressure (such as Coney Island and the Rockaway Peninsula). In addition, a wastewater and storm water conveyance and treatment analysis would be necessary if the project:

- Is located in a combined sewer area and would result in over 1,000 residential units or 250,000 sf of commercial/institutional use in Manhattan, or 400 residential units or 150,000 sf of commercial/institutional use in all other boroughs;
- Is located in a separately sewered area and would exceed: 25 residential units or 50,000 sf of commercial/institutional use in R1, R2, or R3 districts; 50 residential units or 100,000 sf of commercial/institutional use in R4 or R5 districts; 100 residential units or 100,000 sf of commercial/institutional use in all other zoning districts;
- Is located in an area that is partially sewered or currently unsewered;
- Involves development on a site 5 acres or larger where the amount of impervious surface would increase;
- Would involve development on a site 1 acre or larger where the amount of impervious surface would increase and is located in the Jamaica Bay watershed or specific drainage areas (Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchison River, Newtown Creek, Westchester Creek); or



- Would involve construction of a new storm water outfall that requires federal and/or state permits.

The Proposed Project would be well below the 1 million gallons per day (“gpd”) water consumption threshold set forth in the *CEQR Technical Manual*. In addition, the Project Site is located in a combined sewer area; would result in less than 250,000 sf of institutional use; does not involve development on a site 1 acre or larger; and would not involve construction of a new storm water outfall. Therefore, the Proposed Project would not result in any significant impacts of water and sewer infrastructure, and no further analysis is necessary.

### ***Solid Waste and Sanitation Services***

A solid waste assessment determines whether a project has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity or otherwise be inconsistent with the city’s Solid Waste Management Plan (“SWMP” or “Plan”) or with state policy related to the city’s integrated solid waste management system. The city’s solid waste system includes waste minimization at the point of generation, collection, treatment, recycling, composting, transfer, processing, energy recovery, and disposal. As the Proposed Project would not result in any additional student, staff, faculty, or visitor populations, it is not expected to generate a substantial amount of solid waste as defined in the *CEQR Technical Manual*. Therefore, the Proposed Project would not affect the city’s capacity to handle solid waste, and no further analysis is required.

### ***Energy***

As described in the *CEQR Technical Manual*, all new structures requiring heating and cooling are subject to the New York City Energy Conservation Code. Therefore, the need for a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. However, a project’s operational energy consumption is often calculated. It is expected that the Proposed Project, when operational, would consume approximately 33.343 million British Thermal Units (“BTU”) per year.<sup>2</sup> This would not be considered a significant demand for energy. Further, the Proposed Project would incorporate measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. Therefore, the Proposed Project would not result in significant adverse impacts to the consumption or supply of energy.

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<sup>2</sup> Based on the energy usage rate for institutional buildings (250.7 MBtu/sf) from Table 15-1 “Average Annual Whole-Building Energy Use in New York City.” The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

### ***Transportation***

The Proposed Project would not result in a change from the existing population. Therefore, the Proposed Project would not generate more than the *CEQR Technical Manual* thresholds requiring further analysis of 50 vehicle trips or 200 pedestrian or transit trips. A transportation analysis is not warranted, and the Proposed Project would not result in any significant adverse transportation (traffic, parking, transit, or pedestrian) impacts.

### ***Greenhouse Gas Emissions***

Increased greenhouse gas (“GHG”) emissions are changing the global climate, which is predicted to lead to wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. According to the *CEQR Technical Manual*, GHG assessments are appropriate for projects with the greatest potential to produce GHG emissions that may result in inconsistencies with the city’s GHG reduction goal to a degree considered significant (generally larger projects resulting in the development of 350,000 square feet or greater undergoing an Environmental Impact Statement [EIS], or for projects on a case-by-case basis to determine its consistency with the city’s GHG reduction goals<sup>3</sup>) and, correspondingly, have the greatest potential to reduce those emissions through the adoption of project measures and conditions. In addition, actions that fundamentally change the city’s waste management system, such as city capital projects, power generation projects, and promulgation of regulations, may also need to be analyzed. While the Proposed Project would involve the construction of a new, larger building on the Project Site, the proposed Teaching and Learning Center would not result in an increase in enrollment as the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. Further, as described above, the Proposed Project would incorporate measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. The Proposed Project is not a city capital project, would not introduce new power generation, would not change the city’s waste management system, and would not affect regulations. Therefore, GHG emissions analysis and assessment of consistency with the city’s GHG emission reduction goal are not required and no further analysis is necessary.

### ***Public Health***

According to the *CEQR Technical Manual*, public health involves the activities that society undertakes to create and maintain conditions in which people can be healthy. Public health may be jeopardized by poor air quality resulting from traffic or stationary sources, hazardous materials in soil or groundwater used for drinking water, significant adverse impacts related to noise or odors, solid waste management practices that attract vermin and pest

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<sup>3</sup> As part of the city’s PlaNYC and the *New York City Climate Protection Act* (Local Law 22 of 2008), the city has a goal of reducing citywide GHG by 30 percent below 2005 levels by 2030).

populations. Detailed public health analysis is warranted for projects with identified unmitigated adverse impacts in air quality, water quality, hazardous materials, or noise. The Proposed Project is not expected to result in any significant adverse impacts to air quality, water quality, hazardous materials, or noise. No exceedance of federal, state, or city standards would occur as a result of the Proposed Project. Therefore, the Proposed Project would not result in any significant adverse impacts to public health, and no further analysis is warranted.

### ***Neighborhood Character***

As defined in the *CEQR Technical Manual*, neighborhood character is considered to be an amalgam of the various elements that define a neighborhood's distinct personality. These elements may include a neighborhood's land use, socioeconomic conditions, open space, historic and cultural resources, urban design, visual resources, shadows, transportation, and/or noise. Not all of these elements affect neighborhood character in all cases; a neighborhood usually draws its distinctive character from a few defining elements. An assessment of neighborhood character is generally needed when a Proposed Project has the potential to result in significant adverse impacts in any of the technical areas listed above, or when the project may have moderate effects on several of the elements that define a neighborhood's character.

As detailed in the project description, the Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot Teaching and Learning Center, as well as the renovation of portions of Barnard Hall. These changes to the project site would not result in any significant adverse impacts to neighborhood character. The character of the neighborhood is defined by mid- and high-rise educational buildings and grassy lawns on the Barnard College and Columbia University campuses, as well as by other institutional uses on the surrounding blocks. While the Proposed Project would result in a new, taller, building on the Development Site, the overall bulk of the building would fall within the allowable FAR for the Project Site, and would be similar in scale to other buildings on the Barnard College and Columbia University campuses. Further, the Proposed Project would not result in any adverse impacts to the neighborhood's land uses, socioeconomic conditions, open space, urban design, visual resources, shadows, transportation, or noise.

Overall, the Proposed Project would result in the construction of a new building to an area that has a diverse mix of historic and modern educational buildings. The Center would improve the character of the Barnard College campus, as well as provide much-needed academic facilities for the College's student body. Therefore, the Proposed Project would not result in any significant adverse neighborhood character impacts and no further analysis is warranted.

### ***Construction***

The Proposed Project would result in construction activities at the Development Site. As with all construction projects, work at the Development Site would result in temporary disruptions to the surrounding area, including occasional noise and dust. The overall construction duration for the Proposed Project is expected to be approximately three years. The renovation of the LeFrak Gymnasium is expected to commence in Summer 2015 and would take approximately six months to complete. The Gymnasium would provide campus swing space for

the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The demolition of the existing Lehman Hall and construction of the new Teaching and Learning Center expected to take place from March 2016 to August 2018. The most intense construction activities in terms of noise levels and air pollutant emissions (demolition, excavation, and foundation work, during which a number of large non-road diesel engines would be employed) would last for only a portion of the overall construction duration—approximately one year.

Construction of the Proposed Project would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 a.m. and 6:00 p.m. on weekdays. If work is required outside of normal construction hours, necessary approvals would be obtained from the appropriate agencies (i.e., the New York City Department of Buildings [“NYCDOB”] and New York City Department of Environmental Protection [“NYCDEP”]). 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 (“NYCDOT”)’s Office of Construction Mitigation and Coordination (“OCMC”). Through implementation of the measures described above, the temporary 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.

**DORMITORY AUTHORITY  
STATE OF NEW YORK**

**APPENDIX A TO THE  
FULL ENVIRONMENTAL ASSESSMENT FORM**

**for the**

**Barnard College Teaching and Learning Center**

# **Dormitory Authority of the State of New York (DASNY)**

## **SMART GROWTH IMPACT STATEMENT ASSESSMENT FORM**

**Date:** March 4, 2015  
**Project Name:** Barnard College Teaching and Learning Center  
**Project Number:**  
**Completed by:** AKRF, Inc.

**This Smart Growth Impact Statement Assessment Form (“SGISAF”) is a tool to assist you and the Dormitory Authority of the State of New York (“DASNY”) Smart Growth Advisory Committee in deliberations to determine whether a project is consistent with the State of New York *State Smart Growth Public Infrastructure Policy Act (“SSGPIPA”)*, article 6 of the New York State *Environmental Conservation Law (“ECL”)*. Not all questions/answers may be relevant to all projects.**

### **Description of Proposed Action and Proposed Project:**

Pursuant to DASNY’s Independent Colleges and Universities Program, Barnard College has requested financing to support the construction of its new Teaching and Learning Center. For purposes of *SEQR*, the Proposed Action would consist of DASNY’s authorization of the issuance of fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

The proceeds of the bond issuance would be used to finance the Proposed Project, which would consist of the demolition of the existing 4-story, 65,000-gsf Lehman Hall and the construction of a new, approximately 133,000-gsf Teaching and Learning Center (the “Center”). The 11-story new building would occupy the footprint of Lehman Hall, as well as extend northward and southward to abut the adjacent Altschul Hall and Barnard Hall, respectively (the “Development Site”). The building would consist of a five-story podium on the southern side, adjacent to Barnard Hall, and an 11-story tower on the northern side. As in the existing condition, the building’s frontage onto the Barnard College campus would abut walking paths and landscaped open space. Unlike the existing Lehman Hall, the side of the Center fronting onto Claremont Avenue would have entrances and exits and full-height windows.

The Center would include common and informal study areas, teaching and learning space, a conference area, space for the history, political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Center would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard’s population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would provide a new library, individual and group study space, access to resources and help for students and faculty, and improved conference space, including flexible meeting spaces and smaller break-out rooms.

In addition, portions of Barnard Hall, particularly the LeFrak Gymnasium, would be renovated as part of the Proposed Project prior to the commencement of demolition and new construction on the Development Site. The swing space that would be created by the renovation would serve as replacement facilities for College activities during the construction period of the new Center. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

Construction of the Proposed Project is expected to begin in Summer 2015, with the renovation of the LeFrak Gymnasium. Construction of the new Teaching and Learning Center would begin in March 2016. The project is expected to be complete by August 2018.

Have any other entities issued a Smart Growth Impact Statement (“SGIS”) with regard to this project? (If so, attach same).  Yes  No

1. Does the project advance or otherwise involve the use of, maintain, or improve existing infrastructure? Check one and describe:

Yes  No  Not Relevant

The Proposed Project, which would result in the development of a new building to replace the existing academic facility, would connect to the existing water supply, sewer, and energy infrastructure on the Project Site superblock. Relative to the existing facility, the new building’s demands on the New York City water supply, sewers, and energy infrastructure would be negligible. Moreover, the new building’s design would adhere to the guidelines for LEED Silver certification, which include best practices for sustainable resource consumption and management. Therefore, the Proposed Project would be supportive of this criterion.

2. Is the project located wholly or partially in a **municipal center**, characterized by any of the following: Check all that apply and explain briefly:

- A city or a village
- Within the interior of the boundaries of a generally recognized college, university, hospital, or nursing home campus
- Area of concentrated and mixed land use that serves as a center for various activities including, but not limited to:
  - Central business districts (such as the commercial and often geographic heart of a city, “downtown”, “city center”)
  - Main streets (such as the primary retail street of a village, town, or small city. It is usually a focal point for shops and retailers in the [central business district](#), and is most often used in reference to retailing and socializing)
  - Downtown areas (such as a city’s core (or center) or central business district, usually in a geographical, commercial, and community sense).
  - Brownfield Opportunity Areas ([http://nyswaterfronts.com/BOA\\_projects.asp](http://nyswaterfronts.com/BOA_projects.asp))

- Downtown areas of Local Waterfront Revitalization Plan areas ([http://nyswaterfronts.com/maps\\_regions.asp](http://nyswaterfronts.com/maps_regions.asp))
- Locations of transit-oriented development (such as projects serving areas that have access to mass or public transit for residents)
- Environmental Justice areas (<http://www.dec.ny.gov/public/899.html>)
- Hardship areas

As the Development Site is located within the existing campus of Barnard College, in New York City, the Proposed Project would be supportive of this criterion.

3. Is the project located adjacent to municipal centers (please see characteristics in question 2, above) with clearly defined borders, in an area designated for concentrated development in the future by a municipal or regional comprehensive plan that exhibits strong land use, transportation, infrastructure and economic connections to an existing municipal center? Check one and describe:

Yes    No    Not Relevant

The Proposed Project, which is located within the interior of the campus of Barnard College, is also adjacent to the campus of Columbia University. Both campuses are located within the Morningside Heights neighborhood of Manhattan, which is characterized by a concentration of mixed land uses that serve as a center for commercial, residential, and academic activities. Beyond the diverse mix of facilities contained within the Barnard and Columbia campuses, there is a variety of retail and cultural uses located along the commercial corridor on Broadway, which separates the two campuses. Therefore, the Proposed Project is supportive of this criterion.

4. Is the project located in an area designated by a municipal or comprehensive plan, and appropriately zoned, as a future municipal center? Check one and describe:

Yes    No    Not Relevant

5. Is the project located wholly or partially in a developed area or an area designated for concentrated infill development in accordance with a municipally-approved comprehensive land use plan, a local waterfront revitalization plan, brownfield opportunity area plan or other development plan? Check one and describe:

Yes    No    Not Relevant

The Project Site, the Barnard College campus, is wholly located in a developed area, the Morningside Heights neighborhood of Manhattan. Therefore, the Proposed Project is supportive of this criterion.

6. Does the project preserve and enhance the State's resources, including agricultural lands, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and/or significant historic and archeological resources? Check one and describe:

Yes    No    Not Relevant



The potential effects of the Proposed Project on natural resources, air quality, open space and historic and archeological resources are analyzed in DASNY's *SEQR* review of the Barnard College Teaching and Learning Center. The *SEQR* EAF and Supplemental Report find that the Proposed Project would not have any significant adverse impacts on these technical areas. In addition, the Proposed Project would preserve the landscaped open space areas that characterize the Barnard College campus. Therefore, the Proposed Project would be supportive of this criterion.

7. Does the project foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development and/or the integration of all income and age groups? Check one and describe:

Yes  No  Not Relevant

The Proposed Project would foster compact development by constructing new facilities on currently developed land within an existing college campus. In addition, the proposed entrances to the Teaching and Learning Center on Claremont Avenue would help to enliven the streetscape, which currently lacks vibrancy and activity. Further, as discussed above, the Proposed Project would preserve and enhance the utility and beauty of the existing open spaces on the Barnard College campus. Therefore, the Proposed Project would be supportive of this criterion.

8. Does the project provide mobility through transportation choices, including improved public transportation and reduced automobile dependency? Check one and describe:

Yes  No  Not Relevant

The Project Site is well served by public transportation. The Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line stops at the 116<sup>th</sup> Street station, located directly adjacent to the College; in addition, the MTA-NYCT M4, M60, and M104 bus lines, which provide service along Broadway, and the M5 bus line, which provides service along Riverside Drive, are in close proximity to the College. Columbia University also provides an Intercampus Shuttle service, which is free to Columbia and Barnard students, faculty, and staff, and operates on weekdays. Although the Proposed Project would not provide any new transportation options, it would be supportive of this criterion.

9. Does the project demonstrate coordination among state, regional, and local planning and governmental officials? (Demonstration may include *State Environmental Quality Review* (“*SEQR*”) coordination with involved and interested agencies, district formation, agreements between involved parties, letters of support, State Pollutant Discharge Elimination System (“SPDES”) permit issuance/revision notices, etc.). Check one and describe:

Yes  No  Not Relevant

The planning for, and approval of, the Proposed Project would require coordination between multiple City and State agencies. DASNY, acting as lead agency, is conducting a coordinated review of the Proposed Project in accordance with New York's *State Environmental Quality Review Act* ("SEQRA"). The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* ("SHPA"), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* ("PRHPL"), as well as with the requirements of the Memorandum of Understanding ("MOU"), dated March 18, 1998, between DASNY and the New York State Office of Parks, Recreation and Historic Preservation ("OPRHP"). Other involved and interested parties include, but are not limited to, the NYC Landmarks Preservation Commission, Manhattan Community Board 9 and elected officials. Therefore, the Proposed Project would be supportive of this criterion.

10. Does the project involve community-based planning and collaboration? Check one and describe:

Yes    No    Not Relevant

In accordance with *SEQRA* and *CEQR* guidelines, the EAF and Supplemental Report were made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.

11. Is the project consistent with local building and land use codes? Check one and describe:

Yes    No    Not Relevant

As described in Chapter 2 of the EAF, "Land Use, Zoning, and Public Policy," the Proposed Project would not result in any significant adverse impacts on land use, zoning, or public policy. The proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable floor area ratio ("FAR") for the Project Site. The Proposed Project would not directly displace any land uses or adversely affect surrounding land uses, nor would the Proposed Project generate land uses that would be incompatible with land uses, zoning, or public policy in the study area. The Proposed Project would not create land uses or structures that would be incompatible with the underlying zoning, nor would the Proposed Project cause any existing structures to become non-conforming. The Proposed Project would not result in land uses that conflict with public policies applicable to the study area. The proposed actions are specific to the Project Site and would not apply to any other areas. Therefore, the Proposed Project would be supportive of this criterion.

12. Does the project promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations?

Yes    No    Not Relevant

As described above, the Proposed Project would seek LEED Silver certification. The Barnard College campus is well-served by public transportation. In addition, the Proposed Project would encourage public involvement through the public comment process and through ongoing public consultations in accordance with *SEQRA* and *CEQR* guidelines. For these reasons, the Proposed Project would be supportive of this criterion.

13. During the development of the project, was there broad-based public involvement? (Documentation may include *SEQR* coordination with involved and interested agencies, SPDES permit issuance/revision notice, approval of Bond Resolution, formation of district, evidence of public hearings, Environmental Notice Bulletin (“ENB”) or other published notices, letters of support, etc.). Check one and describe:

Yes    No    Not Relevant

As described above, in accordance with *SEQRA* and *CEQR* guidelines, the EAF and Supplemental Report were made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.

14. Does the Recipient have an ongoing governance structure to sustain the implementation of community planning? Check one and describe:

Yes    No    Not Relevant

**DASNY has reviewed the available information regarding this project and finds:**

The project was developed in general consistency with the relevant Smart Growth Criteria.

The project was not developed in general consistency with the relevant Smart Growth Criteria.

It was impracticable to develop this project in a manner consistent with the relevant Smart Growth Criteria for the following reasons:

**ATTESTATION**

I, President of DASNY/designee of the President of DASNY, hereby attest that the Proposed Project, to the extent practicable, meets the relevant criteria set forth above and that to the extent that it is not practical to meet any relevant criterion, for the reasons given above.

\_\_\_\_\_  
**Signature**

Jack D. Homkow, Director, Office of Environmental Affairs  
**Print Name and Title**

\_\_\_\_\_  
**Date**

**DORMITORY AUTHORITY  
STATE OF NEW YORK**

**APPENDIX B TO THE  
FULL ENVIRONMENTAL ASSESSMENT FORM**

**for the**

**Barnard College Teaching and Learning Center**



**Parks, Recreation  
and Historic Preservation**

**ANDREW M. CUOMO**  
Governor

**ROSE HARVEY**  
Commissioner

March 06, 2015

Mr. Matthew Stanley  
Senior Environmental Manager  
Dormitory Authority - State of New York  
Office of Environmental Affairs  
One Penn Plaza - 52nd Floor  
New York, NY 10119

Re: DASNY  
Barnard College Teaching and Learning Center  
3009 Broadway, New York, NY 10027  
15PR00438

Dear Mr. Stanley:

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

We have no objection to DASNY as the lead agency for the SEQR review process. We would like to provide some preliminary comments based upon our review of the submitted materials:

1. We note that Lehman Hall is not eligible for listing on the State or National Registers of Historic Places. As such, we would not object to its demolition.
2. We note that Barnard Hall (aka Students' Hall) is listed on the State and National Registers of Historic Places.
3. We understand that the gymnasium in Barnard Hall is proposed to be used for swing space during the proposed construction nearby. As described, the use would require the addition of a second floor within the gym and what appear to be extensive changes to the existing space.
  - a. It is likely that this work would constitute an Adverse Impact to this historic building. The gymnasium is identified in the National Register documentation as significant and should be retained.
  - b. Barnard Hall is significant for its architecture as a fine work designed by notable New York City architect Arnold Brunner and designed in a style that combines Italian Renaissance massing and detail with Colonial-inspired features.
4. We recommend a construction protection plan be included to protect all historic buildings within 90 feet of the proposed construction.

It is unclear in the current documentation if the work proposed for the gymnasium in Barnard Hall is intended to be temporary until the new building construction is complete. If the proposed work were designed to be temporary and the impacts upon the historic gym minimized we could agree the work is appropriate. At this time, we request additional details and study into the proposed work at Barnard Hall. In addition, we suggest the development of an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall begin.

If you have any questions, I can be reached at (518) 268-2181.

Sincerely,

A handwritten signature in black ink, appearing to read "Beth A. Cumming". The signature is fluid and cursive, with a long horizontal stroke at the end.

Beth A. Cumming  
Senior Historic Site Restoration Coordinator  
e-mail: [beth.cumming@parks.ny.gov](mailto:beth.cumming@parks.ny.gov)

via e-mail only

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

Agency Use Only [If applicable]  
 Project : Barnard College Teaching & Learning Ctr  
 Date : March 10, 2015

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

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

**Tips for completing Part 2:**

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

<b>1. Impact on Land</b> Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1) <i>If “Yes”, answer questions a - j. If “No”, move on to Section 2.</i>				<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>		
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
h. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>		



**2. Impact on Geological Features**

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g)

NO

YES

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

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

**3. Impacts on Surface Water**

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h)

NO

YES

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

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

I. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
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**4. Impact on groundwater**  
 The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer.  NO  YES  
 (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)  
*If "Yes", answer questions a - h. If "No", move on to Section 5.*

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

**5. Impact on Flooding**  
 The proposed action may result in development on lands subject to flooding.  NO  YES  
 (See Part 1. E.2)  
*If "Yes", answer questions a - g. If "No", move on to Section 6.*

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

g. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
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<b>6. Impacts on Air</b> The proposed action may include a state regulated air emission source. <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (See Part 1. D.2.f., D.2.h, D.2.g) If "Yes", answer questions a - f. If "No", move on to Section 7.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels: i. More than 1000 tons/year of carbon dioxide (CO <sub>2</sub> ) ii. More than 3.5 tons/year of nitrous oxide (N <sub>2</sub> O) iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs) iv. More than .045 tons/year of sulfur hexafluoride (SF <sub>6</sub> ) v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions vi. 43 tons/year or more of methane	D2g D2g D2g D2g D2g D2h	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>7. Impact on Plants and Animals</b> The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES If "Yes", answer questions a - j. If "No", move on to Section 8.			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	<input type="checkbox"/>	<input type="checkbox"/>

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

<b>8. Impact on Agricultural Resources</b>			
The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.)		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<i>If "Yes", answer questions a - h. If "No", move on to Section 9.</i>			
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E1 a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	<input type="checkbox"/>	<input type="checkbox"/>
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	<input type="checkbox"/>	<input type="checkbox"/>
h. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>9. Impact on Aesthetic Resources</b> The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.) <i>If "Yes", answer questions a - g. If "No", go to Section 10.</i>			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile 1/2 -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	<input type="checkbox"/>	<input type="checkbox"/>
g. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>10. Impact on Historic and Archeological Resources</b> The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.) <i>If "Yes", answer questions a - e. If "No", go to Section 11.</i>			
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on or has been nominated by the NYS Board of Historic Preservation for inclusion on the State or National Register of Historic Places.	E3e	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	<input checked="" type="checkbox"/>	<input type="checkbox"/>

d. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
e. If any of the above (a-d) are answered “Yes”, continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. The proposed action may result in the alteration of the property’s setting or integrity.	E3e, E3f, E3g, E1a, E1b	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<b>11. Impact on Open Space and Recreation</b>			
The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1. C.2.c, E.1.c., E.2.q.) <i>If “Yes”, answer questions a - e. If “No”, go to Section 12.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may result in an impairment of natural functions, or “ecosystem services”, provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	<input type="checkbox"/>	<input type="checkbox"/>
e. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>12. Impact on Critical Environmental Areas</b>			
The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d) <i>If “Yes”, answer questions a - c. If “No”, go to Section 13.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
c. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

**13. Impact on Transportation**

The proposed action may result in a change to existing transportation systems.

 NO

 YES

(See Part 1. D.2.j)

*If "Yes", answer questions a - g. If "No", go to Section 14.*

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

**14. Impact on Energy**

The proposed action may cause an increase in the use of any form of energy.

 NO

 YES

(See Part 1. D.2.k)

*If "Yes", answer questions a - e. If "No", go to Section 15.*

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

**15. Impact on Noise, Odor, and Light**

The proposed action may result in an increase in noise, odors, or outdoor lighting.

 NO

 YES

(See Part 1. D.2.m., n., and o.)

*If "Yes", answer questions a - f. If "No", go to Section 16.*

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

d. The proposed action may result in light shining onto adjoining properties.	D2n	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

### 16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.)  
*If "Yes", answer questions a - m. If "No", go to Section 17.*

NO

YES

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



**17. Consistency with Community Plans**

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

NO

YES

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

**18. Consistency with Community Character**

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

NO

YES

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



## STATE ENVIRONMENTAL QUALITY REVIEW NEGATIVE DECLARATION

**Date:** March 10, 2015

**Lead Agency:** Dormitory Authority State of New York  
515 Broadway  
Albany, New York 12207-2964

**Applicant:** Barnard College  
3009 Broadway  
New York, New York 10027

This notice is issued pursuant to the *State Environmental Quality Review Act ("SEQRA")*, codified at Article 8 of the *New York Environmental Conservation Law ("ECL")*, and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Codes, Rules and Regulations ("N.Y.C.R.R.")*, which collectively contain the requirements for the *New York State Environmental Quality Review ("SEQR")* process.

**The Dormitory Authority State of New York ("DASNY"), as lead agency, has determined that the Proposed Action described below will not have a significant adverse effect on the environment and a Draft Environmental Impact Statement will not be prepared.**

**Title of Action:** Barnard College  
*Teaching and Learning Center (2015 Financing Project)*  
(Independent Colleges and Universities)

**SEQR Status:** Type I Action – 6 *N.Y.C.R.R.* § 617.4(b)(9)

**Review Type:** Coordinated Review

### ***Proposed Action***

The Dormitory Authority State of New York (“DASNY”) has received a funding request from Barnard College (“Barnard” or the “College”) pursuant to DASNY’s Independent Colleges and Universities Program for its Teaching and Learning Center (2015 Financing Project). For purposes of *State Environmental Quality Review (“SEQR”)*, the Proposed Action would consist of DASNY’s authorization of the issuance of approximately \$170,000,000 in fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

### ***Proposed Project***

The proceeds of the bond issuance would be used to finance the construction of a new, approximately 132,600-gross-square-foot (“gsf”), Teaching and Learning Center (the “Proposed Project”) on the Barnard College campus. The Proposed Project would include the demolition of the existing 65,000-gsf Lehman Hall, as well as the renovation of portions of Barnard Hall, to serve as swing space during construction of the *Teaching and Learning Center*.

Construction of the proposed Teaching and Learning Center would commence in March 2016 and completed by August 2018.

The Proposed Project would also involve refunding of all or a portion of DASNY’s Barnard College Insured Revenue Bonds, Series 2004 and Series 2007A, as well as a series of campus-wide renovation and maintenance projects at various buildings.

### ***Location of Proposed Project***

The Proposed Project would be located on the Barnard College campus bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York (the “Project Site”).

### ***Description of the Institution***

Founded in 1889, Barnard College is an independent, undergraduate, liberal arts college for women affiliated with Columbia University (“Columbia”). With 375 faculty members, current enrollment is approximately 2,400 students of which 90 percent live in Barnard or Columbia residence facilities. From its inception, Barnard has had as its primary commitment the academic, personal, and professional success of women. Women number over 65 percent of the faculty and are well represented in the administration. Barnard’s relationship with Columbia as well as ties to the Julliard School, the Manhattan School of Music and the Jewish Theological Seminary of America, give students a wide range of educational options.

### **Reasons Supporting This Determination**

**Overview.** DASNY completed this environmental review in accordance with the procedures set forth in the *State Environmental Quality Review Act* (“SEQRA”), codified at Article 8 of the *New York Environmental Conservation Law* (“ECL”), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Codes, Rules and Regulations* (“N.Y.C.R.R.”), which collectively contain the requirements for the SEQR process. The environmental review followed the 2014 *City Environmental Quality Review* (“CEQR”) *Technical Manual*<sup>1</sup> for evaluating the Proposed Project, unless stated otherwise.

The Proposed Project was also reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“SHPA”), especially the implementing regulations of Section 14.09 of the *Parks, Recreation, and Historic Preservation Law* (“PRHPL”). Additionally, the Proposed Project was reviewed in conformance with the *State Smart Growth Public Infrastructure Policy Act* (“SSGPIPA”).

Representatives of DASNY reviewed the *SEQR Environmental Assessment Form-Part I* (“EAF-Part I”) and supporting documentation for the Proposed Project (attached), and made a determination that the Proposed Project was a Type I Action pursuant to 6 N.Y.C.R.R. § 617.4(b)(9). On February 6, 2015, DASNY circulated a lead agency request letter and the *EAF-Part I* to the involved agencies and interested parties. There being no objection to DASNY assuming SEQR lead agency status, it conducted a coordinated review among the involved agencies.

DASNY representatives visited the Project Site and environs and discussed the Proposed Project’s possible environmental effects with representatives of Barnard and the involved agencies. Based on the above, and the additional information set forth below, DASNY as lead agency has analyzed the relevant areas of environmental concern and determined that the Proposed Project would not have a significant adverse effect on the environment and a Draft Environmental Impact Statement will not be prepared.

**General Findings.** The purpose of the Proposed Project is to provide a modern academic facility for Barnard College. Barnard’s Strategic Plan states that upgrading its physical plant and improving the appearance and functionality of the College campus and improving and consolidating the College’s Information Technology systems is necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard’s commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design, creating a learning space based around digital media,

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<sup>1</sup> [www.nyc.gov/html/oec/html/ceqr/technical\\_manual\\_2014.shtml](http://www.nyc.gov/html/oec/html/ceqr/technical_manual_2014.shtml)

virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy. The Proposed Project would also support Barnard's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching.

In addition to the Proposed Project described above, Barnard is also seeking financing for certain refunding, renovation and maintenance projects at various buildings on or in the vicinity of its Manhattan campus. These components of the proposed financing are described below:

*Refunding.* This component of the proposed financing would involve a refunding of all or a portion of DASNY's Barnard College Insured Revenue Bonds, Series 2004 and Series 2007A (approximately \$58,200,000). Refinancing of existing debt is a Type II action under SEQR as specifically designated by 6 N.Y.C.R.R. § 617.5(c)(23).

*Renovation and Maintenance Projects.* This component of the proposed financing would involve elevator upgrades across campus; interior renovations in Altschul Hall; energy saving infrastructure upgrades and capacity upgrades across campus and in Altschul Hall; fire alarm master plan and upgrade of systems across buildings; additional proximity readers and cameras for public safety; and renovation of common bathrooms in academic buildings. Replacement, rehabilitation or reconstruction of a structure or facility, in kind, on the same site, including upgrading buildings to meet building or fire codes, is a Type II action under SEQR as specifically designated by 6 N.Y.C.R.R. § 617.5(c)(2).

DASNY's overall SEQR classification for all elements of the proposed financing is Type I.<sup>2</sup> The *Refunding* and *Renovation and Maintenance Projects* are Type II actions as specifically designated by SEQR.<sup>3</sup> With regard to the Type II actions associated with the proposed financing, these "actions have been determined not to have significant impact on the environment or are otherwise precluded from environmental review under *Environmental Conservation Law*, article 8."<sup>4</sup> Therefore, no further SEQR determination or procedure is required for any component of the Proposed Project identified as Type II. It is the determination of DASNY that these components of the Proposed Project would not cumulatively result in significant adverse environmental impacts.

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<sup>2</sup> 6 N.Y.C.R.R. § 617.4(b)(9).

<sup>3</sup> 6 N.Y.C.R.R. § 617.5(c)(2 and 23).

<sup>4</sup> 6 N.Y.C.R.R. § 617.5(a).

Hence, the environmental review which follows focuses on the *Teaching and Learning Center*, referred to hereafter as the “Proposed Project.”

**Zoning.** According to the *Zoning Resolution of the City of New York (“ZRCNY”)*, the Project Site is zoned R8 General Residence District. The Proposed Project would conform with all bulk and use requirements within the R8 zoning district. The proposed use is permitted as of right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable floor area ratio (“FAR”) for the Development Site. Based on 6.5 FAR for community facilities in R8 districts and a lot area of 189,466 square feet, the maximum potential development on the Project Site is approximately 1,231,529 zoning square feet (“zsf”); accounting for the floor area of existing campus buildings as indicated on recent New York City Department of Buildings (“NYCDOB”) filings, while the Proposed Project would increase zoning floor area on the Development Site, the FAR on the Project Site would still be within the allowable FAR for such uses.

No zoning change would be required in order to facilitate the Proposed Project. No significant adverse zoning impacts would occur.

**Land Use.** The Project Site, the Barnard College campus, consists primarily of educational buildings and student residences interspersed with open space, pedestrian walkways, and outdoor seating areas. Land uses within a 400-foot study radius are characterized by institutional uses (Columbia University, Teachers College, Union Theological Seminary, Riverside Church, Interchurch Center, St. Hilda’s and St. Hugh’s School, and Korean Methodist Church and Institute) followed by residential. Commercial uses within the study area are limited to ground-floor neighborhood retail stores located along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street. Open spaces within the study area largely consist of the Columbia University and Barnard College campuses, which contain substantial amounts of landscaped space, outdoor seating areas, and open lawns suitable for light recreation activities.

The Proposed Project would result in the expansion of an existing institutional land use on the Development Site. The Proposed Project would not alter or displace any existing land uses. The Proposed Project would represent an intensification of the existing institutional uses in the vicinity; however, it would not represent a substantial change in land use. No significant adverse land use impacts would occur.

**Public Policy.** The Proposed Project was reviewed for its compliance with the relevant public policy initiatives that guide development within the project study area.

*State Smart Growth Public Infrastructure Policy Act Consistency Assessment.* The Proposed Project was reviewed to determine its general consistency with each of the smart growth public infrastructure criteria. As described in the *DASNY Smart Growth Impact Statement Assessment Form (“SGISAF”)*, included as an appendix to the *SEQR Supplemental Report*, the

Proposed Project would be developed in general consistency with each of the smart growth public infrastructure criteria.

Overall, the Proposed Project would be developed in compliance with the relevant public policy initiatives that guide development within the project study area.

**Socioeconomic Conditions.** The Proposed Project would not introduce or displace any residents, nor would it displace more than 100 employees or a business or institution. No increase in enrollment would occur as a result of the Center's construction; the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. The Proposed Project would be consistent with and would contribute to the existing institutional uses on the Barnard College campus. Therefore, the Proposed Project does not meet the threshold for further analysis and would not result in any significant adverse impacts on socioeconomic conditions.

**Community Facilities and Services.** The Proposed Project would not introduce any new residential population, or result in the creation of a sizable new neighborhood. The Proposed Project would not have any direct or indirect effects on nearby community facilities; no significant adverse community facilities impacts are expected and, thus, no further analysis is needed.

The Project Site falls within the jurisdiction of New York City Police Department ("NYPD") 26<sup>th</sup> Precinct, located at 520 West 126<sup>th</sup> Street, located approximately 0.53 mile from the Project Site. Fire Department of the City of New York ("FDNY") Engine Company 47, located at 502 West 113<sup>th</sup> Street, would provide a first response in the event of a fire or emergency.

**Open Space.** An open space assessment is appropriate if a project would have potential direct or indirect effects on open space. Direct effects occur if there is a physical loss of public space, the use of an open space is changed so it no longer serves the same user populations, public access to open space is limited, or there is an increase in noise or air pollutant emissions, odors, or shadows on a public space that affects its usefulness. Indirect effects occur when the population introduced by the proposed project would be large enough to noticeably diminish the ability of the open space to serve the future population. The Proposed Project would not physically change or eliminate any open space or reduce its utilization or aesthetic value, and would not introduce any substantial new user population that would create or exacerbate an over-utilization of existing open space resources. No significant adverse impacts to parks and open space would occur as a result of the Proposed Project.

**Cultural Resources.** The Proposed Project was reviewed in conformance with the *New York State Historic Preservation Act of 1980 ("SHPA")*, especially the implementing regulations of Section 14.09 of the *Parks, Recreation, and Historic Preservation Law ("PRHPL")*, as well as with the requirements of the Memorandum of Understanding ("MOU"), dated March 18, 1998,

between DASNY and the New York State Office of Parks, Recreation, and Historic Preservation (“OPRHP”). The Proposed Project has been submitted to OPRHP and the New York City Landmarks Preservation Commission (“LPC”) for review.

*Archaeological Resources.* The Development Site would require excavation for the proposed building. DASNY is consulting with LPC and OPRHP for their determinations of the potential archaeological sensitivity of the Development Site. If LPC or OPRHP determines the development parcel to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report would be prepared. As relevant, based on the conclusions of the Phase 1A, and in consultation with OPRHP and LPC, a suitable treatment plan would be devised for any areas of potential sensitivity. The treatment plan could include construction monitoring or field testing, depending on the nature of the potential resources identified and the extent of construction that would take place in specific locations.

*Architectural Resources.* Lehman Hall was previously determined by OPRHP to be not eligible for listing on the State and National Registers of Historic Places (“S/NR”); therefore, its demolition under the Proposed Project would not constitute an adverse impact. In a letter dated March 6, 2015, OPRHP noted that it would not object to the building’s demolition.

The S/NR-listed Barnard Hall is located within 90 feet of the Development Site. To avoid potential inadvertent construction-related impacts on this architectural resource, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a Construction Protection Plan (“CPP”) would be developed in consultation with LPC and OPRHP and implemented by a professional engineer prior to any demolition or construction. The CPP would follow the New York City Department of Buildings *Technical Policy and Procedure Notice (“PPN”) #10/88* regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines adjacent historic structures as being contiguous or within a lateral distance of 90 feet from a lot under development or alteration. The CPP would set forth measures for the protection and avoidance of structural and architectural damage for this resource.

OPRHP, in its letter of March 6, 2015, indicated that it is likely that the renovation of the Barnard Hall gymnasium would constitute an adverse impact to this historic building. OPRHP has requested an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall. The alternatives analysis is being prepared by DASNY. The final resolution of any cultural resources aspects of the Proposed Project is subject to SHPA and its Section 14.09 implementing regulations. DASNY and Barnard look forward to the development of a Letter of Resolution (“LOR”) with OPRHP, thus allowing the Proposed Project to proceed.



Besides Barnard Hall, there are no study area architectural resources located within 90 feet of the Development Site; therefore, the proposed project would not have any adverse physical impacts on resources in the study area.

The design of the proposed Teaching and Learning Center would include materials chosen to complement the brick and stone of the nearby historic buildings on the Project Site, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources on the Project Site and the modern design of the proposed building. The proposed Teaching and Learning Center would be taller and larger than the existing Lehman Hall; however, it would be similar in height to several existing buildings on Barnard's campus, most notably Altschul Hall and Sultzberger Hall, and its total area also would be comparable to other campus buildings. Overall, the proposed building would be consistent with the bulk, uses, and arrangements of other buildings on the Barnard campus.

Many existing buildings near the Project Site include a variety of building materials that characterize the period during which the buildings were built. The proposed building would be designed likewise to characterize the current period in architecture and building technology. The proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the Morningside Heights neighborhood. At approximately 210 feet, the proposed building would be of comparable height or shorter than a number of buildings in the study area, including the Interchurch Center, at 237 feet in height, and the 229-foot-tall Northwest Science Building at the southeast corner of West 120th Street and Broadway.

Overall, the Proposed Project would not be expected to have any significant adverse physical, visual, or contextual impacts on historic resources.

*Agency Review.* DASNY has submitted the Proposed Project to OPRHP and LPC for review. In a memo dated February 9, 2015, LPC concluded that the Development Site has no architectural or archaeological significance, and deferred its review to OPRHP. DASNY's consultation with OPRHP is ongoing.

The purpose and need for the Proposed Project is articulated in the College's Strategic Plan. Barnard College has core objectives which include: dedication to women's education; devotion to the liberal arts; maintaining a mutually beneficial relationship with Columbia University; recruitment and support of top tier faculty; recruitment and intellectual nourishment of top-tier students; nurturing and expanding diversity within its community; commitment to an innovative curriculum that aligns with the College's mission; and providing a distinctive educational experience for all students. The Proposed Project also serves a necessary public interest — education, in general, and the training of students, in particular. In order to achieve these goals, Barnard College notes in its Strategic Plan that upgrading its physical plant and improving the appearance and functionality of the College's campus and improving and

consolidating the College's Information Technology systems will be necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard's commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design; creating a learning space based around digital media, virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy.

The Proposed Project would also support the College's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the newly created second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

DASNY, in exercising its discretion under *SEQR*, has made a determination that the Proposed Project will not engender a significant adverse impact. While there is certainly an impact, it is DASNY's opinion is that it is neither significant nor adverse. While *SHPA* requires that historic preservation policy be given primary consideration in formulating recommendations or alternatives, it also notes, however, that other factors such as cost, program needs, safety, efficiency, code requirements or alternative sites may also be considered. The Proposed Project has not faced any known community opposition. The Proposed Project would not result in the removal of any of the architecturally distinguished buildings that make up the area, since OPRHP has previously determined Lehman Hall, which would be demolished, is not eligible for listing on the S/NR. The new Teaching and Learning Center would be of comparable height or shorter than a number of buildings in the study area as well as Barnard's campus. Cladding materials would be chosen to complement the nearby historic buildings, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources in the surrounding area and the modern design of the new Teaching and Learning Center. The Development Site is located within 90 feet of Barnard Hall (S/NR-eligible), which could potentially be adversely affected by ground-borne, construction-period vibrations or other unanticipated potential construction-related impacts. Therefore, to avoid potential adverse

physical impacts on this building, the Proposed Project would develop and implement a construction protection plan (“CPP”) in consultation with OPRHP.

With respect to the renovation of the Lefrak Gymnasium within Barnard Hall, including the building of a second floor within the gymnasium, Barnard College evaluated several alternatives, before deciding upon the current plan. DASNY has reviewed these alternatives and it is the opinion of DASNY that there are no feasible and prudent alternatives to the Proposed Project when issues related to programmatic, efficiency and cost factors are taken into consideration, but it is nonetheless in the public interest to proceed with the undertaking. Furthermore, DASNY will require Barnard College to prepare a Historic American Building Survey (“HABS”) to mitigate the impact of installing a second floor in the gymnasium.

It is the opinion of DASNY that the Proposed Project would have no adverse impact on historic or cultural resources listed in or eligible for inclusion in the S/NR.

**Urban Design and Visual Resources.** 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. According to 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 comply with existing zoning; therefore, no further analysis is warranted, and the Proposed Project would therefore not result in significant adverse impacts to urban design and visual resources.

**Shadows.** According to the *CEQR Technical Manual*, a shadow is defined as the circumstance in which a building or other built structure blocks the sun from the land. A shadow assessment prepared pursuant to *CEQR Technical Manual* guidelines considers actions that result in shadows long enough to reach a publicly accessible open space except within an hour and a half of sunrise or sunset. Additionally, shade cast on buildings by trees and other natural features are not defined as shadows that would be considered under a *CEQR Technical Manual* impact analysis. A shadow assessment is required for actions that would result in the construction of new structures greater than 50 feet in height or additions to existing structures that are located adjacent (including across the street) to publicly accessible parks, historic resources, or important natural features.

A preliminary screening assessment must first be conducted to ascertain whether a project’s shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed building representing the longest shadow that could be cast.

If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.

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

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

Given the height of the Proposed Project and its proximity to several sunlight-dependent resources, the three-tiered preliminary assessment concluded that a detailed shadow analysis was necessary.

For the detailed analysis, a No Action condition is established, containing existing buildings and any future developments planned in the area, to model the baseline shadows. The future condition with the proposed project and its shadows can then be compared to the baseline condition to determine the incremental shadows that would result with the proposed project.

Three-dimensional representations of the existing buildings in the study area were developed using data obtained from the New York City Department of Information Technology and Telecommunications (“DoITT”) and photos taken during project site visits, and were added to the three-dimensional model used in the Tier 3 assessment.

Shadows are in constant movement. The computer simulation software produces an animation showing the movement of shadows over the course of each analysis period. The analysis determines the time when incremental shadow would enter each resource, and the time it would exit.

Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

The detailed analysis showed that on December 21, shadow would fall on the Hudson River for the initial 7 minutes of the analysis day. This minimal duration of new shadow would not impact the river.

Incremental shadow would fall onto portions of Riverside Park for the first hour and 15 minutes of the analysis day. The winter months are not within New York City's growing season, and the new shadow would therefore not affect the vegetation. During the hour and 15 minute duration of new shadow, adjacent areas of Riverside Park would remain in sun for any users braving the winter morning weather and seeking sun, and the impact would therefore not be significant for recreational use.

During the spring, summer and fall analysis periods, the intervening buildings west of Claremont Avenue would prevent incremental project-generated shadow from reaching Riverside Park. Similarly, in the late afternoons, when project-generated shadow could otherwise fall onto a portion of Columbia University's campus, the intervening campus buildings along the east side of Broadway already cast shadows on those areas, and no incremental shadow would occur in any season.

Shadow would fall on a small section of one of the Broadway Malls adjacent to West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall seasons, ranging from approximately one to two hours in duration. This relatively brief period of new shadow would not significantly impact the vegetation of the Malls, due to the amount of sunlight available to the resource in the remainder of the day. In addition, the project-generated shadows would not be anticipated to adversely affect the usability of the Malls, given that they are used more as a visual resource than an open space resource. In any case, the incremental shadow would mostly not fall on the benches at the intersection of Broadway and West 119<sup>th</sup> Street, and during the periods when it would, other nearby benches within sight would remain in sun for users seeking sunlit seating. Therefore the new shadow would not significantly impact the Malls.

Overall, no significant adverse shadow impacts would occur as a result of the Proposed Project.

**Natural Resources.** The Project Site is fully developed with a four-story building, paved areas, and a lawn area that would remain in the future with the Proposed Project. As such, natural resources within the project site are limited to the few urban-adapted species of wildlife that utilize building exteriors as habitat and are ubiquitous throughout New York City. Specifically, these include house sparrows (*Passer domesticus*), rock pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), and Norway rats (*Rattus norvegicus*). The Proposed Project would not have the potential to result in significant adverse impacts to the urban-tolerant wildlife species using the Project Site. While individual wildlife may be adversely affected should suitable habitat not be available nearby, the loss of some individuals would not adversely affect populations of these wide-spread, urban-tolerant species within the metropolitan region. Overall, the Proposed Project would not result in any significant adverse impacts to natural resources within or near the project site, and no further analysis is required.

**Hazardous Materials.** The Proposed Project was evaluated for its potential hazardous materials impacts. A *Phase I Environmental Site Assessment ("ESA")* of the Development Site was performed in March 2015 in accordance with American Society for Testing and Materials ("ASTM") Standard E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. The ESA included a visual inspection; a review of historical land use maps, prior reports and local records; and a review of State and federal regulatory databases relating to use, generation, storage, treatment and/or disposal of hazardous materials.

The Phase I ESA identified no "*Recognized Environmental Conditions*" ("RECs"), i.e., the presence or likely presence of hazardous substances or petroleum in the ground or groundwater. Identified environmental concerns included off-site reported spills and hazardous waste generators with limited potential to affect the project site), and the potential presence (typical of older buildings) of asbestos-containing materials ("ACM"), lead-based paint, and fluorescent lighting fixtures and other electrical equipment that could include polychlorinated biphenyls ("PCBs").

**Recommendations.** The Proposed Project would entail demolition of the existing Lehman Hall, excavation for the construction of a new building at its location, and interior renovation in portions of Barnard Hall. Although these activities could increase pathways for human exposure, impacts would be avoided by performing the project in accordance with the following:

- During any future subsurface disturbance, excavated soil should be handled and disposed of in accordance with applicable regulatory requirements. If dewatering is necessary for the proposed construction, water would be discharged to sewers in accordance with New York City Department of Environmental Protection ("NYCDEP") requirements.
- Any suspect ACM that would be disturbed by the Proposed Project would be surveyed for asbestos by a NYC-certified asbestos investigator. All such ACM would be removed and disposed of prior to the disturbance in accordance with local, state and federal requirements.
- Any activities with the potential to disturb lead-based paint would be performed in accordance with applicable requirements (including federal Occupational Safety and Health Administration regulation 29 C.F.R. 1926.62 - *Lead Exposure in Construction*).
- Unless there is labeling or test data indicating that any suspect PCB-containing electrical equipment and fluorescent lighting fixtures do not contain PCBs, and that any fluorescent lighting bulbs do not contain

mercury, if disposal is required, it would be conducted in accordance with applicable federal, state and local requirements.

With these measures, the Proposed Project would not result in any significant adverse impacts related to hazardous materials.

**Infrastructure.** The Proposed Project was assessed for its potential effects upon water supply, wastewater collection and treatment and storm water management systems.

**Water Supply.** According to the water and sewer generation rates provided in the 2014 *CEQR Technical Manual*, the Proposed Project would generate a water demand of approximately 35,802 gallons per day (“gpd”).

According to the *CEQR Technical Manual*, a preliminary infrastructure assessment is not required if the project does not meet the following thresholds:

- If the project would result in an exceptionally large demand for water (e.g., those that are projected to use more than one million gallons per day, such as power plants, very large cooling systems, or large developments); or,
- Is located in an area that experiences low water pressure (e.g. areas at the end of the water supply distribution system, such as the Rockaway Peninsula or Coney Island).

The Proposed Project would not result in an exceptionally large demand for water and would not be located at the end of the water supply distribution system. As such, water infrastructure impacts are not anticipated and a detailed assessment is not required.

**Sanitary Sewage.** The Proposed Project would generate sanitary sewage at a rate commensurate with domestic water consumption, approximately 35,802 gpd. Sanitary sewage from the Project Site would be conveyed to the North River Wastewater Pollution Control Plant (“WPCP”), which has a rated capacity of 170 million gallons per day (“mgd”). The amount of sanitary sewage generated would not be expected to exceed the WPCP’s capacity or affect its treatment efficiency, and is not expected to overburden the local conveyance system. According to the *CEQR Technical Manual*, a preliminary sanitary sewage infrastructure analysis is not required if the Proposed Project does not exceed the following thresholds:

- If the project exceeds 400 residential units or 150,000 square feet of commercial, public facility, and institution and/or community facility space or more in Brooklyn;
- Is located in a separately sewered area;
- Is located an area that is partially sewered or currently unsewered;

- Involves development on a site five acres or more with a large amount of impervious surfaces;
- Would involve development on a site one acre or larger where the amount of impervious surface would increase and 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, and Westchester Creek; or,
- Would involve construction of a storm water outfall that requires federal and/or state permits.

The Proposed Project would not involve the construction of 400 or more residential units, would not involve development on a site that is one acre or larger, where the amount of impervious surfaces would increase, and the project site is not located within the Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchinson River, Newtown Creek or Westchester Creek drainage area.

No significant adverse impacts are anticipated as a result of the Proposed Project and no additional analyses are required.

*Solid Waste and Sanitation Services.* A solid waste assessment determines whether a project has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity or otherwise be inconsistent with the city's Solid Waste Management Plan ("SWMP" or "Plan") or with state policy related to the city's integrated solid waste management system. The city's solid waste system includes waste minimization at the point of generation, collection, treatment, recycling, composting, transfer, processing, energy recovery, and disposal. As the Proposed Project would not result in any additional student, staff, faculty, or visitor populations, it is not expected to generate a substantial amount of solid waste as defined in the *CEQR Technical Manual*. Therefore, the Proposed Project would not affect the city's capacity to handle solid waste, and no further analysis is required.

*Energy.* All new structures requiring heating and cooling in the City of New York are subject to the *New York City Energy Conservation Code*. Therefore, the need for a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. However, a project's operational energy consumption is often calculated. It is expected that the Proposed Project, when operational, would consume approximately 33.343 million British Thermal Units ("BTU") per year.<sup>5</sup> This would not be considered a significant demand for energy. Further, the Proposed Project would incorporate

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<sup>5</sup> A BTU is the amount of heat energy needed to raise the temperature of one pound of water by one degree Fahrenheit. This is the standard measurement used to state the amount of energy that a fuel has as well as the amount of output of any heat generating device.



measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. Therefore, the Proposed Project would not result in significant adverse impacts to the consumption or supply of energy.

**Transportation.** The Proposed Project was evaluated for its potential effects on the transportation system. The objective of the traffic, parking, transit, and pedestrian analyses was to determine whether the Proposed Project would have a significant impact on street and roadway conditions, parking facilities, public transportation facilities and services, and pedestrian flows.

The Proposed Project would replace an outdated, functionally obsolete library building with a new state-of-the-art library and academic building. There would be no increase in the number of students as a result of the Proposed Project. Due to the replacement nature of the project, no new activities would be introduced to the Project Site that would generate significant new vehicle trips. Employee staffing is not expected to increase as a result of the Proposed Project, as existing staff would be relocated to the new building. Accordingly, no further traffic analysis is required, and no significant traffic, parking, transit or pedestrian impacts would result.

**Air Quality.** An air quality screening analysis was performed following the *CEQR Technical Manual* guidance to determine if the Proposed Project has the potential to cause air quality impacts. The Proposed Project is not expected to significantly alter traffic conditions, and the maximum hourly incremental traffic from the Proposed Project would not exceed the *CEQR Technical Manual’s* carbon monoxide (“CO”) screening threshold of 170 peak-hour trips at nearby intersections in the study area, nor would it exceed the fine particulate matter (“PM<sub>2.5</sub>”) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the 2014 *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project-generated traffic is not warranted.

The Proposed Project would include a new boiler installation for the new Teaching and Learning Center. Therefore, a stationary source screening analysis was conducted to evaluate potential future pollutant concentrations from the proposed heating and hot water system. This screening analysis, detailed in the attached Supplemental Report, found that emissions from the Proposed Project would not exceed the threshold for a detailed air quality analysis, therefore no significant adverse stationary-source air quality impacts are expected as a result of the Proposed Project.

**Greenhouse Gas Emissions.** The 2014 *CEQR Technical Manual* requires a greenhouse gas (“GHG”) consistency assessment for large projects under Environmental Impact Statement (“EIS”) review that would result in the development of 350,000 square feet or greater, or for

projects on a case-by-case basis to determine its consistency with the city's GHG reduction goals.<sup>6</sup> In addition, the 2014 *CEQR Technical Manual* guidance suggests that a GHG emissions assessment may be necessary for projects that involve: (1) power generation (not including emergency backup power, renewable power, or small-scale-cogeneration); or (2) fundamental change to the city's solid waste management system by changing solid waste transport mode, distances or disposal technologies.<sup>7</sup> The Proposed Project does not require the preparation of an EIS and is not expected to result in significant inconsistencies with the city's GHG reduction goals. The Proposed Project would not involve excessive power production or alter the solid waste management system. Therefore, no significant adverse impacts related to GHG emissions are anticipated as a result of the Proposed Project.

Although a detailed GHG assessment was not warranted, it is expected that the Proposed Project would be compatible with the city's policies to reduce GHG emission.

**Noise.** The Proposed Project was evaluated for its potential mobile-source and stationary-source noise impacts. 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<sup>8</sup> increase in noise levels). However, ambient noise levels adjacent to the Development Site were considered to address *CEQR* noise abatement requirements for the proposed building.

**Attenuation Measures.** The proposed Teaching and Learning Center as well as the proposed renovations to Barnard Hall would be designed and constructed using standard construction methods and materials, including acoustically-rated windows and air conditioning as an alternate means of ventilation. The proposed building's façades, including these elements, would be expected to provide a composite Outdoor-Indoor Transmission Class ("OITC") such that interior noise levels would be 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative uses. Furthermore, because the exterior L10(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 systems (i.e., heating, ventilation, and air conditioning) 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 generating noise that would significantly increase ambient levels.

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<sup>6</sup> As part of the city's PlaNYC and the *New York City Climate Protection Act* (Local Law 22 of 2008), the city has a goal of reducing citywide greenhouse gas emissions by 30 percent below 2005 levels by 2030.

<sup>7</sup> 2014 *CEQR Technical Manual*, p. 18-7.

<sup>8</sup> The A-weighted decibel scale is used almost exclusively in vehicle noise measurement because it reflects the frequency range to which the human ear is most sensitive (1,000-6,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA.

**Neighborhood Character.** Neighborhood character is a term used to describe the various elements that contribute to a community or neighborhood — such as land use, architectural design, visual resources, historic resources, socioeconomics, traffic and noise — from which an area derives its distinct “personality.” A neighborhood character assessment considers how a proposed action may affect the context and feeling of a neighborhood by collectively accounting for its effects on the contributing elements. In general, this assessment is warranted for actions with the potential to result in significant adverse impacts in one of the technical areas, or if it may moderately effect several of these areas. The Proposed Project does not have the potential to result in any significant adverse impacts to any of the above-mentioned areas or the potential for any combination of moderate effects in more than one area, therefore no neighborhood character assessment is warranted.

**Public Health.** Public health involves the activities that society undertakes to protect and improve the health and well-being of the population. Public health may be jeopardized by poor air quality, exposure to hazardous materials, noise, and contaminants in soil and water. As demonstrated in earlier sections, the Proposed Project is not anticipated to result in any significant adverse impacts to air quality, water quality, hazardous materials, or noise. Hence, the Proposed Project would not result in any significant adverse impacts to public health and no further analysis is warranted.

**Construction Impacts.** The Proposed Project would involve construction activities at the Development Site. As with all construction projects, work at the Development Site would result in temporary disruptions to the surrounding area, including occasional noise and dust. The overall construction duration for the Proposed Project is expected to be approximately three years. The renovation of the LeFrak Gymnasium is expected to commence in summer 2015 and would take approximately six months to complete. The Gymnasium would provide campus swing space for the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The demolition of the existing Lehman Hall and construction of the new Teaching and Learning Center expected to take place from March 2016 to August 2018. The most intense construction activities in terms of noise levels and air pollutant emissions (viz., demolition, excavation, and foundation work, during which a number of large nonroad diesel engines would be employed) would last for only a portion of the overall construction duration — approximately one year.

Construction of the Proposed Project would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 a.m. and 6:00 p.m. on weekdays. If work is required outside of normal construction hours, necessary approvals would be obtained from the appropriate agencies (i.e., the New York City Department of Buildings [“NYCDOB”] and NYCDEP). 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's ("NYCDOT") Office of Construction Mitigation and Coordination ("OCMC"). Through implementation of the measures described above, the temporary 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.

**For Further Information:**

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**Full Environmental Assessment Form  
Part 1 – Project and Setting**

**Instructions for Completing Part 1**

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

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

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

**A. Project and Sponsor Information**

Name of Action or Project: <b>Barnard College Teaching and Learning Center</b>		
Project Location (describe, and attach a general location map): <b>Lehman Hall and Barnard Hall—Barnard College Campus (superblock bounded by West 120th Street, West 116th Street, Broadway, and Claremont Avenue), Borough of Manhattan, New York. See Figure 1, “Project Location.”</b>		
Brief Description of Proposed Action (include purpose or need): <b>See Attachment A, “Project Description” and Figure 2, “Campus Map.” Barnard College (“Barnard”) is proposing to construct a new, approximately 133,000 gross square foot Teaching and Learning Center building to replace the existing Lehman Hall (the “Proposed Project”). The Proposed Project would also include interior renovations to the existing Barnard Hall, for use as swing space during construction of the proposed new building. Demolition of Lehman Hall is anticipated to commence in January 2016, and the proposed Teaching and Learning Center would be occupied by August 2018. The Proposed Project would serve Barnard’s existing population, and would not result in an increase in population.  The Proposed Action would consist of DASNY’s authorization of the issuance of bonds on behalf of Barnard to finance the Proposed Project.</b>		
Name of Applicant/Sponsor: <b>Barnard College</b>	Telephone: <b>212-854-6831</b>	E-Mail: <b>rgoldberg@barnard.edu</b>
Address: <b>3009 Broadway</b>		
City/PO: <b>New York</b>	State: <b>NY</b>	Zip Code: <b>10027</b>
Project Contact (if not same as sponsor; give name and title/role): <b>Barnard College—Robert Goldberg, Chief Operating Officer</b>	Telephone:	E-Mail:
Address: <b>3009 Broadway</b>		
City/PO: <b>New York</b>	State: <b>NY</b>	Zip Code: <b>10027</b>
Property Owner (if not same as sponsor): <b>N/A</b>	Telephone: <b>212-854-6031</b>	E-Mail: <b>gbeltron@barnard.edu</b>
Address:		
City/PO:	State:	Zip Code:

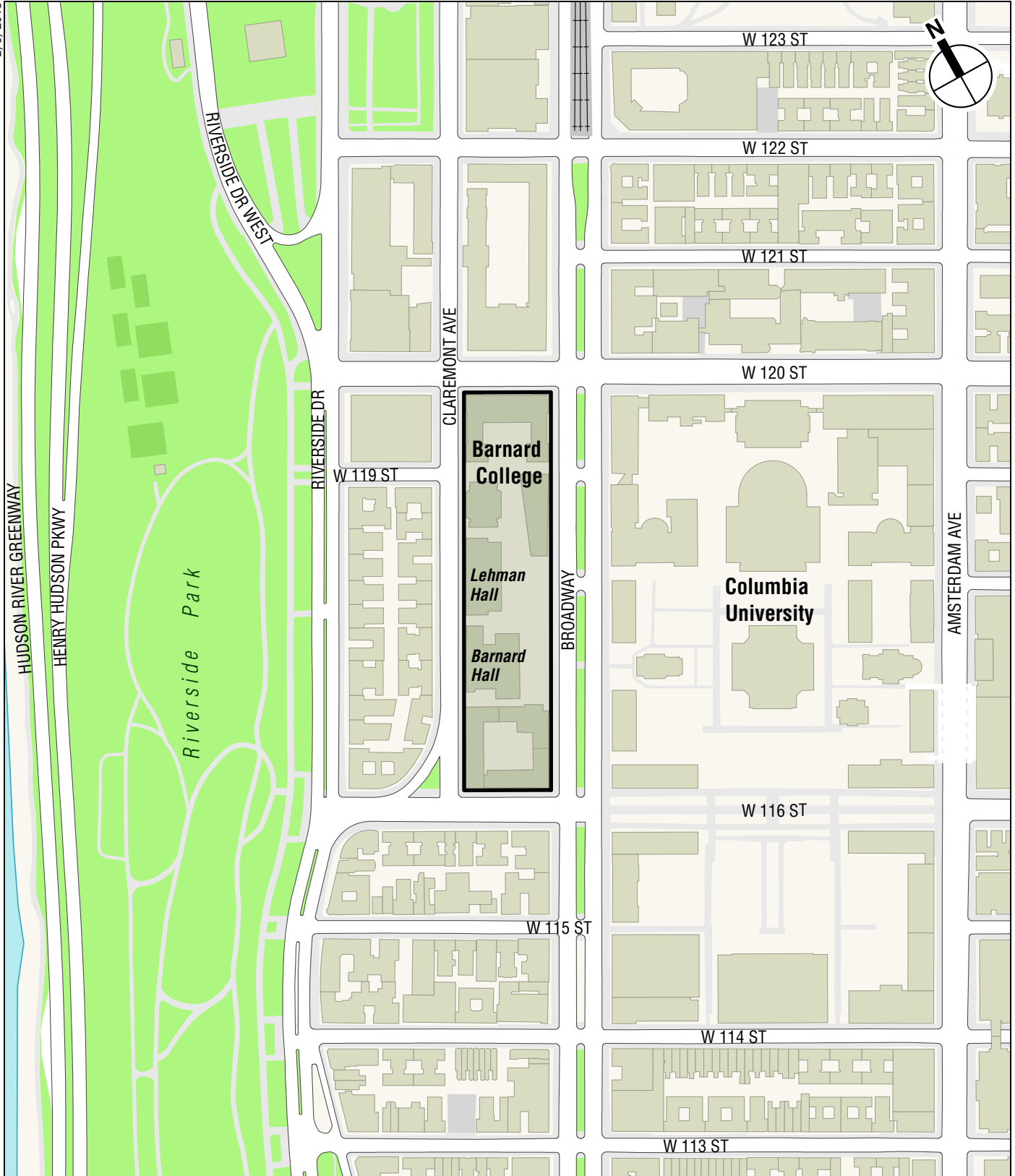
**B. Government Approvals**

<b>B. Government Approvals Funding, or Sponsorship.</b> (“Funding” includes grants, loans, tax relief, and any other forms of financial assistance.)		
<b>Government Entity</b>	<b>If Yes: Identify Agency and Approval(s) Required</b>	<b>Application Date (Actual or projected)</b>
a. City Council, Town Board, or Village Board of Trustees <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
b. City, Town or Village Planning Board or Commission <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
c. City Council, Town or Village Zoning Board of Appeals <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
d. Other local agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
e. County agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
f. Regional agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
g. State agencies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	DASNY Authorization of Issuance of Bonds	
h. Federal agencies <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
i. Coastal Resources		
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes,		
ii. If the project site located in a community with an approved Local Waterfront Revitalization Program?		<input type="checkbox"/> Yes <input type="checkbox"/> No
iii. Is the project site within a Coastal Erosion Hazard Area?		<input type="checkbox"/> Yes <input type="checkbox"/> No

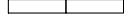
**C. Planning and Zoning**

<b>C.1. Planning and zoning actions.</b>	
Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> <li>• <b>If Yes</b>, complete sections C, F and G.</li> <li>• <b>If No</b>, proceed to question C.2 and complete all remaining sections and questions in Part 1.</li> </ul>	
<b>C.2. Adopted land use plans.</b>	
a. Do any municipally adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, identify the plan(s):	
<u>N/A</u>	
_____	
_____	
c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes, identify the plan(s):	
<u>N/A</u>	
_____	
_____	
_____	

2/5/2015



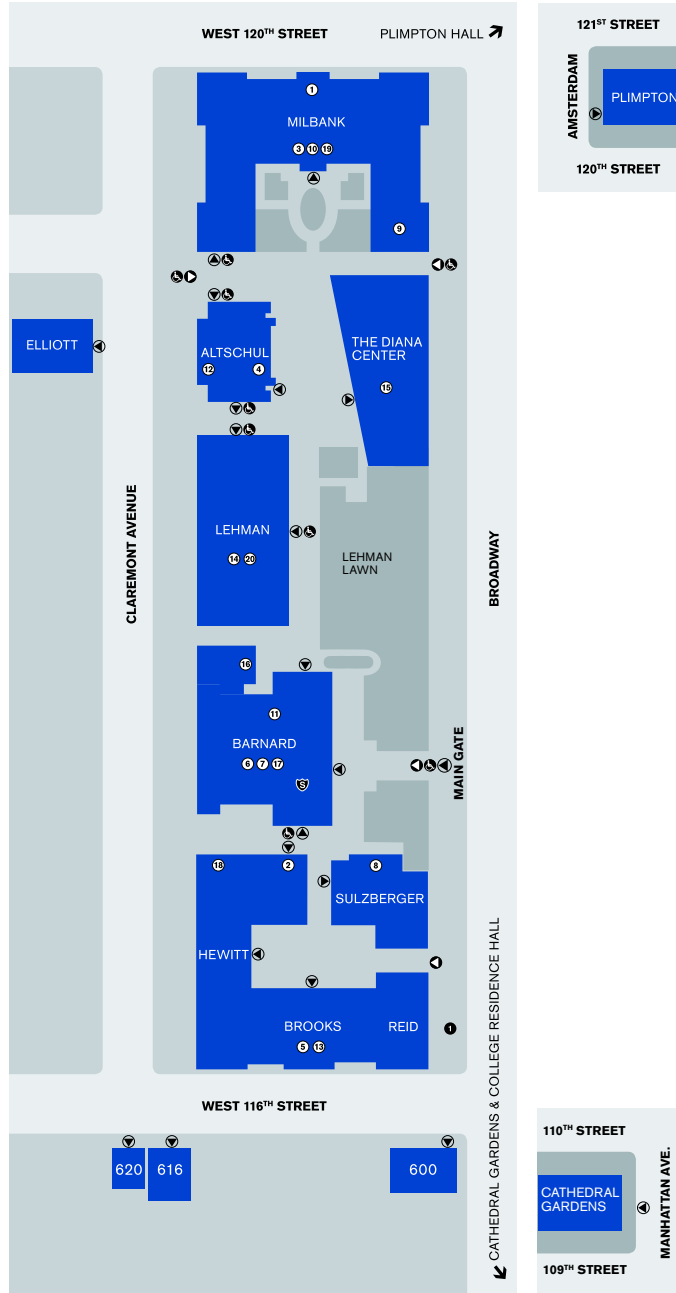
 Project Site

0 200 FEET  




# BARNARD CAMPUS

- ① **ADMISSIONS OFFICE**  
Milbank Hall
  - ② **ADMISSIONS VISITOR CENTER**  
Sulzberger Annex
  - ③ **ARTHUR ROSS GREENHOUSE**  
Milbank Hall 513
  - ④ **ALTSCHUL ATRIUM**  
Altschul Hall
  - ⑤ **HEALTH SERVICES**  
Brooks Hall, Lower Level
  - ⑥ **HELD LECTURE HALL**  
Barnard Hall 304
  - ⑦ **JAMES ROOM**  
Barnard Hall 418
  - ⑧ **HELENE KAPLAN TOWER MEETING ROOMS**  
Sulzberger Hall, 17<sup>th</sup> Floor
  - ⑨ **MINOR LATHAM PLAYHOUSE**  
Milbank Hall, 1st Floor
  - ⑩ **KRUEGER LECTURE HALL**  
Milbank Hall 405
  - ⑪ **LE FRAK GYMNASIUM**  
Barnard Hall, 1st Floor
  - ⑫ **LEHMAN AUDITORIUM**  
Altschul Hall 202
  - ⑬ **LEWIS PARLOR**  
Brooks Hall, 1st Floor
  - ⑭ **SLOATE MEDIA CENTER**  
Lehman Hall, 3rd Floor
  - ⑮ **THE BARNARD STORE**  
Diana Center
  - ⑯ **STRENG DANCE STUDIO**  
Barnard Annex
  - ⑰ **SULZBERGER PARLOR**  
Barnard Hall, 3rd Floor
  - ⑱ **VAGELOS ALUMNAE CENTER**  
Hewitt Hall
  - ⑲ **ELLA WEED ROOM**  
Milbank Hall 223
  - ⑳ **WOLLMAN LIBRARY**  
Lehman Hall
- 
- ⓪ **CAMPUS ENTRANCE**
  - **BUILDING MAIN ENTRANCE**
  - ♿ **WHEELCHAIR ENTRANCE**
  - 🔒 **SECURITY / INFORMATION**
  - 🚇 **SUBWAY**





<b>C.3. Zoning</b>	
a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance? If Yes, what is the zoning classification(s) including any applicable overlay district?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<u>R8 residential zoning district</u>	
b. Is the use permitted or allowed by a special or conditional use permit?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
c. Is a zoning change requested as part of the proposed action? If Yes,	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
i. What is the proposed new zoning for the site? _____	
<b>C.4. Existing community services.</b>	
a. In what school district is the project site located?	<u>New York City Community School District 3</u>
b. What police or other public protection forces serve the project site?	<u>New York Police Department (NYPD)</u>
c. Which fire protection and emergency medical services serve the project site?	<u>New York City Fire Department (FDNY)</u>
d. What parks serve the project site?	<u>Riverside Park, Morningside Park, Sakura Park</u>

**D. Project Details**

<b>D.1. Proposed and Potential Development</b>	
a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?	<u>Institutional (Barnard College Teaching and Learning Center)</u>
b. a. Total acreage of the site of the proposed action?	<u>±4.35</u> acres
b. Total acreage to be physically disturbed?	<u>±1.05</u> acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?	<u>±4.35</u> acres
c. Is the proposed action an expansion of an existing project or use?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)?	<u>±200%</u> Units: <u>The existing 65,000 sf Lehman Hall would be replaced by the proposed 133,000 sf Teaching and Learning Center</u>
d. Is the proposed action a subdivision, or does it include a subdivision?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If Yes,	
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)	<u>N/A</u>
ii. Is a cluster/conservation layout proposed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
iii. Number of lots proposed?	<u>N/A</u>
iv. Minimum and maximum proposed lot sizes? Minimum <u>N/A</u> Maximum <u>N/A</u>	
e. Will proposed action be constructed in multiple phases?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
i. If No, anticipated period of construction:	<u>Approx. 36</u> months
ii. If Yes:	
• Total number of phases anticipated	<u>N/A</u>
• Anticipated commencement date of phase 1 (including demolition)	<u>N/A</u> month <u>N/A</u> year
• Anticipated completion date of final phase	<u>May</u> month <u>2018</u> year
• Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:	<u>N/A</u>

f. Does the project include new residential uses? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes, show number of units proposed.				
	<u>One Family</u>	<u>Two Family</u>	<u>Three Family</u>	<u>Multiple Family (four or more)</u>
Initial Phase	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
At completion of all phases	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
g. Does the proposed action include new non-residential construction (including expansions)? <span style="float: right;"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</span>				
If Yes,				
i. Total number of structures <b>One</b>				
ii. Dimensions (in feet) of largest proposed structure: <b>±190'</b> height; <b>±142'</b> width; and <b>±235'</b> length				
iii. Approximate extent of building space to be heated or cooled: <b>Approx. 132,600</b> square feet				
h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes,				
i. Purpose of the impoundment: <u>N/A</u>				
ii. If a water impoundment, the principal source of the water: <input type="checkbox"/> Ground Water <input type="checkbox"/> Surface water streams <input type="checkbox"/> Other specify: <u>N/A</u>				
iii. If other than water, identify the type of impounded/contained liquids and their source. <u>N/A</u>				
iv. Approximate size of the proposed impoundment. Volume: <u>N/A</u> million gallons; surface area: <u>N/A</u> acres				
v. Dimensions of the proposed dam or impounding structure: <u>N/A</u> height; <u>N/A</u> length				
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):				
<u>N/A</u>				
<b>D.2. Project Operations</b>				
a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading, or installation of utilities or foundations where all excavated materials will remain onsite) <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes:				
i. What is the purpose of the excavation or dredging? <u>N/A</u>				
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?				
<ul style="list-style-type: none"> <li>• Volume (specify tons or cubic yards): <u>N/A</u></li> <li>• Over what duration of time? <u>N/A</u></li> </ul>				
iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.				
<u>N/A</u>				
iv. Will there be onsite dewatering or processing of excavated materials? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If yes, describe.				
<u>N/A</u>				
v. What is the total area to be dredged or excavated? <u>N/A</u> acres				
vi. What is the maximum area to be worked at any one time? <u>N/A</u> acres				
vii. What would be the maximum depth of excavation or dredging? <u>N/A</u> feet				
viii. Will the excavation require blasting? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
ix. Summarize site reclamation goals and plan:				
<u>N/A</u>				
b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>				
If Yes,				
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):				
<u>N/A</u>				

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

iii. Will proposed action cause or result in disturbance to bottom sediments?  Yes  No  
 If Yes, describe: N/A

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

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

 v. Describe any proposed reclamation/mitigation following disturbance:  
N/A

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c. Will the proposed action use, or create a new demand for water? (*see footnote 1*)  Yes  No  
 If Yes:  
 i. Total anticipated water usage/demand per day: N/A<sup>1</sup> gallons/day  
 ii. Will the proposed action obtain water from an existing public water supply?  Yes  No  
 If Yes:  

- Name of district or service area: New York City Department of Environmental Protection (NYCDEP)
- Does the existing public water supply have capacity to serve the proposal?  Yes  No
- Is the project site in the existing district?  Yes  No
- Is expansion of the district needed?  Yes  No
- Do existing lines serve the project site?  Yes  No

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

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

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

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

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

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

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d. Will the proposed action generate liquid wastes?  Yes  No  
 If Yes:  
 i. Total anticipated liquid waste generation per day: N/A<sup>1</sup> gallons/day  
 ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):  
Sanitary wastewater would be handled by the NYCDEP combined sewer system.

<sup>1</sup> The Proposed Project entails construction of a new building to replace Lehman Hall and interior renovations to Barnard Hall and would not result in an increase in population that would result in a net increase in water consumption or demand for water/sewer infrastructure.

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

If Yes:

- Name of wastewater treatment plant to be used: **North River NYCDEP Wastewater Treatment Plant**
- Name of district: **N/A— NYCDEP system**
- Does the existing wastewater treatment plant have capacity to serve the project?  Yes  No
- Is the project site in the existing district?  Yes  No
- Is expansion of the district needed?  Yes  No
- Do existing sewer lines serve the project site?  Yes  No
- Will line extension within an existing district be necessary to serve the project?  Yes  No

If yes:

- Describe extensions or capacity expansions proposed to serve this project:  
N/A

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

If Yes:

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

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

N/A

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

**None.**

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

If Yes:

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

N/A Square feet or N/A acres (impervious surface)

N/A Square feet or N/A acres (parcel size)

ii. Describe types of new point sources

N/A

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

**As with existing conditions, any stormwater runoff would flow to the NYCDEP combined sewer system.**

- If to surface waters, identify receiving water bodies or wetlands: **N/A**
- Will stormwater runoff flow to adjacent properties?  Yes  No

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

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

If Yes, identify:

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

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

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation): **N/A**

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

If Yes,

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

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

- <1,000 Tons/year (short tons) of Carbon Dioxide (CO<sub>2</sub>)
- <0.01 Tons/year (short tons) of Nitrous Oxide (N<sub>2</sub>O)
- NA Tons/year (short tons) of Perfluorocarbons (PFCs)
- NA Tons/year (short tons) of Sulfur Hexafluoride (SF<sub>6</sub>)
- NA Tons/year (short tons) of Carbon Dioxide equivalent of Hydrofluorocarbons (HFCs)
- <0.002 Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

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

If Yes,

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

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

N/A

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

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

N/A

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

If Yes:

i. When is the peak traffic expected (check all that apply):  Morning  Evening  Weekend  
 Randomly between hours of N/A to N/A.

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

iii. Parking spaces: Existing: 0 Proposed: 0 Net increase/decrease: 0

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

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

N/A

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

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

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

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

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: N/A

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

Consolidated Edison electrical grid

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

<p>l. Hours of operation. Answer all items which apply.</p> <p><i>i.</i> During Construction:</p> <ul style="list-style-type: none"> <li>• Monday – Friday: <u>7am to 6pm</u></li> <li>• Saturday: <u>No regular hours</u></li> <li>• Sunday: <u>No regular hours</u></li> <li>• Holidays: <u>No regular hours</u></li> </ul> <p><i>ii.</i> During Operations:</p> <ul style="list-style-type: none"> <li>• Monday – Friday: <u>8am to 10pm</u></li> <li>• Saturday: <u>8am to 10pm</u></li> <li>• Sunday: <u>8am to 10pm</u></li> <li>• Holidays: <u>Varies</u></li> </ul>	
<p>m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both?</p> <p>If Yes:</p> <p><i>i.</i> Provide details including sources, time of day and duration:</p> <p style="text-align: center;"><b>As with all construction projects, construction of the Proposed Project could result in increases in ambient noise levels due to on-site equipment operation and worker vehicles and trucks traveling to and from the project site. However, noise from construction activities is regulated by the New York City Noise Control Code and by the U.S. Environmental Protection Agency (EPA). The New York City Noise Control Code requires the adoption and implementation of a noise mitigation plan, limits construction (absent special circumstances) to weekdays between the hours of 7 AM and 6 PM, and sets noise limits for certain pieces of construction equipment.</b></p> <p><i>ii.</i> Will proposed action remove existing natural barriers that could act as a noise barrier or screen?</p> <p>Describe:</p> <p style="text-align: center;"><u>N/A</u></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>n. Will the proposed action have outdoor lighting?</p> <p>If Yes:</p> <p><i>i.</i> Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:</p> <p style="text-align: center;"><b>All outdoor lighting will conform with the applicable regulations as defined by the New York City Building Code and the Housing Maintenance Code.</b></p> <p><i>ii.</i> Will proposed action remove existing natural barrier that could act as a light barrier or screen?</p> <p>Describe:</p> <p style="text-align: center;"><u>N/A</u></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>o. Does the proposed action have the potential to produce odors for more than one hour per day?</p> <p>If yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: <u>N/A</u></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products (185 gallons in above ground storage or any amount in underground storage)?</p> <p>If Yes,</p> <p><i>i.</i> Product(s) to be stored <u>N/A</u></p> <p><i>ii.</i> Volume(s) <u>N/A</u> per unit time <u>N/A</u> (e.g., month, year)</p> <p><i>iii.</i> Generally describe proposed storage facilities</p> <p style="text-align: center;"><u>N/A</u></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation?</p> <p>If Yes:</p> <p><i>i.</i> Describe proposed treatment(s):</p> <p style="text-align: center;"><u>N/A</u></p> <p><i>ii.</i> Will the proposed action use Integrated Pest Management Practices? <u>N/A</u></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? (see footnote 1)  Yes  No

If Yes:

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

- Construction: N/A tons per N/A (unit of time)
- Operation: N/A tons per N/A (unit of time)<sup>1</sup>

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

- Construction:  
N/A

- Operation:  
N/A<sup>1</sup>

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

- Construction:  
N/A

- Operation:  
N/A<sup>1</sup>

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

If Yes:

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

ii. Anticipated rate of disposal/processing:

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

iii. If landfill, anticipated site life: N/A years

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

If Yes:

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

N/A

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

N/A

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

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

N/A

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

If Yes: provide name and location of facility:

N/A

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

N/A

<sup>1</sup> The Proposed Project entails construction of a new building to replace Lehman Hall and interior renovations to Barnard Hall and would not result in an increase in population that would result in a net increase in solid waste generation.

**E. Site and Setting of Proposed Action**

**E.1 Land uses on and surrounding the project site**

a. Existing land uses.

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

- Urban                       Industrial                       Commercial                       Residential (suburban)                       Rural (non-farm)
- Forest                       Agriculture                       Aquatic                       Other (specify): \_\_\_\_\_

ii. If mix of uses, generally describe:

**Institutional (university campus); Residential; Local Retail; Community Facilities**

b. Land uses and covertypes on the project site.

Land use or covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	±3.0	±3.0	0
• Forested	0	0	0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse, etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	0	0	0
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: <u><b>Landscaped Areas</b></u>	±1.5	±1.5	0

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

i. If yes: explain: N/A

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

If Yes:

i. Identify Facilities:

- Schools:** PS 036 Margaret Douglas, PS 125 Ralph Bunche
- Hospitals:** St Luke's Roosevelt Hospital Center
- Day Care Centers:** Barnard College, Tompkins Hall Nursery School, Hollingsworth Preschool, Riverside Church, Children's Learning Center Morningside Heights, East Harlem Block Nursery, Broadway Presbyterian Church, Bank Street College of Education, The Family Annex, Columbia Greenhouse Nursery School
- Senior Center:** Jackie Robinson Senior Center

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

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: N/A feet
- Dam length: N/A feet
- Surface area: N/A acres
- Volume impounded: N/A gallons OR acre-feet

ii. Dam's existing hazard classification: N/A

iii. Provide date and summarize results of last inspection:

N/A

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

If Yes:

i. Has the facility been formally closed?  Yes  No

- If yes, cite sources/documentation: N/A

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

N/A



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

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store, and/or dispose of hazardous waste?  Yes  No  
 If Yes:  
 i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:  
N/A

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? (To be determined; a Phase I Environmental Site Assessment will be prepared and summarized for the Environmental Review)  Yes  No  
 If Yes:  
 i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:  Yes  No  
 Yes – Spills Incidents database Provide DEC ID number(s):  
 Yes – Environmental Site Remediation database Provide DEC ID number(s):  
 Neither database  
 ii. If site has been subject of RCRA corrective activities, describe control measures:  
 \_\_\_\_\_  
 iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database?  Yes  No  
 If yes, provide DEC ID number(s):  
 iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):  
 \_\_\_\_\_  
 v. Is the project site subject to an institutional control limiting property uses?  Yes  No  

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

 \_\_\_\_\_  
 \_\_\_\_\_

**E.2. Natural Resources On or Near Project Site**

a. What is the average depth to bedrock on the project site? To be determined feet

b. Are there bedrock outcroppings on the project site?  Yes  No  
 If Yes, what proportion of the site is comprised of bedrock outcroppings? N/A %

c. Predominant soil type(s) present on project site: To be determined \_\_\_\_\_ %  
 \_\_\_\_\_ %  
 \_\_\_\_\_ %

d. What is the average depth to the water table on the project site? Average: \_\_\_\_\_ feet

e. Drainage status of project site soils:  Well Drained: 100 % of Site  
 Moderately Well Drained: \_\_\_\_\_ % of Site  
 Poorly Drained: \_\_\_\_\_ % of Site

f. Approximate proportion of proposed action site with slopes: :  0-10%: 100 % of Site  
 10-15%: \_\_\_\_\_ % of Site  
 15% or greater: \_\_\_\_\_ % of Site

g. Are there any unique geologic features on the project site?  Yes  No  
 If Yes, describe:  
N/A  
 \_\_\_\_\_  
 \_\_\_\_\_



p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
q. Is the project site or adjoining area currently used for hunting, trapping, fishing, or shell fishing? If yes, give a brief description of how the proposed action may affect that use: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>E.3. Designated Public Resources On or Near the Project Site</b>	
a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Sections 303 and 304? If Yes, provide county plus district name/number: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
b. Are agricultural lands consisting of highly productive soils present? i. If Yes: acreage(s) on project site? <u>N/A</u> ii. Source(s) of soil rating(s) <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? If Yes: i. Nature of the natural landmark: <input type="checkbox"/> Biological Community <input type="checkbox"/> Geological Feature ii. Provide brief description of landmark, including values behind designation and approximate size/extent: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
d. Is the project site located in or does it adjoin a state-listed Critical Environmental Area? If Yes: i. CEA name: <u>N/A</u> ii. Basis for designation: <u>N/A</u> iii. Designating agency and date: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on, or has been nominated by the NYS Board of Historic Preservation for inclusion on, the State or National Register of Historic Places? If Yes: i. Nature of historic/archaeological resource: <input type="checkbox"/> Archaeological Site <input checked="" type="checkbox"/> Historic Building or District ii. Name: <b>S/NR-listed resources include: Barnard Hall and Milbank Hall on the Project Site; Brooks and Hewitt Halls (Barnard College) and Riverside Park and Drive are one block west from the Project Site. Pupin Physics Laboratories and Low Library are separated from Project Site by Broadway-facing buildings on Columbia University's campus.</b> iii. Brief description of attributes on which listing is based: <u>NYSDEC Mapper Summary Report, OPRHP Cultural Resource Information System</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
g. Have additional archaeological or historic site(s) or resourced been identified on the project site? If Yes: i. Describe possible resource(s): <u>N/A</u> ii. Basis for identification: <u>N/A</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

If Yes:

i. Identify resource: Barnard Hall, Riverside Park and Drive, Pupin Physics Laboratories, Columbia University, Union Theological Seminary, Low Memorial

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

iii. Distance between project and resource: Between 0 and 5 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666?  Yes  No

If Yes:

i. Identify the name of the river and its designation: N/A

ii. Is the activity consistent with development restrictions contain in 6NYCRR Part 666?  Yes  No

#### F. Additional Information

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

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

#### G. Verification

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

Applicant/Sponsor Name GAIL A. BELTRONE

Date 2/5/15

Signature 

Title VICE PRESIDENT CAMPUS SERVICES

BARNARD

## CHAPTER 1. PROJECT DESCRIPTION

### ***Introduction***

The Proposed Project is being reviewed pursuant to the *State Environmental Quality Review Act* (“*SEQRA*”), codified at Article 8 of the *New York Environmental Conservation Law* (“*ECL*”), and its implementing regulations, promulgated at Part 617 of Title 6 of the *New York Code, Rules and Regulations* (“*N.Y.C.R.R.*”), which collectively contain the requirements for the *State Environmental Quality Review* (“*SEQR*”) process. The environmental review of the Barnard College Teaching and Learning Center project (“Proposed Project”) follows *SEQRA*, and the *New York City Environmental Quality Review* (“*CEQR*”) *Technical Manual* generally is used as a guide with respect to environmental analysis methodologies and impact criteria for evaluating the Proposed Project in this *Supplemental Report*, unless stated otherwise.<sup>1</sup>

The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“*SHPA*”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“*PRHPL*”), as well as with the requirements of the Memorandum of Understanding (“*MOU*”), dated March 18, 1998, between the Dormitory Authority State of New York (“*DASN*Y”) and the New York State Office of Parks, Recreation and Historic Preservation (“*OPRHP*”).

### ***Project Location and Site Details***

The Project Site is the Barnard College campus superblock, bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west (“Project Site”). The Development Site (the area where the Proposed Project would be constructed) is occupied by Lehman Hall, located on the western portion of the superblock. Lehman Hall, an existing 4-story, approximately 65,000-gross-square-foot (“gsf”) building constructed in 1959, contains Wollman Library (including Barnard’s main book collection, media and music collection, and administrative services), the Instructional Media Department, Audio Visual Services, and Archives and Special Collections. It is also occupied by the Information Technology help desk and offices, as well as Barnard’s Empirical Reasoning Lab, seminar rooms, instructional technology rooms, a Union office, and offices for the Economics, History, Political Science departments. Lehman Hall connects to its adjacent buildings via underground tunnels.

The Proposed Project would also include the renovation of the existing 9,700-square-foot LeFrak Gymnasium (the “Gymnasium”) in Barnard Hall, located immediately south of the Development Site, to provide campus swing space for the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The 79,000-gross-square-foot Barnard Hall was constructed in 1917 as Students Hall, and contains Barnard’s

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<sup>1</sup> The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

Gymnasium, fitness and dance studios and departments, the Barnard Center for Research on Women, Athena Center, classrooms, public assembly and special event space, and offices for faculty and the security and facilities departments. The Gymnasium is currently used for archery and badminton practice, open sports recreation, special events, and lectures.

### ***Proposed Action and Proposed Project***

DASNY has received a funding request from Barnard College (“Barnard”) pursuant to DASNY’s Independent Colleges and Universities Program for its *Teaching and Learning Center (2015 Financing Project)*. For purposes of *SEQR*, the Proposed Action would consist of DASNY’s authorization of the issuance of fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

The proceeds of the bond issuance would be used to finance the construction of a new, approximately 133,000-gross-square-foot (“gsf”), *Teaching and Learning Center* (the “Proposed Project”) on the Barnard campus bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York (the “Project Site”). The Proposed Project would include the demolition of the existing 65,000-gsf Lehman Hall, as well as the renovation of portions of Barnard Hall, to serve as swing space during construction of the *Teaching and Learning Center*.

Construction of the Proposed Project is expected to begin in Summer 2015, when the LeFrak Gymnasium would be renovated to provide a total of approximately 19,400-square-feet of swing space for the existing uses in Lehman Hall. A second floor, which would line up with existing stairs and elevators, would be installed in the Gymnasium. The first level would be occupied with select library functions including student study space, seminar rooms, and the Empirical Reasoning Lab, and the second would be occupied by 45 faculty offices, conference rooms, restrooms, and a pantry/copy room.

The new, approximately 133,000-gsf, 11-story Teaching and Learning Center building would include common and informal study areas, teaching and learning space, a conference area, space for the history, political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Proposed Project would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard’s population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would support Barnard’s innovative approaches to liberal arts education, provide individual and group study space and access to resources and help for students and faculty, and improve conference space, which would include flexible meeting spaces and smaller break-out rooms.

The Proposed Project would incorporate measures to achieve *Leadership in Energy and Environmental Design (“LEED”)* Silver certification under *LEED New Construction and Major Renovations version 3*. The *LEED* rating system, developed by the nonprofit U.S. Green

Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation.

Construction of the proposed Teaching and Learning Center would commence in March 2016 and would be occupied by August 2018. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

### ***Required Approvals***

As described above, for the purposes of New York *State Environmental Quality Review* (“*SEQR*”), the Proposed Action would consist of DASNY’s authorization of the issuance of bonds on behalf of Barnard College to finance the Proposed Project. No other discretionary approvals would be required.

### ***Project Purpose and Need***

Barnard, founded in 1889, was the first college in New York City—and one of the few in the world—where women could receive the same liberal arts education available to men. Today, Barnard has an undergraduate student population of 2,400, and shares the vast resources of Columbia University.

As articulated in its Strategic Plan, Barnard has core objectives which include:

- Dedication to women’s education;
- Devotion to the liberal arts;
- Maintaining a mutually beneficial relationship with Columbia University;
- Recruitment and support of top tier faculty;
- Recruitment and intellectual nourishment of top-tier students;
- Nurturing and expanding diversity within its community;
- Commitment to an innovative curriculum that aligns with the College’s mission; and
- Provide a distinctive educational experience for all students.

In order to achieve these goals, Barnard notes in its Strategic Plan that upgrading its physical plant and improving the appearance and functionality of the College campus and improving and consolidating the College’s Information Technology systems will be necessary. The Proposed Project would meet these goals by constructing a major new facility that would support Barnard’s commitment to the joint and interlocked endeavors of teaching and learning, by creating sufficient space to allow the College to grow for several decades; embracing the latest technology and thought in library design, creating a learning space based around digital

media, virtual learning environments, and collaboration; and bringing together students and faculty into closer geographic proximity, embracing the connections that lie at the core of Barnard's learning philosophy. The Proposed Project would also support Barnard's goal to invest in and expand a series of campus-based centers that facilitate the continual interaction between students, faculty, and the rich learning communities provided by New York, by providing new space in the Teaching and Learning Center for the existing Barnard Center for Research on Women and the Athena Center for Leadership Studies. In addition, the Proposed Project would provide physical spaces in support of the College's goals to develop a series of programs that drive interaction and thrust its students into the nexus of theory and practice, knowledge, and teaching.



## **CHAPTER 2. LAND USE, ZONING, AND PUBLIC POLICY**

### ***Introduction***

This analysis of land use, zoning, and public policy characterizes the existing conditions on and within the 400-foot study area from the Project Site—the Barnard College campus superblock, bounded by West 120<sup>th</sup> Street to the north, West 116<sup>th</sup> Street to the south, Broadway to the east, and Claremont Avenue to the west, in the borough of Manhattan, New York County, New York, in Manhattan Community District 9 (Manhattan Tax Block 1989, Lot 1)—and on the Development Site (the area where the Proposed Project would be constructed); evaluates changes in land use and zoning that are expected to occur independently of the Proposed Project; and examines the Proposed Project’s compatibility and consistency with land use and development trends in the area, as well as public land use and zoning policies. The land use study area generally extends past West 121<sup>st</sup> Street to the north, past Broadway to the east, past West 115<sup>th</sup> Street to the south, and to Riverside Drive to the west. This is the area in which the Proposed Project would have the greatest potential to affect land use trends. Sources used to conduct this analysis include field surveys and evaluation of land use and zoning text and maps.

The Proposed Project would expand and continue an existing land use on the Development Site, which is surrounded by similar uses as part of the Barnard College campus. Overall, no significant adverse impacts on land use, zoning, or public policy are anticipated as a result of the Proposed Project.

### ***Background and History***

Barnard College was established in 1889 as the first college in New York City to provide an Ivy League-caliber undergraduate education to women. For the first nine years of its existence, the College rented a brownstone at 343 Madison Avenue, which provided enough space for six faculty members and 36 students. In 1898, following the lead of Columbia University, the College moved to Morningside Heights, building the campus’s first three buildings—Milbank, Brinckerhoff, and Fiske Halls—on the northern portion of the modern-day campus, from West 119<sup>th</sup> Street to West 120<sup>th</sup> Street between Broadway and Claremont Avenue.

In 1900, the College formalized its relationship with Columbia University, in which Barnard exists both as an independently-chartered institution and as a college within the university. In 1903, benefactors donated the remainder of the campus, which extends south to West 116<sup>th</sup> Street; Lehman Hall, which contains the Wollman Library, was completed in 1959. Today, the College offers nearly 50 academic majors to its student body of approximately 2,400 students. Through the College’s affiliation with Columbia, Barnard students have access to the University’s course offerings, academic facilities, and athletic teams.

### ***Existing Conditions***

Existing land use patterns and trends are described below for the Development Site, the Project Site, and the surrounding 400-foot study area.

***Development Site Land Use.*** The Development Site is located on the western portion of the Barnard College campus superblock—which is bounded by West 120<sup>th</sup> Street to the north, Broadway to the east, West 116<sup>th</sup> Street to the south, and Claremont Avenue to the west—in the borough of Manhattan, New York County, New York, in Manhattan Community District 9 (Block 1989, Lot 1). The Development Site is currently occupied by Lehman Hall, which houses Barnard College’s Wollman Library, the Instructional Media Department, Audio Visual Services, and Archives and Special Collections. The four-story, approximately 65,000-gross-square-foot (“gsf”) building is also occupied by the College’s Information Technology help desk and offices, the Empirical Reasoning Lab, seminar rooms, instructional technology rooms, a Union office, and offices for the Economics, History, Political Science departments. The west side of the building, which was constructed in 1959, has frontage (but no ingress or egress points) on Claremont Avenue; the rest of the building is adjacent to open space, which is accessible to Barnard College and Columbia University faculty, staff, and students, and pathways that connect to the rest of the Barnard College campus.

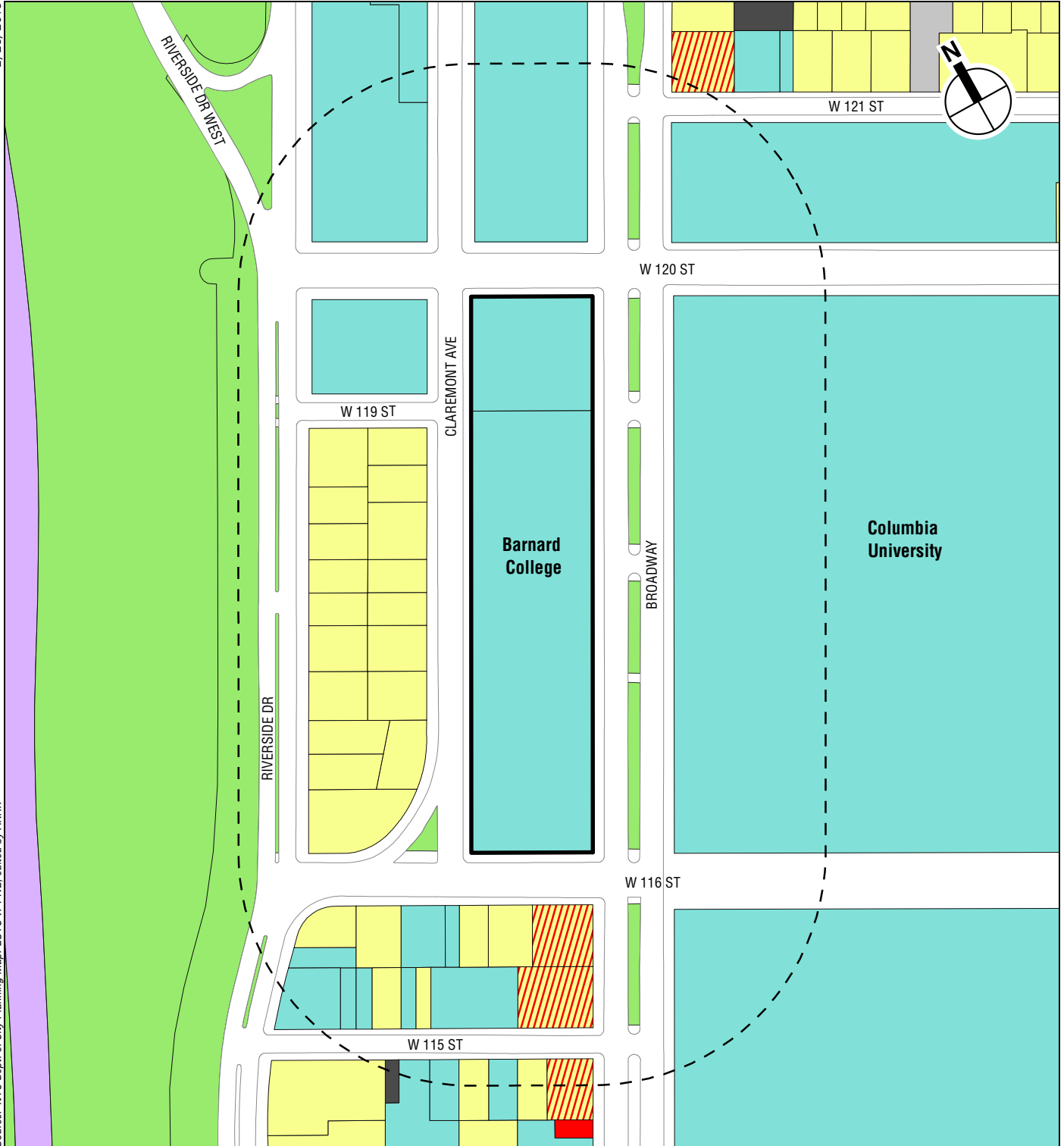
***Project Site and Study Area Land Use.*** As discussed in greater detail below, the predominant land uses within the 400-foot study area include institutional, commercial, residential, and open space uses (see **Figure 2-1**). Much of the study area is characterized by educational uses interspersed with open spaces and residential buildings. Commercial uses primarily consist of retail uses located on the ground floor of residential buildings.

As described above, the Development Site is located in the western portion of the Barnard College campus (the Project Site), which consists primarily of educational buildings interspersed with open space, pedestrian walkways, and outdoor seating areas. Directly north of the Development Site is Altschul Hall, which contains Barnard’s laboratories and Biology, Physics and Astronomy, and Neuroscience and Behavior departments. Directly south of the Development site is Barnard Hall, which contains a wide variety of student resources and academic facilities, as well as a swimming pool, track, and gymnasium. As described in Chapter 1, “Project Description,” the Proposed Project would also include the renovation of Barnard Hall’s 9,700-square-foot LeFrak Gymnasium to provide campus swing space for the temporary relocation of the academic uses currently located in Lehman Hall during the construction of the new Teaching and Learning Center.

East of the Project Site across Broadway is the main campus of Columbia University, which occupies the superblock extending north to West 120<sup>th</sup> Street, east to Amsterdam Avenue, south to West 116<sup>th</sup> Street, and west to Broadway. The portion of the approximately 26-acre campus within the 400-foot study area includes the 15-story Pupin building, which houses Columbia’s Astronomy and Physics departments, as well as the Physics Library; the 14-story Northwest Corner building, which is occupied by classrooms, science research labs, and faculty offices; the seven-story Chandler Laboratories, which houses the Chemistry department and the Chemistry Library; the eight-story Havemeyer Hall, which also houses the Chemistry department; the seven-story Mathematics Hall, which houses the Mathematics department and

2/26/2015

Source: NYC Dept. of City Planning MapPLUTO v. 14v2, edited by AKRF



- Project Site
- Study Area (400-foot boundary)
- Commercial and Office Buildings
- Open Space and Outdoor Recreation
- Parking Facilities
- Public Facilities and Institutions
- Residential
- Residential with Commercial Below
- Transportation and Utility
- Vacant Land



the Mathematics Library; Earl Hall, a five-story former YMCA that currently houses the University's religious and community service offices; the seven-story Lewisohn Hall, which contains the School of Continuing Education and the School of General Studies; the eight-story Dodge Hall, which contains the Music department, Music Library, and School of the Arts, as well as Miller Theatre; the nine-story Pulitzer Hall (also known as Journalism Hall), which houses the Graduate School of Journalism and the Journalism Library; and the 11-story Furnald Hall, which is a residential dormitory building for undergraduate students.

Teachers College, Columbia University's Graduate School of Education, is located northeast of the Project Site, on the block bounded by West 121<sup>st</sup> Street to the north, Amsterdam Avenue to the east, West 120<sup>th</sup> Street to the south, and Broadway to the west. The portion of the Teachers College campus located within the study area includes Horace Mann Hall, which contains an auditorium, administrative offices, and other academic space; Thompson Hall, which houses administrative offices, a gymnasium, and a swimming pool; and Thorndike Hall, which contains administrative offices.

Directly north of the Project Site across West 120<sup>th</sup> Street is the campus of the Union Theological Seminary, a Christian seminary affiliated with Columbia University, which occupies the superblock bounded by West 122<sup>nd</sup> Street to the north, Broadway to the east, West 120<sup>th</sup> Street to the south, and Claremont Avenue to the west. A substantial portion of the Seminary campus, which largely consists of a single building containing academic and religious spaces, is located within the study area. The Seminary also occupies a building on the northwest corner of the superblock immediately to the west, which is bounded by West 122<sup>nd</sup> Street to the north, Claremont Avenue to the east, West 120<sup>th</sup> Street to the south, and Riverside Drive to the west. The remainder of that superblock is occupied by Riverside Church, an interdenominational church whose facilities include educational and recreational space, in addition to the worship space.

Additional institutional uses in the study area include the Interchurch Center, a 19-story office building that houses a variety of faith-based and non-profit organizations, which is located directly west of the Project Site on the block bounded by West 120<sup>th</sup> Street to the north, Claremont Avenue to the east, West 119<sup>th</sup> Street to the south, and Riverside Drive to the west. Columbia's five-story Casa Hispanica, which houses the University's Spanish and Portuguese departments, is located at 612 West 116<sup>th</sup> Street; the 10-story Watson Hall, which houses the University's Information Technology department and the School of the Arts, is located at 612 West 115<sup>th</sup> Street; and the five-story Kraft Center, which houses the Columbia University/Barnard College Hillel and Jewish life resources, is located at 606 West 115<sup>th</sup> Street. In addition, the St. Hilda's and St. Hugh's School, an independent Episcopalian elementary and middle school, is located at 619 West 114<sup>th</sup> Street, and has an additional entrance on West 115<sup>th</sup> Street, and the Korean Methodist Church and Institute is located at 633 West 115<sup>th</sup> Street.

The majority of the remainder of the study area consists of residential uses. Directly west of the Project Site across Claremont Avenue, on the superblock bounded by West 119<sup>th</sup> Street to the north, Claremont Avenue to the east, West 116<sup>th</sup> Street to the south, and Riverside Drive to the west, is a series of mid- to high-rise buildings, almost all of which are controlled by Columbia University and serve as residential dormitories for students. The two structures on that

superblock not controlled by Columbia University—468 and 440 Riverside Drive—are both high-rise residential buildings. In addition, there are several mid- and high-rise residential buildings located along West 115<sup>th</sup> Street, West 116<sup>th</sup> Street, and Riverside Drive.

Commercial uses within the study area are limited to ground-floor neighborhood retail stores located within the C1-4 overlay districts located along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street.

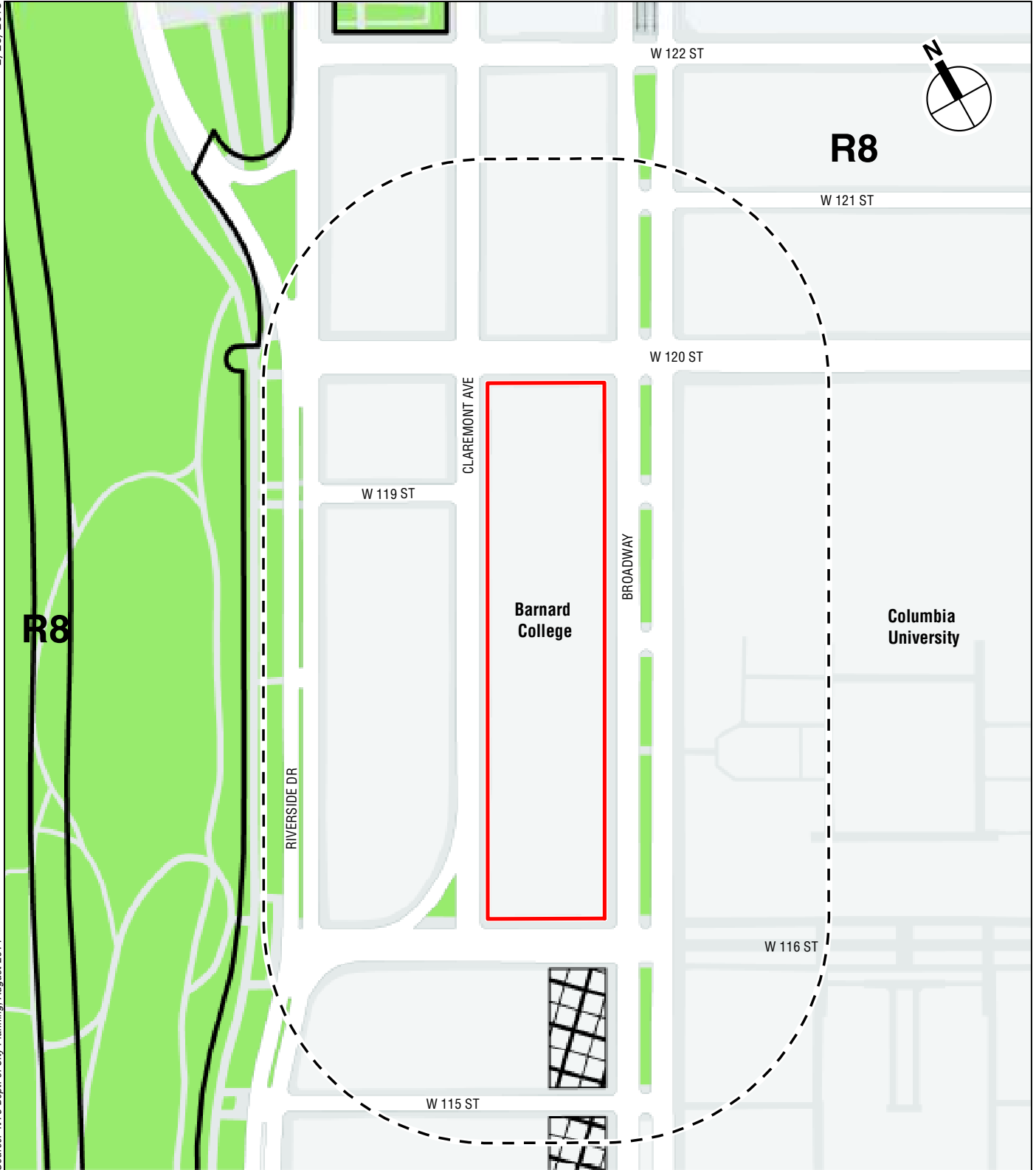
Open spaces within the study area largely consist of the Columbia University and Barnard College campuses, which contain substantial amounts of landscaped space, outdoor seating areas, and open lawns suitable for light recreation activities.

**Development Site Zoning and Public Policy.** As shown in **Figure 2-2**, the Development Site is located within a R8 General Residence District, according to the *Zoning Resolution of the City of New York*<sup>1</sup>. R8 districts are mapped in built-up, high-density areas that are well served by mass transit; building typologies within R8 districts can range from mid-rise, eight- to ten-story buildings to larger-scale, high-rise buildings with greater setbacks from the street. Bulk is regulated by either height factor or Quality Housing regulations. Height factor regulations produce small multifamily buildings on small zoning lots, and tall buildings set back from the street on larger lots. Quality Housing regulations produce high lot coverage buildings within height limits that reflect the scale of the buildings in the surrounding neighborhood. The allowable floor area ratio (“FAR”) in R8 districts using height factor regulations ranges from 0.94 to 6.02 for residential uses, and is 6.5 for community facility uses (see **Table 2-1**); using Quality Housing regulations, the maximum FAR for residential uses is 7.2 on a wide street or 6.02 on a narrow street, while the maximum for community facility uses is 6.5.

**Table 2-1. Zoning Districts in the Study Area**

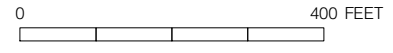
Zoning District	Maximum FAR <sup>1</sup>	Uses/Zone Type
R8	0.94 to 6.02 residential using height factor regulations 7.2 residential using Quality Housing regulations <sup>2</sup> 6.5 community facility	General residence district, higher-density housing
C1-4	2.0 commercial within R8 district	Commercial overlay for local retail within residence district
<b>Notes:</b> <sup>1</sup> 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 a FAR of 1 has an allowable building area of 10,000 square feet. The same lot with an FAR of 10 has an allowable building area of 100,000 square feet. <sup>2</sup> Under Quality Housing Program: 7.2 FAR on wide streets outside of Manhattan Core, 6.02 FAR on wide streets within the Manhattan Core, and 6.02 FAR on narrow streets. <b>Source:</b> <i>New York City Zoning Resolution.</i>		


<sup>1</sup> <http://www.nyc.gov/html/dcp/html/subcats/zoning.shtml>



 Project Site

 C1-4 Commercial Overlay District



 Study Area (400-foot boundary)

 Zoning Districts

### ***Project Site and Study Area Zoning and Public Policy***

**Zoning.** The R8 residential district that is mapped on the Development Site is also mapped throughout the study area. There are C1-4 Commercial Overlay Districts mapped along the west side of Broadway between West 114<sup>th</sup> Street and West 116<sup>th</sup> Street. C1-4 commercial overlays are mapped in residence districts along streets that serve local retail needs. As the C1-4 district is mapped over a R8 district, the maximum commercial FAR is 2.0.

*State Smart Growth Public Infrastructure Policy Act.* New York State enacted the *State Smart Growth Public Infrastructure Policy Act* (“SSGPIPA”) in 2010, intended to minimize the unnecessary cost of sprawl development facilitated by the funding or development of new or expanded transportation, sewer and waste water treatment, water, education, housing and other publicly supported infrastructure inconsistent with smart growth public infrastructure criteria. This law requires state infrastructure agencies, such as DASNY, to ensure public infrastructure projects undergo a consistency evaluation and attestation using the 10 smart growth criteria established by the legislation:

- To advance projects for the use, maintenance or improvement of existing infrastructure;
- To advance projects located in municipal centers;
- To advance projects in developed areas or areas designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan;
- To protect, preserve and enhance the state’s resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources;
- To foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, diversity and affordability of housing in proximity to places of employment recreation and commercial development and the integration of all income and age groups;
- To provide mobility through transportation choices including improved public transportation and reduced automobile dependency;
- To coordinate between state and local government and intermunicipal and regional planning;
- To participate in community-based planning and collaboration;
- To ensure predictability in building and land use codes; and
- To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad-based public involvement in developing and

implementing a community plan and ensuring the governance structure is adequate to sustain its implementation.<sup>2</sup>

Most state agencies and authorities, including DASNY, are subject to SSGPIPA when they consider whether to undertake, approve, support or finance the construction or reconstruction of new or expanded public infrastructure.<sup>3</sup> To the extent practicable, projects must align with the 10 smart growth criteria. If the project does not meet the relevant criteria or “compliance is considered to be impracticable”, a statement of justification of such noncompliance should be prepared by the state agency or authority.<sup>4</sup>

### ***The Future Without the Proposed Project***

This section describes conditions that are expected to exist in the 2018 build year for the Proposed Project, assuming that the project is not built.

***Land Use.*** In the future without the Proposed Project, the Development Site would remain unchanged. The Lehman Building would continue to house the Wollman Library and the other academic uses currently operating. There is one other planned development expected to be completed in the study area by the 2018 build year: the construction of a new facility by the Korean Methodist Church on the same site as their existing building. That project would not add any new residents or commercial uses to the study area.

***Zoning and Public Policy.*** No changes in zoning or public policy are currently planned for the Development Site or within the study area. Therefore, it is expected that the existing zoning districts would remain in place. The *Smart Growth Public Infrastructure Policy Act* would continue to influence development.

### ***The Future With the Proposed Project***

***Land Use.*** The Proposed Project would result in the demolition of the existing 4-story, 65,000-gsf Lehman Hall and the construction of a new, approximately 133,000-gsf Teaching and Learning Center. The new 11-story building would occupy the footprint of the existing Lehman Hall, as well as extend northward and southward to abut the adjacent Altschul Hall and Barnard Hall, respectively. The building would consist of a five-story podium on the southern side, adjacent to Barnard Hall, and an 11-story tower on the northern side. As in the existing condition, the building’s frontage onto the Barnard College campus would abut walking paths and landscaped open space. Unlike the existing Lehman Hall, the side of the Center fronting onto Claremont Avenue would have entrances and exits and full-height windows, thus enlivening the streetscape.

As described in Chapter 1, “Project Description,” the Center would include common and informal study areas, teaching and learning space, a conference area, space for the history,

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<sup>2</sup> <https://www.dot.ny.gov/programs/smart-planning/news>

<sup>3</sup> <http://lawoftheland.wordpress.com/2010/10/25/ny-enacts-smart-growth-public-infrastructure-policy-act/>

<sup>4</sup> <http://blog.sprlaw.com/2010/09/smart-growth-public-infrastructure-policy-act-takes-effect-on-september-29-2010/>



political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Proposed Project would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard's population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would provide a new library, individual and group study space, access to resources and help for students and faculty, and improved conference space, including flexible meeting spaces and smaller break-out rooms.

In addition, portions of Barnard Hall, particularly the LeFrak Gymnasium, would be renovated as part of the Proposed Project prior to the commencement of demolition and new construction on the Development Site. The swing space that would be created by the renovation would serve as replacement facilities for College activities during the construction period of the new Center. Upon completion of the Teaching and Learning Center, the swing space would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

The Proposed Project would result in the expansion of an existing institutional land use on the Development Site. The new academic building would provide new facilities for Barnard College that would help alleviate existing facility shortages on other portions of the campus. As no change in land use is proposed, activity on the Development Site would continue to be compatible with the other land uses found in the study area. In addition, the increase in development on the Development Site is not likely to change development trends in the larger study area or introduce new development projects that would not occur absent the Proposed Project. In fact, the new Center would be more similar in scale to newer buildings on the Columbia University campus, across the street from Barnard.

Based on the above information, the Proposed Project would not result in any significant adverse land use impacts.

**Zoning.** The Proposed Project would conform with all bulk and use requirements within the R8 zoning district. The proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable FAR for the Development Site. Based on 6.5 FAR for community facilities in R8 districts and a lot area of 189,466 square feet, the maximum potential development on the Project Site is approximately 1,231,529 zoning square feet; accounting for the floor area of existing campus buildings as indicated on recent New York City Department of Buildings filings, while the Proposed Project would increase zoning floor area on the Development Site, the FAR on the Project Site would still be within the allowable FAR for such uses.

Therefore, the Proposed Project would not result in significant adverse impacts on zoning.

## ***Public Policy***

***State Smart Growth Public Infrastructure Policy Act.*** The Proposed Project would be consistent with the 2010 *SSGPIPA* and would generally support the smart growth criteria established by the legislation. The compatibility of the Proposed Project with the ten criteria of the *SSGPIPA* is detailed below.

- ***To advance projects for the use, maintenance or improvement of existing infrastructure.*** The Proposed Project, which would result in the development of a new building to replace the existing academic facility, would connect to the water supply, sewer, and energy infrastructure on the Project Site superblock. Relative to the existing facility, the new building's demands on the New York City water supply, sewers, and energy infrastructure would be negligible. Moreover, the new building's design would adhere to the guidelines for LEED Silver certification, which include best practices for sustainable resource consumption and management. Therefore, the Proposed Project would be supportive of this criterion.
- ***To advance projects located in municipal centers.*** As the Development Site is located within the existing campus of Barnard College, on the Upper West Side of Manhattan in New York City, the Proposed Project would be supportive of this criterion.
- ***To advance projects in developed areas or areas designated for concentrated infill development in a municipally-approved comprehensive land use plan, local waterfront revitalization plan and/or brownfield opportunity area plan.*** The Proposed Project would add much-needed facilities land within an existing, developed college campus, supporting concentrated infill development. As a result, the Proposed Project would be supportive of this criterion.
- ***To protect, preserve and enhance the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources.*** As shown in Chapters 4, "Historic and Cultural Resources," Chapter 6, "Air Quality," and Chapter 8, "Additional Technical Information," the Proposed Project would not have any significant adverse impacts on the state's resources, including agricultural land, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and significant historic and archaeological resources. Therefore, the Proposed Project would be supportive of this criterion.
- ***To foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, diversity and affordability of housing in proximity to places of employment recreation and commercial development and the integration of all income and age groups.*** The Proposed Project would foster compact development by constructing facilities on currently-occupied land within an existing college campus. The Proposed Project would also preserve the open space currently on the Barnard College campus, as well as beautify its surrounding area. Therefore, the Proposed Project would be supportive of this criterion.

- ***To provide mobility through transportation choices including improved public transportation and reduced automobile dependency.*** The Project Site is well served by public transportation. The Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line stops at the 116<sup>th</sup> Street station, located directly adjacent to the College; in addition, the MTA-NYCT M4, M60, and M104 bus lines, which provide service along Broadway, and the M5 bus line, which provides service along Riverside Drive, are in close proximity to the College. Columbia University also provides an Intercampus Shuttle service, which is free to Columbia and Barnard students, faculty, and staff, and operates on weekdays. Although the Proposed Project would not provide any new transportation options, it would be supportive of this criterion.
- ***To coordinate between state and local government and intermunicipal and regional planning.*** The planning for, and approval of, the Proposed Project would require coordination between multiple City and State agencies. DASNY, acting as lead agency, is conducting a coordinated review of the Proposed Project in accordance with New York’s *State Environmental Quality Review Act* (“SEQRA”). The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“SHPA”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“PRHPL”), as well as with the requirements of the Memorandum of Understanding (“MOU”), dated March 18, 1998, between the Dormitory Authority State of New York (“DASNY”) and the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”). Other involved and interested parties include, but are not limited to, the NYC Landmarks Preservation Commission, Manhattan Community Board 9 and elected officials. Therefore, the Proposed Project would be supportive of this criterion.
- ***To participate in community-based planning and collaboration.*** In accordance with SEQRA and CEQR guidelines, the EAF will be made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.
- ***To ensure predictability in building and land use codes.*** As described above, the Proposed Project conforms with the R8 zoning district regulations, and would not result in any significant adverse impacts on land use, zoning, or public policy. As described above, the proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable FAR for the Project Site. In addition, the Proposed Project would result in the expansion of an existing institutional land use on the Development Site that would provide new library and academic facilities for Barnard College to continue to provide a top-flight education to its students. As no change in land use is proposed, activity on the Development Site would continue to be compatible with the other land uses found in the study area. For all of these reasons, the Proposed Project would be supportive of this criterion.
- ***To promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad-based public involvement in***

*developing and implementing a community plan and ensuring the governance structure is adequate to sustain its implementation.* The Proposed Project would seek LEED Silver certification. In addition, as described above, it would encourage public involvement through the public comment process and through ongoing public consultations in accordance with *SEQRA* and *CEQR* guidelines. For these reasons, the Proposed Project would be supportive of this criterion.

Overall, no significant adverse impacts on land use, zoning, or public policy are anticipated as a result of the Proposed Project.

## CHAPTER 3. SHADOWS

### *Introduction*

This chapter examines whether the proposed Teaching and Learning Center would cast new shadows on any nearby publicly-accessible sunlight-sensitive resources of concern. According to the *City Environmental Quality Review (“CEQR”) Technical Manual*, sunlight-sensitive resources of concern include public open space, sunlight-dependent features of historic architectural resources, and natural resources that depend on sunlight.

### *Definitions and Methodology*

This analysis has been prepared in accordance with New York City Environmental Quality Review (“CEQR”) procedures and follows the guidelines of the 2014 *CEQR Technical Manual*.

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

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

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

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

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g. front and back yards, stoops, vacant lots, and any private, non-publicly-accessible open space);

- *Project-generated open space* cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist. However, if the condition of project-generated open space is included in the qualitative analysis presented in the Open Space chapter of the EIS, a discussion of how shadows would affect the new space may be warranted.

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

**Methodology.** Following the guidelines of the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, a preliminary screening assessment must first be conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier determines a simple radius around the proposed building representing the longest shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.

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

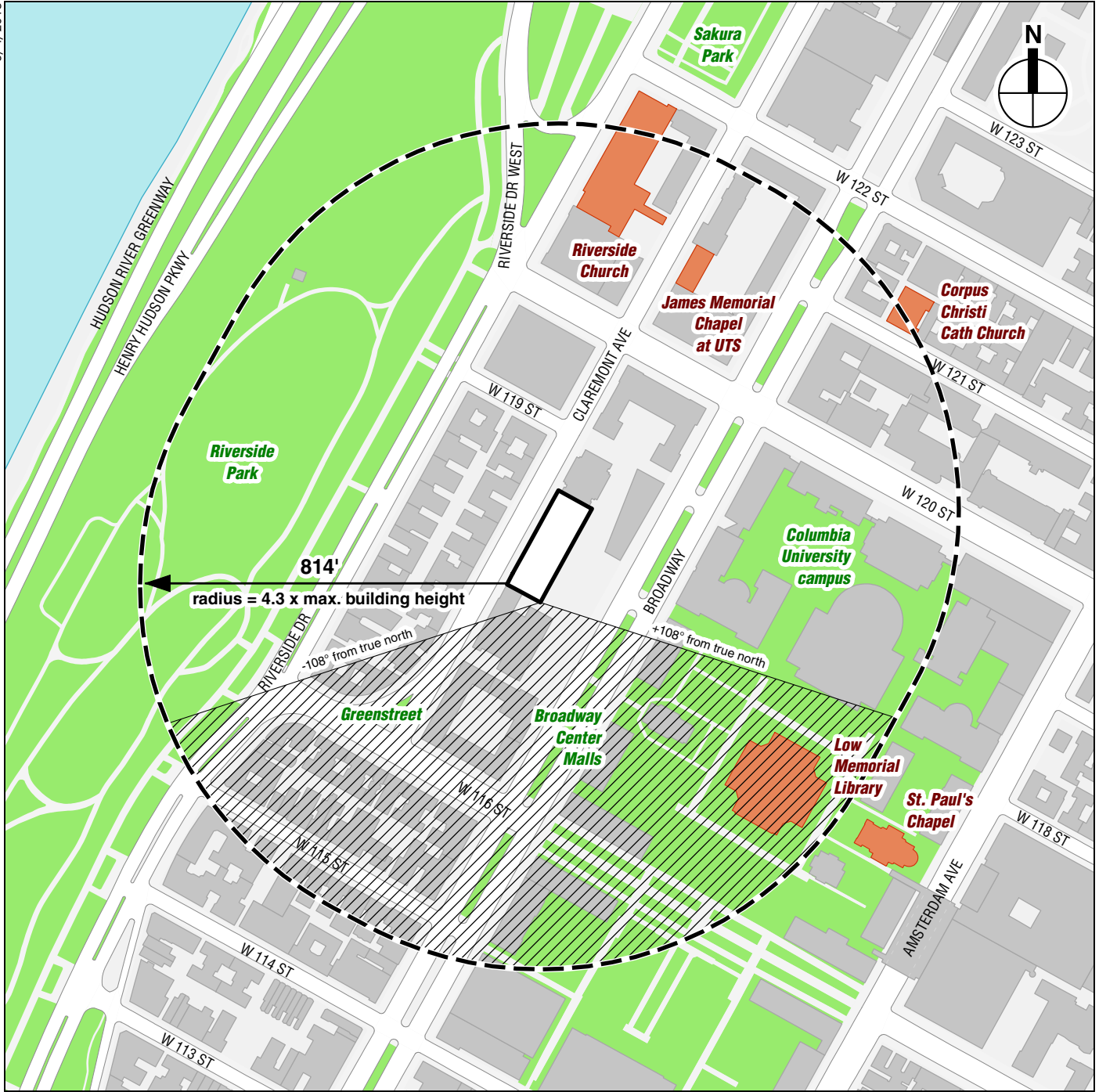
If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the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






### ***Preliminary Screening Assessment***

A base map was developed using Geographic Information Systems ("GIS")<sup>1</sup> showing the location of the proposed project and the surrounding street layout (see **Figure 3-1**). In

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<sup>1</sup> Software: Esri ArcGIS 10.2; Data: New York City Department of Information Technology and Telecommunications (DoITT) and other City agencies, and AKRF site visits.



-  Proposed building footprint
-  Tier 1: Longest shadow study area boundary
-  Tier 2: Area south of site that could never be shaded by proposed building
-  Publicly-Accessible Open Space
-  Historic Resources with Sunlight-Sensitive Features

0 400 FEET

coordination with the land use and historic resource assessments presented in other chapters of this EAF, potential sunlight-sensitive resources were identified and shown on the map<sup>2</sup>.

**Tier 1 Screening Assessment.** For the Tier 1 assessment, the longest shadow that the proposed structure could cast is calculated, and, using this length as the radius, a perimeter is drawn around the project 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.

Therefore, at a maximum height of 189.25 feet above curb level, including rooftop parapet and mechanical space, the proposed Teaching and Learning Center could cast a shadow up to 814 feet in length (189.25 x 4.3). Using this length as the radius, a perimeter was drawn around the project site (see **Figure 3-1**). Since a number of publicly-accessible sun-sensitive resources lay within the perimeter or longest shadow study area, the next tier of screening assessment was conducted.

**Tier 2 Screening Assessment.** Because of the path that the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given project site. In New York City this area lies between -108 and +108 degrees from true north. **Figure 3-1** illustrates this triangular area south of the project site. The complementing area to the north within the longest shadow study area represents the remaining area that could potentially experience new project generated shadow.

As shown in **Figure 3-1**, portions of three publicly-accessible open space resources are located in the remaining longest shadow study area. In addition, three historic resources that have publicly-accessible sunlight-sensitive features are located in the remaining longest shadow study area: Riverside Church, the James Memorial Chapel of the Union Theological Seminary complex, and Corpus Christi Catholic Church. Therefore, the next tier of assessment was conducted.

**Tier 3 Screening Assessment.** The direction and length of shadows vary throughout the course of the day and also differ depending on the season. In order to determine whether project-

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<sup>2</sup> The Union Theological Seminary complex is listed on the New York State and National Registers of Historic Places; in addition, the Brown Memorial Tower and James Memorial Tower and Chapel portions of the complex are a designated New York City Landmark. The stained-glass windows of the James Memorial Chapel and Tower and the Brown Memorial Tower are sunlight-dependent features of the resource. However, based on research and a site visit on March 4, 2015, only the James Memorial Chapel is accessible to the public, while the two towers are not. Also, the Columbia University campus is generally publicly-accessible as an open space. The portion of the campus bounded by Broadway on the west, Amsterdam Avenue on the east, West 114th Street on the south, and an irregular line that includes Schermerhorn Hall, the steps of Uris Hall, and Havemeyer Hall on the north was determined S/NR-eligible as a historic district on May 9, 1980 by the New York State Committee on the Registers. However, the procedures for listing on the NR were being changed at the time and the potential district has not been listed.



generated shadow could fall on a sunlight-sensitive resource, three-dimensional (“3D”) computer modeling software<sup>3</sup> is used in the Tier 3 assessment to calculate and display the proposed project’s shadows on individual representative days of the year. A computer model was developed containing three-dimensional representations of the elements in the base map used in the preceding assessments, the topographic information of the study area, and a reasonable worst-case three-dimensional representation of the proposed project.

**Representative Days for Analysis.** Following the guidance of the *CEQR Technical Manual*, shadows on the summer solstice (June 21), winter solstice (December 21) and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, generally the day halfway between the summer solstice and the equinoxes, i.e. May 6 or August 6, which have approximately the same shadow patterns.

**Timeframe Window of Analysis.** The shadow assessment considers shadows occurring between one and a half hours after sunrise and one and a half hours before sunset. At times earlier or later than this timeframe window of analysis, the sun is down near the horizon and the sun’s rays reach the Earth at very tangential angles, diminishing the amount of solar energy and producing shadows that are very long, move fast, and generally blend with shadows from existing structures until the sun reaches the horizon and sets. Consequently, shadows occurring outside the timeframe window of analysis are not considered significant under CEQR, and their assessment is not required.

**Tier 3 Screening Assessment Results.** Figure 3-2 illustrates the range of shadows that would occur, in the absence of intervening buildings, from the proposed Teaching and Learning Center on the four representative days for analysis. As they move east and clockwise over the landscape, the shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset).

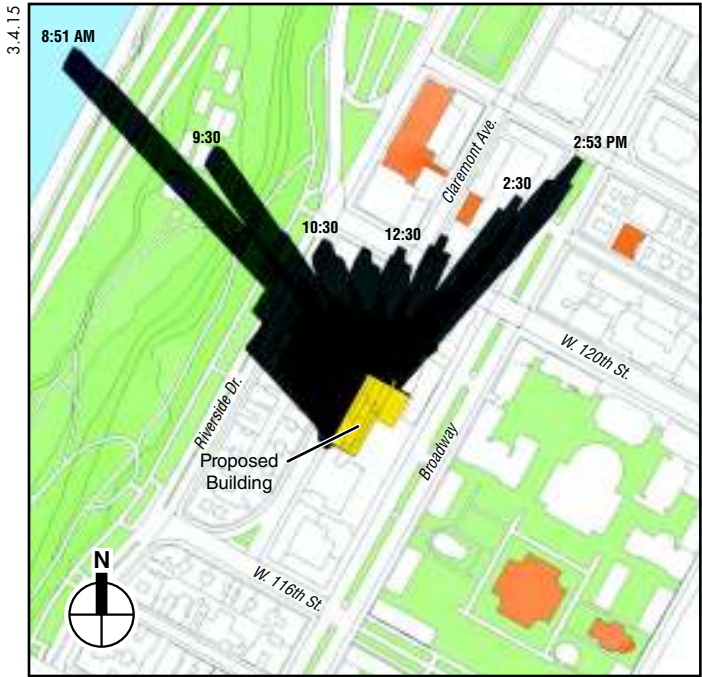
The assessment showed that the proposed building’s shadow would be long enough to reach Riverside Park in the morning on all four analysis days, a section of the Broadway Malls around West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall, and the northwest area of the Columbia University campus in the spring, summer and fall as well. No other open spaces or historic resources could be affected by project-generated shadow.

Due to the highly variable topography, the project’s shadow would also be long enough to reach onto the Hudson River, a sunlight-sensitive natural resource, briefly at the start of the winter analysis day.

A detailed analysis was required to determine the extent and duration of new shadows on Riverside Park, the Broadway Malls, the Columbia University campus, and the Hudson River, accounting for intervening buildings and existing shadows.

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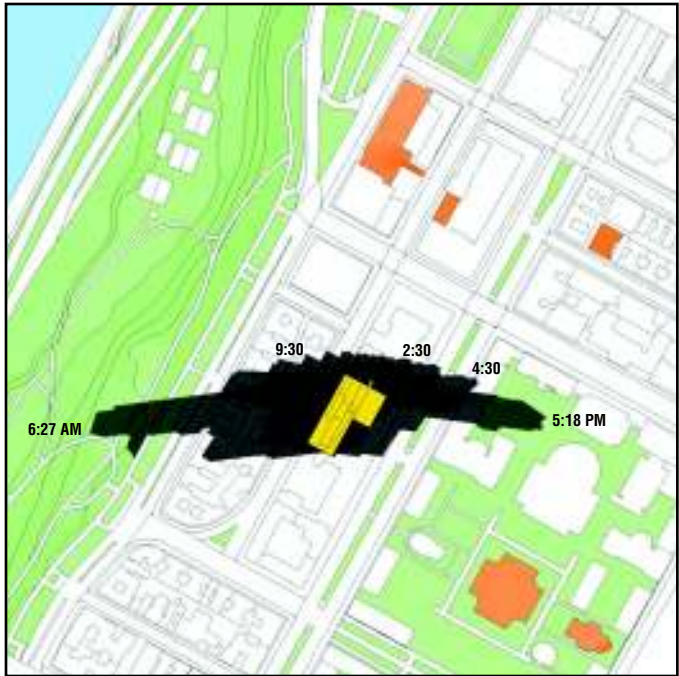
<sup>3</sup> MicroStation V8i (SELECTSeries 3)



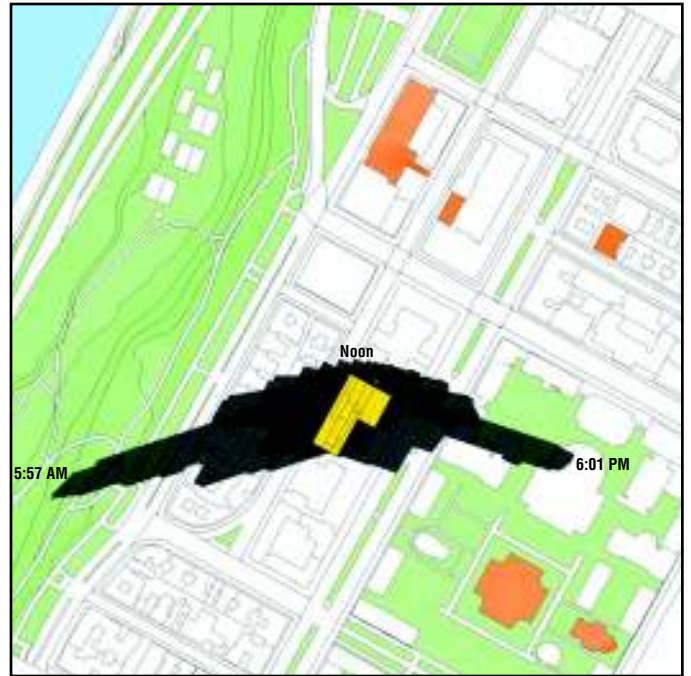
December 21



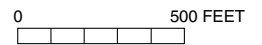
March 21/Sept. 21



May 6/August 6



June 21



- Proposed Building
- Publicly-Accessible Open Space (see Figure 3-1)
- Historic Resource with Sun-Sensitive Features (see Figure 3-1)
- Shadow

Notes:

1. Daylight Saving Time not used per CEQR guidelines.
2. Shadows are shown occurring approximately every 60 minutes from the start of the analysis day (one and a half hours after sunrise) to the end of the analysis day (one and a half hours before sunset). The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed project's shadow across the landscape.

**Detailed Shadow Analysis**

For the detailed analysis, a No Action condition is established, containing existing buildings and any future developments planned in the area, to model the baseline shadows. The future condition with the proposed project and its shadows can then be compared to the baseline condition to determine the incremental shadows that would result with the proposed project.

Three-dimensional representations of the existing buildings in the study area were developed using data obtained from the New York City Department of Information Technology and Telecommunications (“DoITT”) and photos taken during project site visits, and were added to the three-dimensional model used in the Tier 3 assessment.

Shadows are in constant movement. The computer simulation software produces an animation showing the movement of shadows over the course of each analysis period. The analysis determines the time when incremental shadow would enter each resource, and the time it would exit.

Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

**Table 3-1** summarizes the entry and exit times and total duration of incremental shadows on each affected sun-sensitive resource. **Figure 3-3** documents the results of the analysis by providing graphic representations from the computer animation of times when incremental shadow would fall on a sun-sensitive resource. The figures illustrate the extent of additional, incremental shadow at that moment in time, highlighted in red, and also show existing shadow and remaining areas of sunlight.

**Table 7-3. Incremental Shadow Durations**

	<b>December 21</b> 8:51 a.m.-2:53 p.m.	<b>March 21 / Sept. 21</b> 7:36 a.m.-4:29 p.m.	<b>May 6 / August 6</b> 6:27 a.m.-5:18 p.m.	<b>June 21</b> 5:57 a.m.-6:01 p.m.
Hudson River	8:51 a.m.-8:58 a.m. Total: 7 min	—	—	—
Riverside Park	8:51 a.m.-10:05 a.m. Total: 1 hr 14 min	—	—	—
Broadway Malls	—	3:35 p.m.-4:29 p.m. Total: 54 min	3:45 p.m.-5:18 p.m. Total: 1 hr 33 min	4:00 p.m.-6:00 p.m. Total: 2 hr
<b>Notes:</b> Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource. Daylight saving time is not used — times are Eastern Standard Time, per <i>CEQR Technical Manual</i> guidelines. However, as Eastern Daylight Time is in effect for the March/September, May/August and June analysis periods, add one hour to the given times to determine the actual clock time.				

The detailed analysis showed that on December 21, shadow would fall on the Hudson River for the initial 7 minutes of the analysis day. This minimal duration of new shadow would not impact the river.





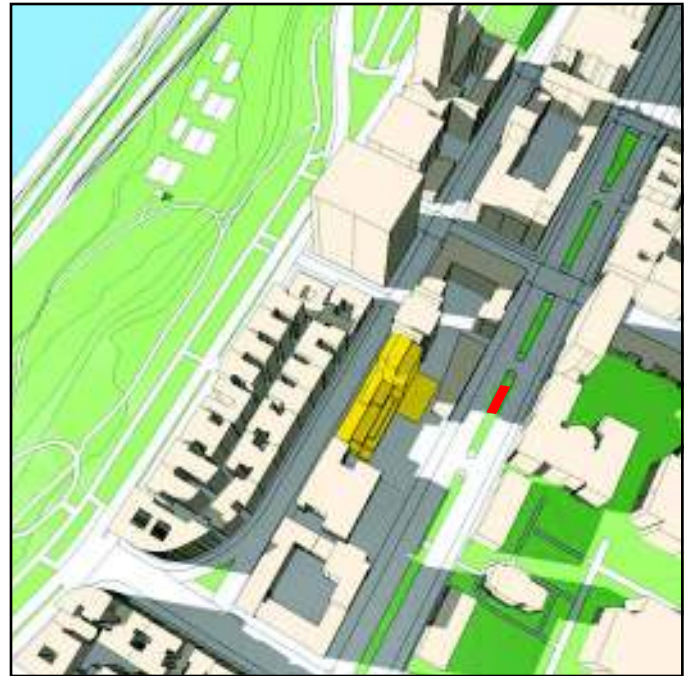
December 21 - 9:30 AM



March 21/Sept. 21 - 4:00 PM



May 6/August 6 - 4:30 PM



June 21 - 5:00 PM

- Proposed Building
- Publicly-Accessible Open Space (see Figure 3-1)
- Incremental Shadow on Sun-Sensitive Resource

Notes:  
 1. Daylight Saving Time not used per CEQR guidelines.

Incremental shadow would fall onto portions of Riverside Park for the first hour and 15 minutes of the analysis day. The winter months are not within New York City's growing season, and the new shadow would therefore not affect the vegetation. During the hour and 15 minute duration of new shadow, adjacent areas of Riverside Park would remain in sun for any users braving the winter morning weather and seeking sun, and the impact would therefore not be significant for recreational use.

During the spring, summer and fall analysis periods, the intervening buildings west of Claremont Avenue would prevent incremental project-generated shadow from reaching Riverside Park.

Similarly, in the late afternoons, when project-generated shadow could otherwise fall onto a portion of Columbia University's campus, the intervening campus buildings along the east side of Broadway already cast shadows on those areas, and no incremental shadow would occur in any season.

Shadow would fall on a small section of one of the Broadway Malls adjacent to West 119<sup>th</sup> Street in the afternoon of the spring, summer and fall seasons, ranging from approximately one to two hours in duration. This relatively brief period of new shadow would not significantly impact the vegetation of the Malls, due to the amount of sunlight available to the resource in the remainder of the day. In addition, the project-generated shadows would not be anticipated to adversely affect the usability of the Malls, given that they are used more as a visual resource than an open space resource. In any case, the incremental shadow would mostly not fall on the benches at the intersection of Broadway and West 119<sup>th</sup> Street, and during the periods when it would, other nearby benches within sight would remain in sun for users seeking sunlit seating. Therefore the new shadow would not significantly impact the Malls.

## CHAPTER 4. HISTORIC AND CULTURAL RESOURCES

### *Introduction*

This section assesses the potential of the Proposed Project to affect historic and cultural resources. The Proposed Project is being reviewed in conformance with the *New York State Historic Preservation Act of 1980* (“SHPA”), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* (“PRHPL”), as well as with the requirements of the Memorandum of Understanding (“MOU”), dated March 18, 1998, between the Dormitory Authority State of New York (“DASNY”) and the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”).

The Development Site is located on a portion of Manhattan Tax Block 1989, Lot 1 on the campus of Barnard College in Morningside Heights, Manhattan. Following the guidelines of the 2014 *City Environmental Quality Review (CEQR) Technical Manual*, the historic resources study area for this project is defined as being within an approximately 400-foot radius of the project site (see **Figure 4-1**). Within the study area, architectural resources that were analyzed include properties listed on the State or National Register of Historic Places (“S/NR”) or properties determined eligible for such listing (“S/NR-eligible”), New York City Landmarks (“NYCLs”) and Historic Districts, properties determined eligible for landmark status, and National Historic Landmarks (“NHLs”). Additionally, a survey was conducted to identify any previously undesignated properties in the study area that were then evaluated for their potential S/NR or NYCL eligibility.

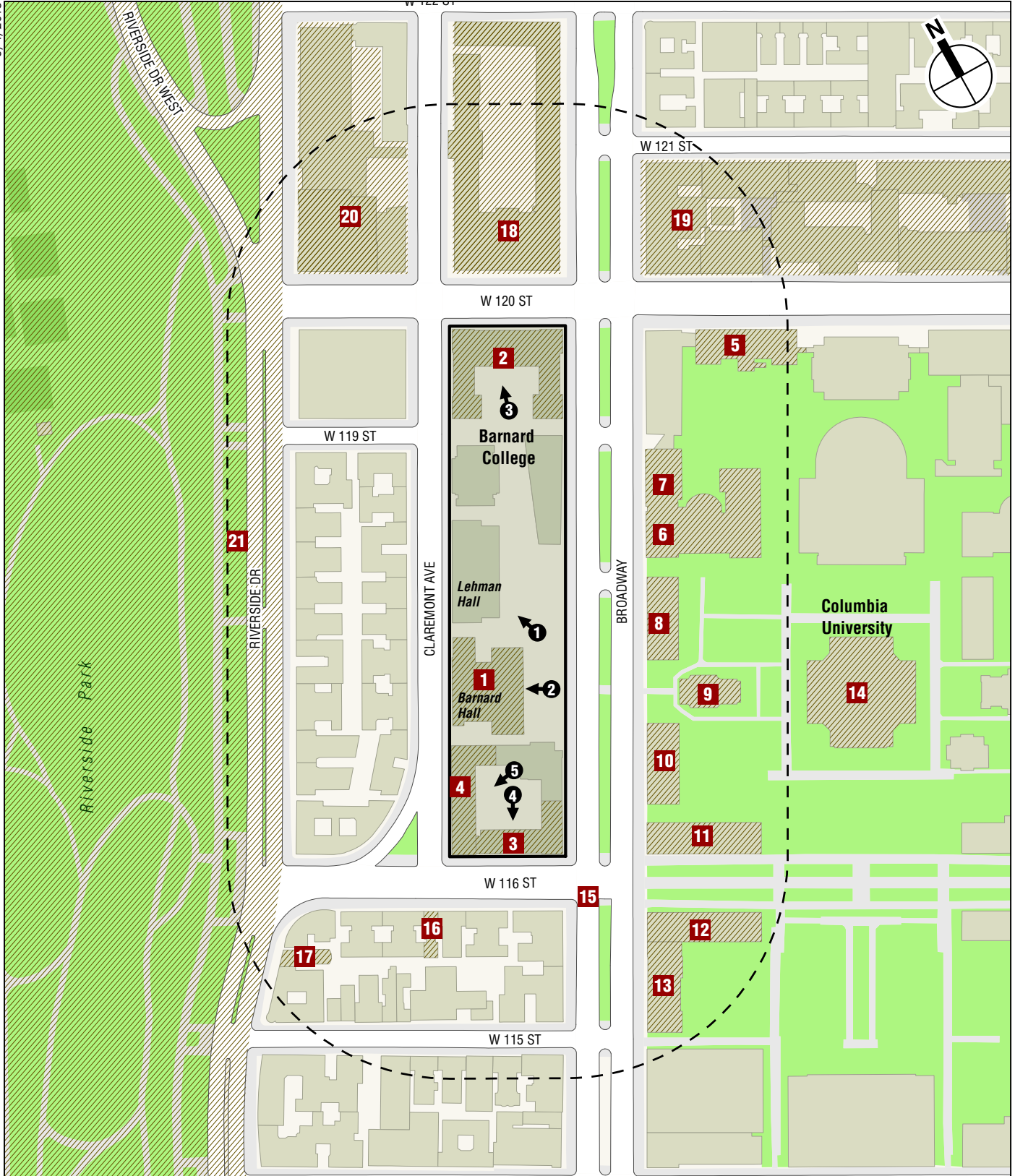
For archaeological resources, the study area is the Development Site, which would require excavation for the construction of the Teaching and Learning Center. DASNY has submitted the Proposed Project to the New York State Office of Parks, Recreation and Historic Preservation (“OPRHP”) for review. If OPRHP determines the Development Site to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared.

In general, potential impacts to architectural resources can include both direct physical effects (e.g., demolition, alteration, or damage from construction on nearby sites) and indirect, contextual effects, such as the isolation of a property from its surrounding environment, or the introduction of visual, audible, or atmospheric elements that are out of character with a property or that alter its setting. The study area for architectural resources is, therefore, larger to account for any potential impacts that may occur where proposed construction activities could physically alter architectural resources or be close enough to them to potentially cause physical damage or visual or contextual impacts.

The Proposed Project is not expected to have significant adverse impacts on archaeological and architectural resources. Although the context of the architectural resources on the Development Site and Project Site and in the study area would be somewhat altered by the addition of a new building to the Development Site, the proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the



3/4/2015



Project Site  
 Study Area (400-foot boundary)

Designated Resource  
 Photograph View Direction and Reference Number

0 200 FEET

Morningside Heights neighborhood. The proposed building would be of comparable height or shorter than a number of buildings in the study area as well as Barnard's campus. Cladding materials would be chosen to complement the nearby historic buildings, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources in the surrounding area and the modern design of the proposed building.

The Development Site is located within 90 feet of Barnard Hall (S/NR-eligible), which could potentially be adversely affected by ground-borne construction-period vibrations or other unanticipated potential construction-related impacts. Therefore, to avoid potential adverse physical impacts on this building, the Proposed Project would develop and implement a construction protection plan ("CPP") in consultation with OPRHP.

### ***Existing Conditions***

***Development Site.*** The Development Site is located on the western portion of the Barnard College campus superblock (Block 1989, Lot 1) and is currently occupied by Lehman Hall (see View 1 of **Figure 4-2**). Lehman Hall was designed by O'Connor & Kilham and built in 1959, one of the first buildings added to Barnard's campus since 1926. The library/classroom building's design marks a distinct break in architectural style from the campus's earlier, classically-designed buildings. Because of the topography of this area of Manhattan, the building's western, Claremont Avenue façade rises five stories and its eastern facade, at the campus level, rises three stories. The east façade is characterized by a three-story, glass-enclosed space that cantilevers over a columned arcade and is faced in an irregularly gridded concrete *brise soleil*<sup>1</sup>. Lehman Hall was previously determined by OPRHP to be not eligible for listing on the Registers.

As described above, DASNY has submitted the Proposed Project to OPRHP for review. If OPRHP determines the Development Site to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared.

***Project Site and Study Area.*** The Barnard College campus main campus — bounded by Claremont Avenue, Broadway, and West 116<sup>th</sup> and 120<sup>th</sup> Streets — composes the Project Site.

Directly south of the Development Site on Barnard's campus is the 4-story Barnard Hall (S/NR), which contains a wide variety of student resources and academic facilities, as well as a swimming pool, track, and gymnasium (see View 2 of **Figure 4-2**). Barnard Hall, built in 1916, was the first major expansion of Barnard College's academic facilities following the completion of the original Milbank Hall complex in 1898. As defined in the Project Description, the Proposed Project would also include the renovation of Barnard Hall's 9,700-gsf LeFrak Gymnasium to provide campus swing space for the temporary relocation of the academic uses currently located in Lehman Hall during the construction of the new Teaching and Learning Center. Upon completion of the Teaching and Learning Center, the swing space in the first floor

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<sup>1</sup> *Brise soleil* is an architectural feature of a building which reduces heat gain within that building by deflecting sunlight (e.g., a sun baffle outside the windows or extending over the entire surface of a building's façade).





Lehman Hall 1



Barnard Hall 2

of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

Milbank Hall (S/NR) is the original Barnard College building complex that comprises Milbank Hall (1897), Brinkerhoff Hall (1898), and Fiske Hall (1897). Milbank Hall, designed by Lamb & Rich, is located at 600-614 West 120<sup>th</sup> Street and occupies the block bounded by Claremont Avenue, Broadway, and West 119<sup>th</sup> and West 120<sup>th</sup> Streets (West 119<sup>th</sup> Street is closed to traffic). The three interconnected buildings are each four stories with a raised basement that is faced in rusticated limestone. The upper floors are faced in red brick laid in Flemish bond. The detailing and trim are limestone and terra cotta on the first floor and white glazed terra cotta (imitation limestone) on the second through fourth floors. The complex is U-shaped and set around a central courtyard (see View 3 of **Figure 4-3**).

Brooks Hall (S/NR) is located at the southern end of Barnard's campus, along West 116<sup>th</sup> Street. It was built in 1906-1908 and named after the first president of Barnard's Board of Trustees, the Reverend Arthur Brooks. The building is clad in red brick and features a 1-story portico supported by Ionic columns on the ground floor of its north façade (see View 4 of **Figure 4-3**). It was designed by Charles Rich.

Hewitt Hall (S/NR) built in 1924-25, abuts Brooks Hall on the west and fronts on Claremont Avenue. It was designed by McKim Mead & White. According to Andrew Dolkart's *Morningside Heights: A History of its Architecture and Development*, construction of the dormitory was a concerted effort to increase the geographic diversity of students, a euphemism for the admission of elite Protestant students from outside of New York City in place of local students of Eastern European Jewish background. The building is clad in brick, limestone, and terra cotta and has Renaissance-inspired details (see View 5 of **Figure 4-4**).

Within the study area, there are an additional 18 known architectural resources. These are listed in **Table 4-1** and described below.

Pupin Hall/Pupin Physics Laboratory (NHL, S/NR), which was designed by McKim, Mead & White and was built in 1925-1927, is located across Broadway on the Columbia University campus. The basement of this 12-story red brick building with limestone trim, a copper cornice, and a centrally-located rooftop observatory is the site where, on January 25, 1939, the first uranium atom was split in the United States using a cyclotron magnet. This event, along with the splitting of a uranium atom in Denmark ten days earlier on January 15, 1939, marked a turning point in world history and resulted in Federal support of atomic research efforts at Columbia that led to the development of the "Manhattan District Project" and the subsequent production of the atomic bomb.

The portion of the McKim Mead & White-designed Columbia University campus bounded by Broadway on the west, Amsterdam Avenue on the east, West 114<sup>th</sup> Street on the south, and an irregular line that includes Schermerhorn Hall, the steps of Uris Hall, and Havemeyer Hall on the north has been determined S/NR-eligible. This area was determined eligible as a historic district on May 9, 1980, by the New York State Committee on the Registers.





Milbank Hall 3



Brooks Hall 4





Hewitt Hall 5

However, the procedures for listing on the NR were being changed at the time and the potential district has not been listed. The following buildings in the 400-foot study area were designed and built as part of McKim, Mead & White’s 1894 master plan and 1926 expansion of the master plan and, except where noted otherwise, were determined eligible for designation as part of the S/NR-eligible historic district described above.

**Table 4-1. Architectural Resources Within the Project Site and Study Area.**

Ref. No.	Name	Address	NHL	S/NR-listed	S/NR-eligible	NYCL	NYCL-eligible
<b>PROJECT SITE</b>							
<b>Known Architectural Resources</b>							
1.	Barnard Hall	Barnard College, 3005 Broadway		X			
2.	Millbank Hall	Barnard College, 600-614 West 120 <sup>th</sup> Street		X			
3.	Brooks Hall	Barnard College, 3009 Broadway		X			
4.	Hewitt Hall	Barnard College, 3009 Broadway		X			
<b>STUDY AREA</b>							
<b>Known Architectural Resources</b>							
5.	Pupin Hall	Columbia University, 538 West 120 <sup>th</sup> Street	X	X			
6.	Havemeyer Hall	Columbia University, 3000 Broadway			X		
7.	Chandler Hall	Columbia University, 3010 Broadway			X		
8.	Mathematics Hall	Columbia University, 2990 Broadway			X		
9.	Earl Hall	Columbia University, 2980 Broadway			X		
10.	Lewisohn Hall	Columbia University, 2970 Broadway			X		
11.	Dodge Hall	Columbia University, 2960 Broadway		X			
12.	Journalism Hall	Columbia University, 2950 Broadway			X		
13.	Furnald Hall	Columbia University, 2940 Broadway			X		
14.	Low Library	Columbia University	X	X		X <sup>1</sup>	
15.	116 <sup>th</sup> Street-Columbia University Subway Station	116 <sup>th</sup> Street and Broadway		X		X <sup>2</sup>	
16.	Casa Hispanica	612 West 116 <sup>th</sup> Street			X		
17.	Alpha Club	434 Riverside Drive		X			
18.	Union Theological Seminary	Block bounded by Broadway, Claremont Avenue, West 120 <sup>th</sup> and 122 <sup>nd</sup> Streets		X		X <sup>3</sup>	
19.	Teachers College Historic District	Block bounded by Amsterdam Avenue, Broadway, and West 120 <sup>th</sup> and 121 <sup>st</sup> Streets			X		X
20.	Riverside Church	490-498 Riverside Drive		X		X	
21.	Riverside Park and Drive			X		X	
22.	Morningside Heights Historic District				X <sup>4</sup>		X
<b>Notes:</b> See <b>Figure 4-1</b> for reference. <sup>1</sup> NYCL (Interior and Exterior) <sup>2</sup> NYCL Interior Landmark <sup>3</sup> NYCL designation encompasses Brown Memorial Tower, James Tower, and James Memorial Chapel. <sup>4</sup> Determination made by LPC, in comment letter dated 2/12/2015. NHL: National Historic Landmark S/NR-listed: Listed on the New York State and National Registers of Historic Places S/NR-eligible: Determined eligible for listing on the New York State and National Registers of Historic Places NYCL: New York City Landmark							

Havemeyer Hall (S/NR-eligible) is one of twelve classroom buildings designed by McKim, Mead & White as part of the 1894 master plan. Havemeyer Hall was built in 1896-

1897 and has a central pavilion topped by a copper pediment and flanked by two slightly projecting end pavilions. This four-story building has limestone trim and window surrounds that contrast the building's red brick façade. Havemeyer Hall's western façade is along Broadway and features a high granite base. At the building's rear (north) elevation is a projecting, semicircular lecture hall.

Chandler Hall (S/NR-eligible), also designed by McKim, Mead & White, is an extension to Havemeyer Hall that was built in 1925-1928. The addition extends from Havemeyer's northwest, rear façade along Broadway and maintains Havemeyer Hall's original design aesthetic through the use of red brick and limestone detailing. The addition has nine stories.

Mathematics Hall (S/NR-eligible), originally Engineering Hall, was also designed by McKim Mead & White and built in 1896-1897. Like Havemeyer Hall and the other twelve classroom buildings designed as part of the master plan, Mathematics Hall is a four-story red brick building with limestone trim, window surrounds, and vertical elements and is capped by a copper hipped roof.

Earl Hall (S/NR-eligible), located west of Low Memorial Library on Columbia University's Morningside Heights campus, was designed by McKim Mead & White and built in 1900-1902. This small, neo-Georgian red brick building, originally an assembly hall with reading and meeting rooms, resembles a small centralized Italian Renaissance church with its long flight of entrance stairs, limestone portico, and shallow dome.

Lewisohn Hall (S/NR-eligible), located just south of Earl Hall along Broadway, was designed by Arnold Brunner and built in 1904. The design for the building reflected its status as one of the campus's more modest structures, with campus facades that are flatter and less heavily detailed. The Broadway elevation was designed with a high granite base, contributing to the effect of a walled enclosure. As required by McKim Mead & White's master plan, the building uses the same dark red brick and white limestone found on other campus structures, but its detailing is more sculptural, reflecting Brunner's taste for French Beaux-Arts design.

Dodge Hall (S/NR), located at the northeast corner of West 116<sup>th</sup> Street and Broadway, near one of the two main entrances to the campus, was designed by McKim Mead & White. It was designed with a 2-story colonnade on second and third stories of its West 116<sup>th</sup> Street elevation. The building also has a monumental entrance portico facing north onto the campus.

Journalism Hall (S/NR-eligible), located directly south of Dodge Hall at the southeast corner of West 116<sup>th</sup> Street and Broadway, was constructed in 1912-1913 with funding from Joseph Pulitzer. It was designed by McKim Mead & White, and incorporated colonnades similar to those employed at Dodge Hall. The attic level of the building was redesigned in the 1990s by Pasanella + Klein Stolzman + Berg, with an addition of overscaled dormers and a tall elevator bulkhead.

Furnald Hall (S/NR-eligible), located just south of Journalism Hall and oriented with its longer facades parallel to Broadway, was built in 1912-1913 as Columbia's third dormitory. It was built in conjunction with the construction of Journalism Hall, thus saving money by building the neighboring structures concurrently. It was designed by McKim Mead & White.

Low Library (NHL, S/NR, NYCL-interior and exterior), centrally located on Columbia University's Morningside Heights campus just east of Earl Hall, was designed by McKim, Mead & White and constructed from 1895 to 1897. Modeled on the Pantheon in Rome and designed in the form of a Greek cross, Low Library was the first major building constructed after Columbia's relocation uptown from East 49<sup>th</sup> Street and Madison Avenue. The building, which was constructed with Roman stone, is largely characterized by its Ionic portico, which consists of ten fluted columns supporting a cornice and attic story. Above the central part of the building, an octagonal-shaped drum supports a round, low dome. The neo-Classical structure was conceived as the focal point of the new campus, both visually and academically; in addition to its central location along the long axis of the campus, the Library is set back from College Walk by several flights of steps, two landings, and a wide esplanade with landscaped areas.

The 116<sup>th</sup> Street-Columbia University Subway Station (S/NR-listed, NYCL-interior), at the intersection of West 116<sup>th</sup> Street and Broadway, is one of a number of landmarked subway station interiors designed by the architecture firm of Heins & LaFarge. In the station interiors, Heins & LaFarge were required to use white tile and light-colored brick except where color was introduced for effect. Color was used for mosaic sign panels and terra-cotta and faience plaques, which were provided by the Rookwood Pottery of Cincinnati and the Grueby Faience Company of Boston. The plaques were designed with an attribute unique to each station. For the 116<sup>th</sup> Street-Columbia University station, the plaques incorporate the seal of Columbia University. The significant elements of the subway station interior are the mosaic and glazed tiles, faience plaques and moldings, brick wainscoting, and platform columns surfaced with glazed tile. The station was recently restored.

612 West 116<sup>th</sup> Street (S/NR-eligible) was constructed in 1906 for the Delta Phi fraternity. It is now the Casa Hispanica of Columbia University. Designed by Thomas Nash, the 5-story structure is clad in stone and has classical details, including a colonnade of Doric columns at the second story. The mansard roof is covered with slate tiles. Two small porthole windows at the fifth floor are surrounded by a copper wreath.

The Alpha Club (S/NR) at 434 Riverside Drive was constructed in 1896 and designed by the firm of Wood, Palmer and Hornbostel. It is now in residential use. The small 5-story Beaux-Arts style building is clad in red brick with stone quoins. It has a hipped roof with copper-clad dormer windows. The building's central bay of windows is surrounded with heavily carved stone ornament. The entrance to the building is on the side façade, with a brick and stone-enclosed entryway along Riverside Drive.

Union Theological Seminary (S/NR), a Protestant seminary founded in 1836, is located on a full city block bounded by Broadway, Claremont Avenue, West 120<sup>th</sup> Street (a.k.a. Reinhold Niebuhr Place), and West 122<sup>nd</sup> Street. The Gothic seminary quadrangle was designed by Allen & Collens (1906-1907). The seminary encompasses Brown Memorial Tower at the northwest corner of Broadway and West 120<sup>th</sup> Street. The tower's base dates from 1908-1910 and the tower dates from 1927-1928. James Tower (1908-1910) and James Memorial Chapel (1908-1910) are located along the seminary's Claremont Avenue elevation. The seminary buildings are faced in Manhattan schist that was quarried on the site. The buildings have limestone trim.

Brown Memorial Tower, the James Tower and James Memorial Chapel also compose a New York City Landmark.

Teachers College (S/NR-eligible, NYCL-eligible) occupies a full block bounded by Amsterdam Avenue, Broadway, and West 120<sup>th</sup> and 121<sup>st</sup> Streets. It was the first educational institution to move to Morningside Heights. The college progressively constructed a campus on the full block, commencing with the mid-block construction of its original building — the Main Hall in 1892 and followed by Macy Hall in 1894 — designed in the High-Victorian Gothic style by William A. Potter. Whittier Hall was designed by Bruce Price in 1901, and was the first dormitory built in Morningside Heights. It is an 11-story red brick building set on a two-story limestone base, designed in the Tudor Gothic style. It is crowned by brick gables, and the structure is adorned with elaborate limestone ornament including belt courses, quoins, turrets, and finials. The library and other campus buildings on West 121<sup>st</sup> Street are of a similar architectural character, though built in the early- to mid-twentieth century. These structures are also faced in red brick, with gables, and also decorated with stone ornament. The one non-contributing building on the block is Thorndike Hall, an 11-story building faced in cast stone/concrete. Teachers College has been determined eligible for listing on the S/NR and designation as a NYCL as an historic district.

Riverside Church (S/NR, NYCL), located at 490-498 Riverside Drive, was designed by Henry C. Pelton and Allen & Collens. It was constructed in 1928-30. Financed primarily by John D. Rockefeller, Jr., Riverside Church is one of the best-known religious structures in New York. Built during an era when most houses of worship were literally being overshadowed by corporate and residential skyscrapers, the 392-foot tower has a strong presence on the Upper West Side skyline. The architects loosely based their design on Chartres Cathedral, employing a limestone curtain wall to disguise the steel frame that was used to speed construction and support the immense weight of the 72-bell carillon.

Riverside Park and Drive (S/NR, NYCL), which runs for nearly four miles along the western edge of Manhattan through the study area, was initially established in 1865 as a way of increasing real estate values on the Upper West Side. Riverside Drive (NYCL) was originally laid out in 1870. In 1873, the New York City Parks Department asked Frederick Law Olmsted to draw up a formal plan for the park and drive. Olmsted's concept was to treat the park and the drive as a single design that would take advantage of the natural beauty of the site. The curving drive was landscaped with trees, walkways, and viewing sites, and the hillside leading down toward the New York Central's railroad tracks and the Hudson River was planted. The wide, straight walkway within the park (located on top of the railroad tracks) and the paths and playgrounds alongside the river were not part of Olmsted's design but were laid out by Clifton Lloyd in 1934-37, at the time of the construction of the Henry Hudson Parkway. In addition to these resources, the staff of the New York City Landmarks Preservation Commission ("LPC") has studied a possible Morningside Heights historic district. The district does not have firm boundaries; however, the area generally being considered for designation is bounded by Broadway, Riverside Drive, West 110<sup>th</sup> Street and Riverside Church. The potential district has not been calendared for a public hearing nor heard by the Commission but has been identified as NYCL-eligible and S/NR-eligible by LPC.



### ***The Future Without the Proposed Project***

In the future without the Proposed Project, the Teaching and Learning Center would not be constructed, and the renovation of portions of Barnard Hall to serve as swing space during project construction would not take place. No excavation of the Development Site would occur.

There is one other planned development expected to be completed in the study area by the 2018 build year — the construction of a new facility by the Korean Methodist Church on the same site as their existing building at 633 West 115<sup>th</sup> Street.

The status of historic resources could change in the future without the proposed project. S/NR-eligible historic resources could be listed on the Registers, NYCL-eligible properties could be calendared for a designation hearing, and properties pending designation as New York City Landmarks could be designated. It is possible that some historic resources in the study area could deteriorate, while others could be restored. In addition, future projects could affect the settings of historic resources, or accidentally damage such resources through adjacent construction.

### ***The Future With the Proposed Project***

***Development Site.*** The Development Site would require excavation for the proposed building. As described above, DASNY is consulting with LPC and OPRHP for their determinations of the potential archaeological sensitivity of the Development Site. If LPC or OPRHP determines the development parcel to be potentially sensitive for archaeological resources, then a Phase 1A Documentary Research Report will be prepared. As relevant, based on the conclusions of the Phase 1A, and in consultation with OPRHP and LPC, a suitable treatment plan would be devised for any areas of potential sensitivity. The treatment plan could include construction monitoring or field testing, depending on the nature of the potential resources identified and the extent of construction that would take place in specific locations.

In a letter dated March 6, 2015 (see Appendix B), OPRHP noted that Lehman Hall is not S/NR-eligible and that it would not object to the building's demolition.

***Project Site and Study Area.*** Barnard Hall is located within 90 feet of the Development Site. To avoid potential inadvertent construction-related impacts on this architectural resource, including ground-borne vibration, falling debris, and accidental damage from heavy machinery, a CPP would be developed in consultation with LPC and OPRHP and implemented by a professional engineer prior to any demolition or construction. The CPP would follow the New York City Department of Buildings *Technical Policy and Procedure Notice ("PPN") #10/88* regarding procedures for the avoidance of damage to historic structures resulting from adjacent construction. The PPN defines adjacent historic structures as being contiguous or within a lateral distance of 90 feet from a lot under development or alteration. The CPP would set forth measures for the protection and avoidance of structural and architectural damage for this resource.

OPRHP, in its letter of March 6, 2015, indicated that it is likely that the renovation of the Barnard Hall gymnasium, including the building of a second floor within the gymnasium, would

constitute an adverse impact to this historic building. OPRHP has requested an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall. The alternatives analysis is being prepared by DASNY.

During preliminary project planning, Barnard analyzed its library services, and academic, faculty and staff relocation needs in an effort to determine the type and amount of space that would be needed during the demolition of Lehman Hall and the subsequent construction of the Teaching and Learning Center. Initially, the College sought to relocate the faculty offices at nearby locations that might have additional office space for rent. Requests went out to several nearby institutions, including the Interchurch Center; Jewish Theological Seminary; Teacher's College; Manhattan School of Music; Columbia University and Union Theological Seminary ("UTS"). None of the institutions contacted had viable space available to meet Barnard's needs.

Next, available assets on campus were evaluated including the Barnard Hall pool, taken out of commission a couple of years ago; Sulzberger Annex; space above the Vagelos Alumnae Center; space in Milbank Hall for a recently vacated print services department and the underutilized LeFrak gymnasium in Barnard Hall. Further analysis revealed that the Barnard Hall pool would not be large enough to house the entire program required, nor would a combination of the pool in conjunction with Sulzberger Annex. As a result, the gymnasium was evaluated for a program fit. It was determined that by constructing two floors in the gym, Barnard would achieve enough square footage to allow for most of the program. Sulzberger Annex and Milbank Hall were added to complete the swing space program. As planning for the swing space in the gymnasium progressed, Barnard realized that by making the space permanent, the College could realize its goals of providing space for the Information Technology Department and additional administrative functions as well as that of providing better on-campus public assembly space.

The final resolution of any cultural resources aspects of the Proposed Project is subject to *SHPA* and its Section 14.09 implementing regulations. DASNY and Barnard look forward to the development of a Letter of Resolution ("LOR") with OPRHP regarding the subject building.

Besides Barnard Hall, there are no study area architectural resources located within 90 feet of the Development Site; therefore, the Proposed Project would not have any adverse physical impacts on resources in the study area.

The design of the proposed Teaching and Learning Center would include materials chosen to complement the nearby historic buildings on the Project Site, while emphasizing the differences between the historic buildings and the modern design of the proposed building. These differences would highlight the unique qualities of both the architectural resources on the Project Site and the modern design of the proposed building. The proposed Teaching and Learning Center would be taller and larger than the existing Lehman Hall; however, it would be similar in height to several existing buildings on Barnard's campus, most notably Altschul Hall and Sultzberger Hall, and its total area also would be comparable to other campus buildings. Overall, the proposed building would be consistent with the bulk, uses, and arrangements of other buildings on the Barnard campus.

Many existing buildings near the Project Site include a variety of building materials that characterize the period during which the buildings were built. The proposed building would be

designed likewise to characterize the current period in architecture and building technology. The proposed building would contribute to the eclectic collection of building styles, ages, and materials found in this area of the Morningside Heights neighborhood. At approximately 210 feet, the proposed building would be of comparable height or shorter than a number of buildings in the study area, including the Interchurch Center, at 237 feet in height, and the 229-foot-tall Northwest Science Building at the southeast corner of West 120<sup>th</sup> Street and Broadway.

Overall, the proposed project would not be expected to have any significant adverse physical, visual, or contextual impacts on historic resources.

## CHAPTER 5. HAZARDOUS MATERIALS

### *Introduction*

This attachment presents the findings of the hazardous materials assessment and identifies potential issues of concern that could pose a hazard to workers, the community, and/or the environment during or after development of the Proposed Project. The Development Site currently contains a five-story (plus basement) Lehman Hall, as well as portions of Barnard and Milbank Halls. The Proposed Project would entail demolition of Lehman Hall, followed by the construction of a new building at its location, as well as internal renovation in portions of Barnard and Milbank Halls. Excavation is anticipated only for the construction of the new building.

A *Phase I Environmental Site Assessment* (“ESA”) of the Development Site was performed in March 2015 [to come] in accordance with ASTM Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice. The ESA included a visual inspection; a review of historical land use maps, prior reports and local records; and a review of State and federal regulatory databases relating to use, generation, storage, treatment and/or disposal of hazardous materials.

### *Existing Conditions*

***Subsurface Conditions.*** The Development Site is approximately 120 to 130 feet above sea level, sloping down to the northwest. Bedrock in the vicinity of the project site is shallow, and is anticipated to be approximately 0 to 30 feet below grade. The tunnels for the Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line pass beneath Broadway approximately 160 feet east of the Development Site.

Based on surface topography, groundwater would be anticipated to be encountered approximately 120 feet below grade and to flow west towards the Hudson River; however, shallower groundwater perched on bedrock may be present. Additionally, the actual groundwater depth and flow direction may be influenced by dewatering for the nearby subway tunnels, and perhaps other factors. Groundwater in Manhattan is not used as a source of potable water (the municipal water supply uses upstate reservoirs).

***Hazardous Materials Assessment.*** The Phase I ESA identified no “*Recognized Environmental Conditions*” (“RECs”), i.e., the presence or likely presence of hazardous substances or petroleum in the ground or groundwater. Identified environmental concerns included off-site reported spills and hazardous waste generators with limited potential to affect the project site), and the potential presence (typical of older buildings) of *asbestos-containing materials* (“ACM”), lead-based paint, and fluorescent lighting fixtures and other electrical equipment that could include *polychlorinated biphenyls* (“PCBs”).

### ***The Future Without The Proposed Project***

In the future without the Proposed Project, the Development Site would remain in its current condition. Currently, there are no known significant health risks associated with the Development Site. Likewise, there would be no significant health risks at the Development Site in the future without the Proposed Project. Legal requirements (including New York State Department of Environmental Conservation [NYSDEC] and United States Environmental Protection Agency [EPA] regulations) pertaining to any ACM, lead-based paint, and potential PCB-containing equipment would continue to apply.

### ***The Future With The Proposed Project***

The Proposed Project would entail demolition of the existing Lehman Hall, excavation for the construction of a new building at its location, and interior renovation in portions of Barnard and Milbank Halls. Although these activities could increase pathways for human exposure, impacts would be avoided by performing the project in accordance with the following:

- During any future subsurface disturbance, excavated soil should be handled and disposed of in accordance with applicable regulatory requirements. If dewatering is necessary for the proposed construction, water would be discharged to sewers in accordance with New York City Department of Environmental Protection (NYCDEP) requirements.
- Any suspect ACM that would be disturbed by the Proposed Project would be surveyed for asbestos by a NYC-certified asbestos investigator. All such ACM would be removed and disposed of prior to the disturbance in accordance with local, state and federal requirements.
- Any activities with the potential to disturb lead-based paint would be performed in accordance with applicable requirements (including federal Occupational Safety and Health Administration regulation 29 CFR 1926.62 - Lead Exposure in Construction).
- Unless there is labeling or test data indicating that any suspect PCB-containing electrical equipment and fluorescent lighting fixtures do not contain PCBs, and that any fluorescent lighting bulbs do not contain mercury, if disposal is required, it would be conducted in accordance with applicable federal, state and local requirements.

With these measures, the Proposed Project would not result in any significant adverse impacts related to hazardous materials.

## **CHAPTER 6. AIR QUALITY**

### ***Introduction***

The potential for air quality impacts associated with the Proposed Project is assessed in this chapter. The Proposed Project, located on the Barnard College campus superblock, would include renovations on the existing buildings and a new 11-story Teaching and Learning Center building at the Development Site, which is currently occupied by Lehman Hall.

According to the *CEQR Technical Manual*, an air quality analysis is necessary if a project would result in direct or indirect impacts on ambient air quality. Direct impacts stem from emissions generated directly by the project such as stationary sources (e.g., emissions from fuel burned on site for heating systems). Indirect impacts are caused indirectly by a project, such as emissions generated by on-road vehicle engines (mobile sources). The Proposed Project is not expected to significantly alter traffic conditions, and the maximum hourly incremental traffic from the Proposed Project would not exceed the *CEQR Technical Manual's* 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<sub>2.5</sub>) emission screening threshold discussed in Chapter 17, Sections 210 and 311 of the 2014 *CEQR Technical Manual*. Therefore, a quantified assessment of emissions from project-generated traffic is not warranted. However, the Proposed Project would include a new boiler installation for the new Teaching and Learning Center. Therefore, a stationary source screening analysis was conducted to evaluate potential future pollutant concentrations from the proposed heating and hot water system.

Based on the air quality assessment performed and described in the sections below, there would be no potential for significant adverse air quality impacts from the heating and hot water systems from the Proposed Project.

### ***Heating and Hot Water Systems Screening Analysis***

The Proposed Project would include a heat and hot water system that would potentially be able to utilize either No. 2 fuel oil or natural gas. A screening analysis was performed using the EPA-approved AERSCREEN model (version 14147 EPA, 2014). The AERSCREEN model predicts worst-case one-hour impacts downwind from a point, area, or volume source. AERSCREEN generates application-specific worst-case meteorology, using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo, Bowen ratio, and surface roughness. The AERSCREEN model was used to calculate ambient concentrations of criteria pollutants from the Proposed Project downwind of the stack.

The current design includes the operation of a 170-bhp dual-fuel boiler to provide space heating and two 400 MBH boilers, with one in use and another as backup, to provide domestic hot water. Emission rates were calculated based on the proposed floor area and the energy consumption factor specified in the *CEQR Technical Manual Air Quality Appendix*. Short-term emissions were estimated by assuming 100 heating days. Emissions from the use of both No. 2

fuel oil and natural gas were assessed. Emission rates and stack parameters used in the screening analysis are presented in **Table 6-1**. As shown, emission rates based on the use of No. 2 fuel oil are the highest and were therefore assumed in the analysis as the worst case scenario.

**Table 6-1. HVAC Emission Rates and Stack Parameters**

<b>Parameter</b>	<b>Value</b>
<i>Stack Parameters:</i>	
Stack Height (ft)	200
Stack Diameter (ft) <sup>(1)</sup>	1.88
Exhaust Velocity (m/s) <sup>(2)</sup>	4.60
Exhaust Temperature (°F) <sup>(2)</sup>	300
<i>Emission Rates (g/s):</i> <sup>(3)</sup>	
<b>No. 2 Fuel Oil</b>	
PM <sub>2.5</sub> , 24-Hour	0.0064
PM <sub>2.5</sub> , Annual	0.0018
PM <sub>10</sub> , 24-Hour	0.0072
SO <sub>2</sub> , 1-Hour	0.0006
SO <sub>2</sub> , 3-Hour	0.0006
NO <sub>x</sub> , 1-Hour	0.0601
NO <sub>x</sub> , Annual	0.0165
<b>Natural Gas</b>	
PM <sub>2.5</sub> , 24-Hour	0.0031
PM <sub>2.5</sub> , Annual	0.0009
NO <sub>x</sub> , 1-Hour	0.0696
NO <sub>x</sub> , Annual	0.0112
<b>Notes:</b>	
1. The current design includes two stacks in close proximity that are modeled as collocated stacks for screening purposes.	
2. The exhaust flow rate and temperature were based on a DEP permit database for similar size boiler systems.	
3. The emission rates are based on AP-42 emission factors.	
<b>Sources:</b> EPA AP-42 Section 1.4	

Based on the design of the Proposed Project, the boiler exhaust stack will be located approximately 60 feet from the nearest receptor location on Altschul Hall, which is adjacent to the proposed building, at the nearest height at which there would be operable windows. At the minimum stack height required by building code, approximately 192 feet (i.e., 3 feet above the parapet of the proposed new Teaching and Learning Center), concentrations predicted by the AERSCREEN model might exceed screening levels at one location; therefore, a stack height of 200 feet above grade was identified at which no significant air quality impacts would occur and the project is committed to implementing this minimum stack height.

Based on the assumptions described above, the concentrations predicted by the AERSCREEN model, presented in **Table 6-2**, are below the applicable thresholds. Therefore,

with a stack height of at least 200 feet above grade, the Proposed Project would not result in any potential adverse air quality impacts.

**Table 6-2. Maximum Modeled Pollutant Concentration ( $\mu\text{g}/\text{m}^3$ )**

Using No. 2 Fuel Oil					
Pollutant	Averaging Period	Maximum Modeled Impact	Background <sup>(1)</sup>	Total Concentration	NAAQS / Threshold
PM <sub>2.5</sub>	24-hour	3.2	24	N/A	5.5 <sup>(3)</sup>
PM <sub>2.5</sub>	Annual	0.1	N/A	N/A	0.3
PM <sub>10</sub>	24-hour	3.6	37	41	150
SO <sub>2</sub>	1-hour	0.5	81	82	196
SO <sub>2</sub>	3-hour	0.5	162	163	1300
NO <sub>2</sub>	1-hour	41	112	176	188
NO <sub>2</sub>	Annual	0.7	41	42	100
Using Natural Gas					
Pollutant	Averaging Period	Maximum Modeled Impact	Background <sup>(1)</sup>	Total Concentration	NAAQS / Threshold
PM <sub>2.5</sub>	24-hour	1.6	24	N/A	5.5 <sup>(3)</sup>
PM <sub>2.5</sub>	Annual	0.1	N/A	N/A	0.3 <sup>(4)</sup>
NO <sub>2</sub>	1-hour	28	112	140	188
NO <sub>2</sub>	Annual	0.7	41.1	42	100
<b>Notes:</b>					
N/A — Not Applicable					
(1) In accordance with the form of the standards, 1-hour NO <sub>2</sub> background is the maximum daily 98 <sup>th</sup> percentile background concentration, averaged over the most recent three years for which monitoring data are available. The annual NO <sub>2</sub> background is based on the maximum annual average measured over the most recent five years. The 3-hour SO <sub>2</sub> background levels are based on maximum second-highest concentrations recorded over the five year period. The 24-hour average PM <sub>10</sub> background concentration is based on the maximum second-highest 24-hour average concentration measured over the most recent 3-year period. The 1-hour average SO <sub>2</sub> concentration is based on the 3-year average of the annual 99 <sup>th</sup> percentile of the daily maximum 1-hour SO <sub>2</sub> concentrations.					
(2) Includes a 1-hour conversion ratio of NO <sub>2</sub> to NO <sub>x</sub> of 80 percent.					
(3) 24-hour PM <sub>2.5</sub> <i>de minimis</i> criteria, which is half the difference between the background concentration and the 24-hour standard of 35 $\mu\text{g}/\text{m}^3$ .					
(4) Annual PM <sub>2.5</sub> <i>de minimis</i> criteria					



## CHAPTER 7. NOISE

### *Introduction*

This chapter considers the potential of the Proposed Project to result in significant adverse noise impacts.

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<sup>1</sup> increase in noise levels). However, ambient noise levels adjacent to the Development Site were considered to address CEQR noise abatement requirements for the proposed building.

### *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 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 discernible, 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 7-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (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 being twice as loud as that in 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.

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<sup>1</sup> The A-weighted decibel scale is used almost exclusively in vehicle noise measurement because it reflects the frequency range to which the human ear is most sensitive (1,000 to 6,000 Hertz). Sound levels measured using an A-weighted decibel scale are generally expressed as dBA.

**Table 7-1. 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
<b>Note:</b> A 10 dBA increase in level doubles the perceived loudness, and a 10 dBA decrease halves it.	
<b>Sources:</b> Cowan, James P. <i>Handbook of Environmental Acoustics</i> , Van Nostrand Reinhold, New York, 1994. Egan, M. David, <i>Architectural Acoustics</i> . McGraw-Hill Book Company, 1988.	

**Sound Level Descriptors.** Because the dBA sound pressure level unit 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  $L_{50}$ .

As per the *CEQR Technical Manual*,  $L_{10}$  is the noise descriptor used for this noise impact evaluation.

**Noise Standards and Criteria**

**New York CEQR Noise Criteria.** The *CEQR Technical Manual* provides attenuation requirements for buildings based on exterior noise levels (see **Table 7-2**, “Required Attenuation Values to Achieve Acceptable Interior Noise Levels”). These noise attenuation values for buildings are designed to ensure interior noise levels of 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative uses.

**Table 7-2. Required Attenuation Values to Achieve Acceptable Interior Noise Levels**

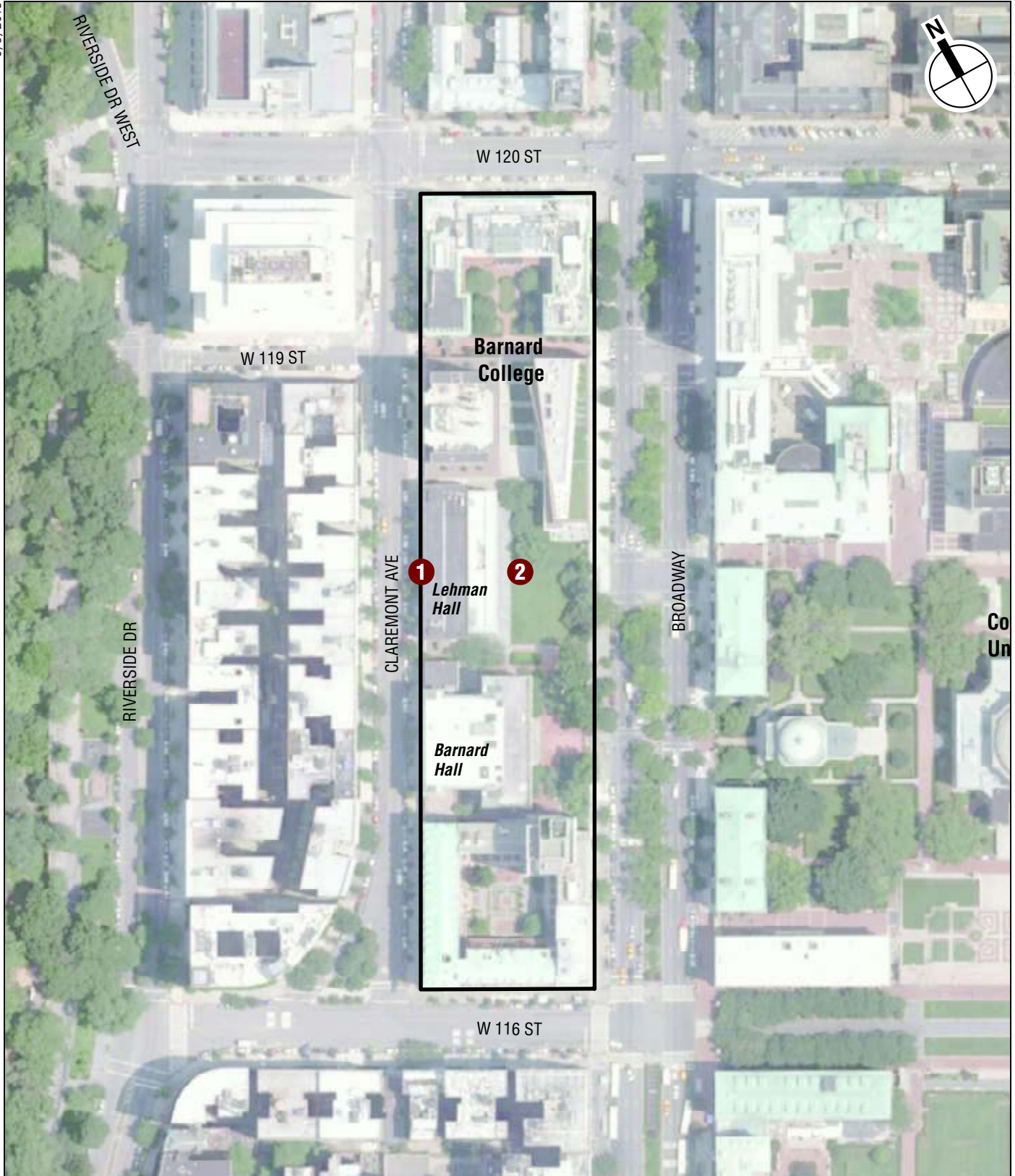
Noise Level With Proposed Project	Marginally Unacceptable				Clearly Unacceptable
	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Attenuation <sup>A</sup>	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)^B$ dB(A)
<b>Notes:</b> <sup>A</sup> The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms 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. <sup>B</sup> Required attenuation values increase by 1 dB(A) increments for $L_{10}$ values greater than 80 dBA. <b>Source:</b> New York City Department of Environmental Protection.					



**Existing Noise Levels**

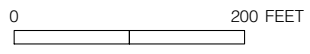
Existing noise levels at the Development Site were measured at two locations. Site 1 was located along Claremont Avenue adjacent to the project site. Site 2 was located on the Lehman Lawn adjacent to the project site. The measurement locations are shown in **Figure 7-1**.

At all receptor sites, existing noise levels were measured for 20-minute intervals during the two weekday peak periods expected to produce the highest levels of ambient noise—a.m. (7:00 a.m. to 8:30 a.m.) and midday (12:00 p.m. to 1:30 p.m.). These time periods represent the times when the greatest level of traffic would be expected on the southbound lanes of Broadway adjacent to the project site, which is the dominant noise source at the site. Measurements were taken on Tuesday, March 3, 2015.

**Equipment Used During Noise Monitoring.** Measurements were performed using a Brüel & Kjær Sound Level Meter (SLM) Type 2260, a Brüel & Kjær ½-inch microphone Type 4189, and a Brüel & Kjær Sound Level Calibrator Type 4231. The Brüel & Kjær SLM is a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). The microphone was mounted on a tripod at a height of approximately 12 feet for the elevated measurement location and approximately 5 feet above the ground for the at-grade measurement locations, and was mounted at least approximately 5 feet away from any large reflecting surfaces. The SLM was 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



-  Project Site
-  Noise Survey Locations



were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. The sound level metrics recorded 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 existing noise level measurements are summarized in **Table 7-3**.

**Table 7-3. Existing Noise Levels (in dBA)**

Site	Measurement Location	Time	$L_{eq}$	$L_1$	$L_{10}$	$L_{50}$	$L_{90}$
1	Claremont Avenue between West 120 <sup>th</sup> Street and West 116 <sup>th</sup> Street	a.m.	60.2	70.3	63.4	55.9	52.6
		midday	58.2	65.6	61.0	56.4	53.4
2	West Boundary of Lehman Lawn	a.m.	60.1	69.0	62.5	58.5	53.8
		midday	59.3	65.9	62.2	57.9	55.1

**Note:** Measurements were conducted by AKRF Acoustics Department on March 3, 2015.

At all receptor sites, vehicular traffic noise on the adjacent roadways was the dominant noise source. Measured levels are moderate and reflect the level of adjacent vehicular activity. In terms of the *CEQR* criteria, the existing noise levels at Sites 1 and 2 would be in the “acceptable” category.

**Noise Attenuation Measures**

The proposed *Teaching and Learning Center* as well as the proposed renovations to Barnard Hall would be designed and constructed using standard construction methods and materials, including acoustically-rated windows and air conditioning as an alternate means of ventilation. The proposed buildings’ façades, including these elements, would be expected to provide a composite Outdoor-Indoor Transmission Class<sup>2</sup> (“OITC”) such that interior noise levels would be 45 dBA or lower for classroom uses and 50 dBA or lower for office, laboratory, and administrative 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 systems (i.e., heating, ventilation, and air conditioning) 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 generating noise that would significantly increase ambient levels.

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<sup>2</sup> 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.

## CHAPTER 8. ADDITIONAL TECHNICAL INFORMATION

The environmental review of the Barnard College Teaching and Learning Center (“Proposed Project”) follows the *State Environmental Quality Review Act* (“SEQRA”), and the *New York City Environmental Quality Review* (“CEQR”) *Technical Manual* generally is used as a guide with respect to environmental analysis methodologies and impact criteria for evaluating the Proposed Project in this Supplemental Report, unless stated otherwise.<sup>1</sup> This section provides a summary of the environmental analysis areas that were evaluated using the screening procedures in the *CEQR Technical Manual*.

### *Socioeconomic Conditions*

The socioeconomic character of an area includes its population, housing, and economic activity. According to the *CEQR Technical Manual*, a socioeconomic assessment should be conducted if a project may reasonably be expected to create substantial socioeconomic changes within the area affected by the project that would not occur in the absence of the project. Projects that would result in the following conditions would trigger a *CEQR/SEQRA* analysis of socioeconomic conditions:

- Direct displacement of a residential population so that the socioeconomic profile of the neighborhood would be substantially altered. Displacement of less than 500 residents would not typically be expected to affect socioeconomic conditions in a neighborhood.
- Direct displacement of more than 100 employees; or the direct displacement of a business or institution that is unusually important as follows: it has a critical social or economic role in the community, it would have unusual difficulty in relocating successfully, it is of a type or in a location that makes it the subject of other regulations or publicly adopted plans aimed at its preservation, it serves a population uniquely dependent on its services in its present location, or it is particularly important to neighborhood character.
- Introduction of substantial new development that is markedly different from existing uses, development, and activities within the neighborhood. Such a project could lead to indirect displacement. Residential development of 200 units or fewer or commercial development of 200,000 square feet or less would typically not result in significant socioeconomic impacts.
- Projects that are expected to affect conditions within a specific industry, such as a citywide regulatory change that could adversely impact the economic and operational conditions of certain type of businesses.

The Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot Teaching and Learning Center; in addition, portions of Barnard Hall would be renovated to serve as replacement “swing space” during the construction of the new Center. The Proposed Project would not introduce or displace any residents, nor would it displace more than 100 employees or a business or

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<sup>1</sup> The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

institution. No increase in enrollment would occur as a result of the Center's construction; the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. The Proposed Project would be consistent with and would contribute to the existing institutional uses on the Barnard College campus. Therefore, the Proposed Project does not meet the threshold for further analysis and would not result in any significant adverse impacts on socioeconomic conditions.

### ***Community Facilities and Services***

The *CEQR Technical Manual* states that a community facilities assessment is appropriate if a project would have a direct effect on a community facility, or if it would have an indirect effect by introducing new populations that would overburden existing facilities.

As explained below, the Proposed Project would not result in significant indirect effects on community facilities and services, such as public schools, libraries, hospitals, child-care centers, or police and fire protection.

- **Schools:** The *CEQR Technical Manual* specifies that if a project introduces more than 50 elementary and/or intermediate school students or 150 or more high school students who are expected to attend public schools, there may be a significant impact to educational facilities. The Proposed Project would not generate any residential units. Therefore, no further analysis is warranted.
- **Libraries:** The *CEQR Technical Manual* recommends an analysis of potential impacts to libraries if a project would increase the service population by more than 5 percent. The Proposed Project would not result in an increase to the population compared to the No Action condition, and would not generate any new residents. Therefore, further analysis is not necessary, and it is expected that there would be no significant adverse impacts to libraries.
- **Health Care Facilities:** The *CEQR Technical Manual* recommends an analysis of potential indirect impacts to public health care facilities if a project would introduce a sizeable new neighborhood. The Proposed Project would not generate any new residents. Therefore, further analysis is not necessary, and the Proposed Project would not result in significant adverse impacts to health care facilities.
- **Child-Care Facilities:** The *CEQR Technical Manual* recommends an analysis of potential impacts to publicly-funded group child-care and Head Start centers if a project would generate more than 20 eligible children under age 6 and living in low- to moderate-income residential units. As noted above, the Proposed Project would not generate any new low- or moderate-income residential units and, therefore, further analysis is not necessary.
- **Police and Fire Protection:** The *CEQR Technical Manual* recommends an analysis of potential impacts to police and fire services if a project would affect the physical operations of, or access to and from a precinct house or a station house, or if it would introduce a sizable new neighborhood. The Proposed Project would not directly affect

the operations of a police or fire station, nor would it introduce a sizeable new neighborhood. Therefore, no further analysis is necessary.

As described above, the Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot *Teaching and Learning Center*, as well as the renovation of portions of Barnard Hall. The Proposed Project would not result in an increase in population on the Project Site or on the Barnard College Campus. Therefore the Proposed Project would not result in a significant adverse community facilities impact, and no further analysis is necessary.

### ***Open Space***

The *CEQR Technical Manual* requires an analysis of potential impacts on open space when a project would have a direct effect on open space, or when it would have an indirect effect by generating: more than 50 residents or 125 workers in an area identified as underserved for open space resources; more than 350 residents or 750 workers in an area identified as well-served; or more than 200 residents or 500 employees in an area not identified as either underserved or well-served by open space resources.

The Proposed Project would not directly affect open space, nor would it result in a change in population that could have an indirect effect on open space. The Proposed Project would not displace any existing public open spaces, but would instead replace the existing Lehman Hall with a new Teaching and Learning Center. The Proposed Project would not result in an increase to Barnard's population, and the Project Site is located in an area that is not identified as either underserved or well-served by open space resources. Therefore, the Proposed Project would not have the potential to result in any significant adverse impacts to open space, and no further analysis is necessary. Urban Design and Visual Resources 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. According to 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 comply with existing zoning; therefore, no further analysis is warranted, and the Proposed Project would therefore not result in significant adverse impacts to urban design and visual resources.

### ***Natural Resources***

A natural resources assessment is conducted when a natural resource is present on or near a development site and the Proposed Project may involve the direct or indirect disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetlands, including freshwater and tidal wetlands; terrestrial resources, such as grasslands and thickets; shoreline resources, such as



beaches, dunes, and bluffs; gardens and other ornamental landscaping; and natural resources that may be associated with built resources, such as old piers and other waterfront structures.

The Project Site is fully developed with a four-story building, paved areas, and a lawn area that would remain in the future with the Proposed Project. As such, natural resources within the project site are limited to the few urban-adapted species of wildlife that will utilize building exteriors as habitat and are ubiquitous throughout New York City. Specifically, these include house sparrows (*Passer domesticus*), rock pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), and Norway rats (*Rattus norvegicus*). The Proposed Project would not have the potential to result in significant adverse impacts to the urban-tolerant wildlife species using the Project Site. While individual wildlife may be adversely affected should suitable habitat not be available nearby, the loss of some individuals would not adversely affect populations of these wide-spread urban-tolerant species within the metropolitan region. Overall, the Proposed Project would not result in any significant adverse impacts to natural resources within or near the project site, and no further analysis is required.

### ***Water and Sewer Infrastructure***

A *CEQR Technical Manual* water and sewer infrastructure assessment analyzes whether a project may adversely affect the city's water distribution or sewer system and, if so, assess the effects of such projects to determine whether their impact is significant, and present potential mitigation strategies and alternatives. According to the *CEQR Technical Manual*, only projects that increase density or change drainage conditions on a large site require a water and sewer infrastructure analysis.

A water supply assessment would be required for projects with an exceptionally large demand for water (over 1 million gallons per day) or for projects located in an area that experiences low water pressure (such as Coney Island and the Rockaway Peninsula). In addition, a wastewater and storm water conveyance and treatment analysis would be necessary if the project:

- Is located in a combined sewer area and would result in over 1,000 residential units or 250,000 sf of commercial/institutional use in Manhattan, or 400 residential units or 150,000 sf of commercial/institutional use in all other boroughs;
- Is located in a separately sewered area and would exceed: 25 residential units or 50,000 sf of commercial/institutional use in R1, R2, or R3 districts; 50 residential units or 100,000 sf of commercial/institutional use in R4 or R5 districts; 100 residential units or 100,000 sf of commercial/institutional use in all other zoning districts;
- Is located in an area that is partially sewered or currently unsewered;
- Involves development on a site 5 acres or larger where the amount of impervious surface would increase;
- Would involve development on a site 1 acre or larger where the amount of impervious surface would increase and is located in the Jamaica Bay watershed or specific drainage areas (Bronx River, Coney Island Creek, Flushing Bay and Creek, Gowanus Canal, Hutchison River, Newtown Creek, Westchester Creek); or

- Would involve construction of a new storm water outfall that requires federal and/or state permits.

The Proposed Project would be well below the 1 million gallons per day (“gpd”) water consumption threshold set forth in the *CEQR Technical Manual*. In addition, the Project Site is located in a combined sewer area; would result in less than 250,000 sf of institutional use; does not involve development on a site 1 acre or larger; and would not involve construction of a new storm water outfall. Therefore, the Proposed Project would not result in any significant impacts of water and sewer infrastructure, and no further analysis is necessary.

### ***Solid Waste and Sanitation Services***

A solid waste assessment determines whether a project has the potential to cause a substantial increase in solid waste production that may overburden available waste management capacity or otherwise be inconsistent with the city’s Solid Waste Management Plan (“SWMP” or “Plan”) or with state policy related to the city’s integrated solid waste management system. The city’s solid waste system includes waste minimization at the point of generation, collection, treatment, recycling, composting, transfer, processing, energy recovery, and disposal. As the Proposed Project would not result in any additional student, staff, faculty, or visitor populations, it is not expected to generate a substantial amount of solid waste as defined in the *CEQR Technical Manual*. Therefore, the Proposed Project would not affect the city’s capacity to handle solid waste, and no further analysis is required.

### ***Energy***

As described in the *CEQR Technical Manual*, all new structures requiring heating and cooling are subject to the New York City Energy Conservation Code. Therefore, the need for a detailed assessment of energy impacts would be limited to projects that may significantly affect the transmission or generation of energy. However, a project’s operational energy consumption is often calculated. It is expected that the Proposed Project, when operational, would consume approximately 33.343 million British Thermal Units (“BTU”) per year.<sup>2</sup> This would not be considered a significant demand for energy. Further, the Proposed Project would incorporate measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. Therefore, the Proposed Project would not result in significant adverse impacts to the consumption or supply of energy.

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<sup>2</sup> Based on the energy usage rate for institutional buildings (250.7 MBtu/sf) from Table 15-1 “Average Annual Whole-Building Energy Use in New York City.” The City of New York, Mayor’s Office of Environmental Coordination, *CEQR Technical Manual*, March 2014.

### ***Transportation***

The Proposed Project would not result in a change from the existing population. Therefore, the Proposed Project would not generate more than the *CEQR Technical Manual* thresholds requiring further analysis of 50 vehicle trips or 200 pedestrian or transit trips. A transportation analysis is not warranted, and the Proposed Project would not result in any significant adverse transportation (traffic, parking, transit, or pedestrian) impacts.

### ***Greenhouse Gas Emissions***

Increased greenhouse gas (“GHG”) emissions are changing the global climate, which is predicted to lead to wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. According to the *CEQR Technical Manual*, GHG assessments are appropriate for projects with the greatest potential to produce GHG emissions that may result in inconsistencies with the city’s GHG reduction goal to a degree considered significant (generally larger projects resulting in the development of 350,000 square feet or greater undergoing an Environmental Impact Statement [EIS], or for projects on a case-by-case basis to determine its consistency with the city’s GHG reduction goals<sup>3</sup>) and, correspondingly, have the greatest potential to reduce those emissions through the adoption of project measures and conditions. In addition, actions that fundamentally change the city’s waste management system, such as city capital projects, power generation projects, and promulgation of regulations, may also need to be analyzed. While the Proposed Project would involve the construction of a new, larger building on the Project Site, the proposed Teaching and Learning Center would not result in an increase in enrollment as the new facility is intended to fulfill unmet existing demand for academic facilities by the Barnard College student body and faculty. Further, as described above, the Proposed Project would incorporate measures to achieve Leadership in Energy and Environmental Design (“LEED”) Silver certification. The LEED rating system, developed by the nonprofit U.S. Green Building Council, is a standard ensuring a high degree of environmental stewardship, considering energy efficiency, minimization of waste sent to landfills, and other sustainability best practices in building design and operation. The Proposed Project is not a city capital project, would not introduce new power generation, would not change the city’s waste management system, and would not affect regulations. Therefore, GHG emissions analysis and assessment of consistency with the city’s GHG emission reduction goal are not required and no further analysis is necessary.

### ***Public Health***

According to the *CEQR Technical Manual*, public health involves the activities that society undertakes to create and maintain conditions in which people can be healthy. Public health may be jeopardized by poor air quality resulting from traffic or stationary sources, hazardous materials in soil or groundwater used for drinking water, significant adverse impacts related to noise or odors, solid waste management practices that attract vermin and pest

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<sup>3</sup> As part of the city’s PlaNYC and the *New York City Climate Protection Act* (Local Law 22 of 2008), the city has a goal of reducing citywide GHG by 30 percent below 2005 levels by 2030).

populations. Detailed public health analysis is warranted for projects with identified unmitigated adverse impacts in air quality, water quality, hazardous materials, or noise. The Proposed Project is not expected to result in any significant adverse impacts to air quality, water quality, hazardous materials, or noise. No exceedance of federal, state, or city standards would occur as a result of the Proposed Project. Therefore, the Proposed Project would not result in any significant adverse impacts to public health, and no further analysis is warranted.

### ***Neighborhood Character***

As defined in the *CEQR Technical Manual*, neighborhood character is considered to be an amalgam of the various elements that define a neighborhood's distinct personality. These elements may include a neighborhood's land use, socioeconomic conditions, open space, historic and cultural resources, urban design, visual resources, shadows, transportation, and/or noise. Not all of these elements affect neighborhood character in all cases; a neighborhood usually draws its distinctive character from a few defining elements. An assessment of neighborhood character is generally needed when a Proposed Project has the potential to result in significant adverse impacts in any of the technical areas listed above, or when the project may have moderate effects on several of the elements that define a neighborhood's character.

As detailed in the project description, the Proposed Project would involve the replacement of the existing 65,000-gross-square-foot Lehman Hall with a new, approximately 133,000-gross-square-foot Teaching and Learning Center, as well as the renovation of portions of Barnard Hall. These changes to the project site would not result in any significant adverse impacts to neighborhood character. The character of the neighborhood is defined by mid- and high-rise educational buildings and grassy lawns on the Barnard College and Columbia University campuses, as well as by other institutional uses on the surrounding blocks. While the Proposed Project would result in a new, taller, building on the Development Site, the overall bulk of the building would fall within the allowable FAR for the Project Site, and would be similar in scale to other buildings on the Barnard College and Columbia University campuses. Further, the Proposed Project would not result in any adverse impacts to the neighborhood's land uses, socioeconomic conditions, open space, urban design, visual resources, shadows, transportation, or noise.

Overall, the Proposed Project would result in the construction of a new building to an area that has a diverse mix of historic and modern educational buildings. The Center would improve the character of the Barnard College campus, as well as provide much-needed academic facilities for the College's student body. Therefore, the Proposed Project would not result in any significant adverse neighborhood character impacts and no further analysis is warranted.

### ***Construction***

The Proposed Project would result in construction activities at the Development Site. As with all construction projects, work at the Development Site would result in temporary disruptions to the surrounding area, including occasional noise and dust. The overall construction duration for the Proposed Project is expected to be approximately three years. The renovation of the LeFrak Gymnasium is expected to commence in Summer 2015 and would take approximately six months to complete. The Gymnasium would provide campus swing space for

the programs and occupants of Lehman Hall during construction of the proposed new Teaching and Learning Center. The demolition of the existing Lehman Hall and construction of the new Teaching and Learning Center expected to take place from March 2016 to August 2018. The most intense construction activities in terms of noise levels and air pollutant emissions (demolition, excavation, and foundation work, during which a number of large non-road diesel engines would be employed) would last for only a portion of the overall construction duration—approximately one year.

Construction of the Proposed Project would be carried out in accordance with New York City laws and regulations, which allow construction activities between 7:00 a.m. and 6:00 p.m. on weekdays. If work is required outside of normal construction hours, necessary approvals would be obtained from the appropriate agencies (i.e., the New York City Department of Buildings [“NYCDOB”] and New York City Department of Environmental Protection [“NYCDEP”]). 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 (“NYCDOT”)’s Office of Construction Mitigation and Coordination (“OCMC”). Through implementation of the measures described above, the temporary 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.

**DORMITORY AUTHORITY  
STATE OF NEW YORK**

**APPENDIX A TO THE  
FULL ENVIRONMENTAL ASSESSMENT FORM**

**for the**

**Barnard College Teaching and Learning Center**

# **Dormitory Authority of the State of New York (DASNY)**

## **SMART GROWTH IMPACT STATEMENT ASSESSMENT FORM**

**Date:** March 4, 2015  
**Project Name:** Barnard College Teaching and Learning Center  
**Project Number:**  
**Completed by:** AKRF, Inc.

**This Smart Growth Impact Statement Assessment Form (“SGISAF”) is a tool to assist you and the Dormitory Authority of the State of New York (“DASNY”) Smart Growth Advisory Committee in deliberations to determine whether a project is consistent with the State of New York *State Smart Growth Public Infrastructure Policy Act (“SSGPIPA”)*, article 6 of the New York State *Environmental Conservation Law (“ECL”)*. Not all questions/answers may be relevant to all projects.**

### **Description of Proposed Action and Proposed Project:**

Pursuant to DASNY’s Independent Colleges and Universities Program, Barnard College has requested financing to support the construction of its new Teaching and Learning Center. For purposes of *SEQR*, the Proposed Action would consist of DASNY’s authorization of the issuance of fixed- and/or variable-rate, tax-exempt and/or taxable bonds to be sold through a negotiated offering and/or a private placement, on behalf of Barnard.

The proceeds of the bond issuance would be used to finance the Proposed Project, which would consist of the demolition of the existing 4-story, 65,000-gsf Lehman Hall and the construction of a new, approximately 133,000-gsf Teaching and Learning Center (the “Center”). The 11-story new building would occupy the footprint of Lehman Hall, as well as extend northward and southward to abut the adjacent Altschul Hall and Barnard Hall, respectively (the “Development Site”). The building would consist of a five-story podium on the southern side, adjacent to Barnard Hall, and an 11-story tower on the northern side. As in the existing condition, the building’s frontage onto the Barnard College campus would abut walking paths and landscaped open space. Unlike the existing Lehman Hall, the side of the Center fronting onto Claremont Avenue would have entrances and exits and full-height windows.

The Center would include common and informal study areas, teaching and learning space, a conference area, space for the history, political science, economics and urban studies departments, a modern new library, archival and media collections, with café facilities. The Center would provide space for key programs such as the Barnard Center for Research on Women and the Athena Center for Leadership Studies, as well as two new centers: iLAB (Institute for Innovation in Liberal Arts) and CSC (Computational Science Center). No increase in Barnard’s population would occur as a result of the Proposed Project; instead, the Proposed Project would provide Barnard with a new, state-of-the-art facility which would provide a new library, individual and group study space, access to resources and help for students and faculty, and improved conference space, including flexible meeting spaces and smaller break-out rooms.

In addition, portions of Barnard Hall, particularly the LeFrak Gymnasium, would be renovated as part of the Proposed Project prior to the commencement of demolition and new construction on the Development Site. The swing space that would be created by the renovation would serve as replacement facilities for College activities during the construction period of the new Center. Upon completion of the Teaching and Learning Center, the swing space in the first floor of Barnard Hall Gymnasium would be renovated to create a public assembly space. The walls built for the swing space library would be removed, and a new acoustic ceiling with new lighting would be installed, and the second floor rest rooms and meeting rooms would remain. The faculty offices would be reconfigured to house the Barnard College Information Technology department and additional administrative functions.

Construction of the Proposed Project is expected to begin in Summer 2015, with the renovation of the LeFrak Gymnasium. Construction of the new Teaching and Learning Center would begin in March 2016. The project is expected to be complete by August 2018.

Have any other entities issued a Smart Growth Impact Statement (“SGIS”) with regard to this project? (If so, attach same).  Yes  No

1. Does the project advance or otherwise involve the use of, maintain, or improve existing infrastructure? Check one and describe:

Yes  No  Not Relevant

The Proposed Project, which would result in the development of a new building to replace the existing academic facility, would connect to the existing water supply, sewer, and energy infrastructure on the Project Site superblock. Relative to the existing facility, the new building’s demands on the New York City water supply, sewers, and energy infrastructure would be negligible. Moreover, the new building’s design would adhere to the guidelines for LEED Silver certification, which include best practices for sustainable resource consumption and management. Therefore, the Proposed Project would be supportive of this criterion.

2. Is the project located wholly or partially in a **municipal center**, characterized by any of the following: Check all that apply and explain briefly:

- A city or a village
- Within the interior of the boundaries of a generally recognized college, university, hospital, or nursing home campus
- Area of concentrated and mixed land use that serves as a center for various activities including, but not limited to:
  - Central business districts (such as the commercial and often geographic heart of a city, “downtown”, “city center”)
  - Main streets (such as the primary retail street of a village, town, or small city. It is usually a focal point for shops and retailers in the [central business district](#), and is most often used in reference to retailing and socializing)
  - Downtown areas (such as a city’s core (or center) or central business district, usually in a geographical, commercial, and community sense).
  - Brownfield Opportunity Areas ([http://nyswaterfronts.com/BOA\\_projects.asp](http://nyswaterfronts.com/BOA_projects.asp))



- Downtown areas of Local Waterfront Revitalization Plan areas ([http://nyswaterfronts.com/maps\\_regions.asp](http://nyswaterfronts.com/maps_regions.asp))
- Locations of transit-oriented development (such as projects serving areas that have access to mass or public transit for residents)
- Environmental Justice areas (<http://www.dec.ny.gov/public/899.html>)
- Hardship areas

As the Development Site is located within the existing campus of Barnard College, in New York City, the Proposed Project would be supportive of this criterion.

3. Is the project located adjacent to municipal centers (please see characteristics in question 2, above) with clearly defined borders, in an area designated for concentrated development in the future by a municipal or regional comprehensive plan that exhibits strong land use, transportation, infrastructure and economic connections to an existing municipal center? Check one and describe:

Yes    No    Not Relevant

The Proposed Project, which is located within the interior of the campus of Barnard College, is also adjacent to the campus of Columbia University. Both campuses are located within the Morningside Heights neighborhood of Manhattan, which is characterized by a concentration of mixed land uses that serve as a center for commercial, residential, and academic activities. Beyond the diverse mix of facilities contained within the Barnard and Columbia campuses, there is a variety of retail and cultural uses located along the commercial corridor on Broadway, which separates the two campuses. Therefore, the Proposed Project is supportive of this criterion.

4. Is the project located in an area designated by a municipal or comprehensive plan, and appropriately zoned, as a future municipal center? Check one and describe:

Yes    No    Not Relevant

5. Is the project located wholly or partially in a developed area or an area designated for concentrated infill development in accordance with a municipally-approved comprehensive land use plan, a local waterfront revitalization plan, brownfield opportunity area plan or other development plan? Check one and describe:

Yes    No    Not Relevant

The Project Site, the Barnard College campus, is wholly located in a developed area, the Morningside Heights neighborhood of Manhattan. Therefore, the Proposed Project is supportive of this criterion.

6. Does the project preserve and enhance the State's resources, including agricultural lands, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and/or significant historic and archeological resources? Check one and describe:

Yes    No    Not Relevant

The potential effects of the Proposed Project on natural resources, air quality, open space and historic and archeological resources are analyzed in DASNY's *SEQR* review of the Barnard College Teaching and Learning Center. The *SEQR* EAF and Supplemental Report find that the Proposed Project would not have any significant adverse impacts on these technical areas. In addition, the Proposed Project would preserve the landscaped open space areas that characterize the Barnard College campus. Therefore, the Proposed Project would be supportive of this criterion.

7. Does the project foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment, recreation and commercial development and/or the integration of all income and age groups? Check one and describe:

Yes  No  Not Relevant

The Proposed Project would foster compact development by constructing new facilities on currently developed land within an existing college campus. In addition, the proposed entrances to the Teaching and Learning Center on Claremont Avenue would help to enliven the streetscape, which currently lacks vibrancy and activity. Further, as discussed above, the Proposed Project would preserve and enhance the utility and beauty of the existing open spaces on the Barnard College campus. Therefore, the Proposed Project would be supportive of this criterion.

8. Does the project provide mobility through transportation choices, including improved public transportation and reduced automobile dependency? Check one and describe:

Yes  No  Not Relevant

The Project Site is well served by public transportation. The Metropolitan Transportation Authority – NYC Transit (“MTA-NYCT”) No. 1 subway line stops at the 116<sup>th</sup> Street station, located directly adjacent to the College; in addition, the MTA-NYCT M4, M60, and M104 bus lines, which provide service along Broadway, and the M5 bus line, which provides service along Riverside Drive, are in close proximity to the College. Columbia University also provides an Intercampus Shuttle service, which is free to Columbia and Barnard students, faculty, and staff, and operates on weekdays. Although the Proposed Project would not provide any new transportation options, it would be supportive of this criterion.

9. Does the project demonstrate coordination among state, regional, and local planning and governmental officials? (Demonstration may include *State Environmental Quality Review* (“*SEQR*”) coordination with involved and interested agencies, district formation, agreements between involved parties, letters of support, State Pollutant Discharge Elimination System (“*SPDES*”) permit issuance/revision notices, etc.). Check one and describe:

Yes  No  Not Relevant

The planning for, and approval of, the Proposed Project would require coordination between multiple City and State agencies. DASNY, acting as lead agency, is conducting a coordinated review of the Proposed Project in accordance with New York's *State Environmental Quality Review Act* ("SEQRA"). The Proposed Project is also being reviewed in conformance with the *New York State Historic Preservation Act of 1980* ("SHPA"), specifically the implementing regulations of Section 14.09 of the *Parks, Recreation and Historic Preservation Law* ("PRHPL"), as well as with the requirements of the Memorandum of Understanding ("MOU"), dated March 18, 1998, between DASNY and the New York State Office of Parks, Recreation and Historic Preservation ("OPRHP"). Other involved and interested parties include, but are not limited to, the NYC Landmarks Preservation Commission, Manhattan Community Board 9 and elected officials. Therefore, the Proposed Project would be supportive of this criterion.

10. Does the project involve community-based planning and collaboration? Check one and describe:

Yes    No    Not Relevant

In accordance with *SEQRA* and *CEQR* guidelines, the EAF and Supplemental Report were made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.

11. Is the project consistent with local building and land use codes? Check one and describe:

Yes    No    Not Relevant

As described in Chapter 2 of the EAF, "Land Use, Zoning, and Public Policy," the Proposed Project would not result in any significant adverse impacts on land use, zoning, or public policy. The proposed use is permitted as-of-right, and the total square footage of the proposed Teaching and Learning Center would still be below the maximum allowable floor area ratio ("FAR") for the Project Site. The Proposed Project would not directly displace any land uses or adversely affect surrounding land uses, nor would the Proposed Project generate land uses that would be incompatible with land uses, zoning, or public policy in the study area. The Proposed Project would not create land uses or structures that would be incompatible with the underlying zoning, nor would the Proposed Project cause any existing structures to become non-conforming. The Proposed Project would not result in land uses that conflict with public policies applicable to the study area. The proposed actions are specific to the Project Site and would not apply to any other areas. Therefore, the Proposed Project would be supportive of this criterion.

12. Does the project promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations?

Yes    No    Not Relevant

As described above, the Proposed Project would seek LEED Silver certification. The Barnard College campus is well-served by public transportation. In addition, the Proposed Project would encourage public involvement through the public comment process and through ongoing public consultations in accordance with *SEQRA* and *CEQR* guidelines. For these reasons, the Proposed Project would be supportive of this criterion.

13. During the development of the project, was there broad-based public involvement? (Documentation may include *SEQOR* coordination with involved and interested agencies, SPDES permit issuance/revision notice, approval of Bond Resolution, formation of district, evidence of public hearings, Environmental Notice Bulletin (“ENB”) or other published notices, letters of support, etc.). Check one and describe:

Yes    No    Not Relevant

As described above, in accordance with *SEQRA* and *CEQR* guidelines, the EAF and Supplemental Report were made available for public comment, and the Proposed Project will be presented to Manhattan Community Board 9. Therefore, the Proposed Project would be supportive of this criterion.

14. Does the Recipient have an ongoing governance structure to sustain the implementation of community planning? Check one and describe:

Yes    No    Not Relevant

**DASNY has reviewed the available information regarding this project and finds:**

The project was developed in general consistency with the relevant Smart Growth Criteria.

The project was not developed in general consistency with the relevant Smart Growth Criteria.

It was impracticable to develop this project in a manner consistent with the relevant Smart Growth Criteria for the following reasons:

**ATTESTATION**

I, President of DASNY/designee of the President of DASNY, hereby attest that the Proposed Project, to the extent practicable, meets the relevant criteria set forth above and that to the extent that it is not practical to meet any relevant criterion, for the reasons given above.

\_\_\_\_\_  
**Signature**

Jack D. Homkow, Director, Office of Environmental Affairs  
**Print Name and Title**

\_\_\_\_\_  
**Date**

**DORMITORY AUTHORITY  
STATE OF NEW YORK**

**APPENDIX B TO THE  
FULL ENVIRONMENTAL ASSESSMENT FORM**

**for the**

**Barnard College Teaching and Learning Center**



**Parks, Recreation  
and Historic Preservation**

**ANDREW M. CUOMO**  
Governor

**ROSE HARVEY**  
Commissioner

March 06, 2015

Mr. Matthew Stanley  
Senior Environmental Manager  
Dormitory Authority - State of New York  
Office of Environmental Affairs  
One Penn Plaza - 52nd Floor  
New York, NY 10119

Re: DASNY  
Barnard College Teaching and Learning Center  
3009 Broadway, New York, NY 10027  
15PR00438

Dear Mr. Stanley:

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

We have no objection to DASNY as the lead agency for the SEQR review process. We would like to provide some preliminary comments based upon our review of the submitted materials:

1. We note that Lehman Hall is not eligible for listing on the State or National Registers of Historic Places. As such, we would not object to its demolition.
2. We note that Barnard Hall (aka Students' Hall) is listed on the State and National Registers of Historic Places.
3. We understand that the gymnasium in Barnard Hall is proposed to be used for swing space during the proposed construction nearby. As described, the use would require the addition of a second floor within the gym and what appear to be extensive changes to the existing space.
  - a. It is likely that this work would constitute an Adverse Impact to this historic building. The gymnasium is identified in the National Register documentation as significant and should be retained.
  - b. Barnard Hall is significant for its architecture as a fine work designed by notable New York City architect Arnold Brunner and designed in a style that combines Italian Renaissance massing and detail with Colonial-inspired features.
4. We recommend a construction protection plan be included to protect all historic buildings within 90 feet of the proposed construction.

It is unclear in the current documentation if the work proposed for the gymnasium in Barnard Hall is intended to be temporary until the new building construction is complete. If the proposed work were designed to be temporary and the impacts upon the historic gym minimized we could agree the work is appropriate. At this time, we request additional details and study into the proposed work at Barnard Hall. In addition, we suggest the development of an alternatives analysis that could bring forth ways to minimize or remove harm to the character-defining features of Barnard Hall begin.

If you have any questions, I can be reached at (518) 268-2181.

Sincerely,

A handwritten signature in black ink, appearing to read "Beth A. Cumming". The signature is fluid and cursive, with a long horizontal stroke at the end.

Beth A. Cumming  
Senior Historic Site Restoration Coordinator  
e-mail: [beth.cumming@parks.ny.gov](mailto:beth.cumming@parks.ny.gov)

via e-mail only



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

Agency Use Only [If applicable]  
 Project : Barnard College Teaching & Learning Ctr  
 Date : March 10, 2015

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

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

**Tips for completing Part 2:**

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

<b>1. Impact on Land</b> Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1) <i>If “Yes”, answer questions a - j. If “No”, move on to Section 2.</i>				<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>		
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
h. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>		

**2. Impact on Geological Features**

The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g)

NO

YES

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

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

**3. Impacts on Surface Water**

The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h)

NO

YES

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

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

I. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
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**4. Impact on groundwater**

The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer.  NO  YES  
(See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t)  
*If "Yes", answer questions a - h. If "No", move on to Section 5.*

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

**5. Impact on Flooding**

The proposed action may result in development on lands subject to flooding.  NO  YES  
(See Part 1. E.2)  
*If "Yes", answer questions a - g. If "No", move on to Section 6.*

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

g. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
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6. Impacts on Air			
The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) <i>If "Yes", answer questions a - f. If "No", move on to Section 7.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels: i. More than 1000 tons/year of carbon dioxide (CO <sub>2</sub> ) ii. More than 3.5 tons/year of nitrous oxide (N <sub>2</sub> O) iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs) iv. More than .045 tons/year of sulfur hexafluoride (SF <sub>6</sub> ) v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions vi. 43 tons/year or more of methane	D2g D2g D2g D2g D2g D2h	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may reach 50% of any of the thresholds in "a" through "c", above.	D2g	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

7. Impact on Plants and Animals			
The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) <i>If "Yes", answer questions a - j. If "No", move on to Section 8.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	<input type="checkbox"/>	<input type="checkbox"/>

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

<b>8. Impact on Agricultural Resources</b>			
The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.)		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
<i>If "Yes", answer questions a - h. If "No", move on to Section 9.</i>			
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E1 a, E1b	<input type="checkbox"/>	<input type="checkbox"/>
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	<input type="checkbox"/>	<input type="checkbox"/>
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	<input type="checkbox"/>	<input type="checkbox"/>
h. Other impacts: _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>9. Impact on Aesthetic Resources</b> The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.) <i>If "Yes", answer questions a - g. If "No", go to Section 10.</i>			
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	<input type="checkbox"/>	<input type="checkbox"/>
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile 1/2 -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	<input type="checkbox"/>	<input type="checkbox"/>
g. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>10. Impact on Historic and Archeological Resources</b> The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.) <i>If "Yes", answer questions a - e. If "No", go to Section 11.</i>			
		<input type="checkbox"/> NO	<input checked="" type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on or has been nominated by the NYS Board of Historic Preservation for inclusion on the State or National Register of Historic Places.	E3e	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	<input checked="" type="checkbox"/>	<input type="checkbox"/>

d. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>
e. If any of the above (a-d) are answered “Yes”, continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. The proposed action may result in the alteration of the property’s setting or integrity.	E3e, E3f, E3g, E1a, E1b	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<b>11. Impact on Open Space and Recreation</b>			
The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1. C.2.c, E.1.c., E.2.q.) <i>If “Yes”, answer questions a - e. If “No”, go to Section 12.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may result in an impairment of natural functions, or “ecosystem services”, provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	<input type="checkbox"/>	<input type="checkbox"/>
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	<input type="checkbox"/>	<input type="checkbox"/>
e. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

<b>12. Impact on Critical Environmental Areas</b>			
The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d) <i>If “Yes”, answer questions a - c. If “No”, go to Section 13.</i>		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> YES
	<b>Relevant Part I Question(s)</b>	<b>No, or small impact may occur</b>	<b>Moderate to large impact may occur</b>
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	<input type="checkbox"/>	<input type="checkbox"/>
c. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

**13. Impact on Transportation**

The proposed action may result in a change to existing transportation systems.

 NO YES

(See Part 1. D.2.j)

*If "Yes", answer questions a - g. If "No", go to Section 14.*

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

**14. Impact on Energy**

The proposed action may cause an increase in the use of any form of energy.

 NO YES

(See Part 1. D.2.k)

*If "Yes", answer questions a - e. If "No", go to Section 15.*

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

**15. Impact on Noise, Odor, and Light**

The proposed action may result in an increase in noise, odors, or outdoor lighting.

 NO YES

(See Part 1. D.2.m., n., and o.)

*If "Yes", answer questions a - f. If "No", go to Section 16.*

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



d. The proposed action may result in light shining onto adjoining properties.	D2n	<input type="checkbox"/>	<input type="checkbox"/>
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	<input type="checkbox"/>	<input type="checkbox"/>
f. Other impacts: _____ _____		<input type="checkbox"/>	<input type="checkbox"/>

### 16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.)  
*If "Yes", answer questions a - m. If "No", go to Section 17.*

NO

YES

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

**17. Consistency with Community Plans**

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

NO

YES

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

**18. Consistency with Community Character**

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

NO

YES

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