STUDY AREA

In addition to the NYULMC superblock, a notable characteristic of the study area is the presence of other large superblocks to the south and west of the NYULMC campus. As described in more detail below, on the west side of First Avenue, the superblock between East 30th and 33rd Streets and bounded by First and Second Avenues is occupied by the residential Kips Bay Towers. South of the NYULMC campus is the Bellevue Hospital Center which is bounded by the FDR Drive and First Avenue between East 26th Street and 29th Streets and with the former Bellevue Hospital Psychiatric Building between East 29th and 30th Streets. The East River Science Park is under construction on this superblock with the first completed building, the Alexandria Center for Life Science, located on the south side of East 29th Street overlooking the FDR Drive. The Phipps Houses occupy a superblock roughly bounded by East 26th and 29th Streets, Second Avenue, and Mt. Carmel Place (between East 28th and 29th Streets, the superblock extends one block further east, to First Avenue).

The full block north of the NYULMC between the FDR Drive and First Avenue and East 34th and 35th Streets is occupied by Rivergate, a 315-foot-tall, 35-story mixed use development. At the edges of the ¼-mile study area and just outside the study area including the west side of Second Avenue and the blocks west of First Avenue and north of East 33rd Street, this part of the study area is generally developed in the typical Manhattan grid pattern, with wide avenues running north-south and narrow streets running east-west, creating long, rectangular blocks.

Hospital, institutional, and residential uses dominate the study area closest to the project site. Beginning with NYULMC itself, the study area is very densely developed and includes the major health and science centers, as noted above. On the west side of First Avenue is the 10-story, light brown brick Arnold & Marilyn Greenberg Hall which is part of the NYULMC campus. The superblock containing the Arnold & Marilyn Greenberg Hall is dominated by the Kips Bay Towers, which are comprised of two 21-story (215-foot-tall), pre-cast concrete, modern apartment buildings oriented in an east-west direction and surrounded by grassy lawns, surface parking, flowers, and trees. On the west side of Kips Bay Towers is another large, two-story building that includes retail and cinema uses. There is also a one-story parking garage at the northeast corner of the superblock.

Other residential uses include the Phipps Houses, a cluster of high rise residential buildings with towers of up to 27 stories that primarily front Second Avenue and extend to First Avenue along East 29th Street (Henry Phipps Plaza East). The residential complex has pedestrian access to First Avenue and Bellevue South Park. There also are ground-floor retail uses concentrated along East 34th Street and First and Second Avenues.

The streetscape of the study area is urban in character, with wide sidewalks on East 34th Street and First and Second Avenues and a very narrow sidewalk on the west side of the FDR Drive Service Road. The study area includes typical street furniture, including newspaper stands, parking meters, phone booths, and garbage bins. The majority of the study area's pedestrian traffic is concentrated along East 34th Street and First and Second Avenues. Breaks in the street-wall are caused by recessed building entrances, loading docks, and parking garage entrances and egresses. The main entrance to the NYULMC campus from First Avenue is set back behind a driveway entrance for cars and emergency service vehicles, and a portion of the adjacent street is cordoned off by plastic bollards. Along First Avenue, just south of East 34th Street, the eastern blockfront of the NYULMC campus is lined with temporary construction structures, including one-story metal scaffolding with Amtrak construction trailers on top.

Open space in the study area is limited but includes the narrow East River Esplanade located east of the FDR Drive, Bellevue South Park along Mt. Carmel Place north of East 26th Street, and Albano Playground located at the corner of Second Avenue and East 29th Street. Privately owned, publicly accessible open spaces are associated with some of the larger residential buildings in the study area, such as the Kips Bay and Rivergate developments.

VIEW CORRIDORS AND VISUAL RESOURCES

View corridors in the study area are generally along the avenues and wide streets which in the study area include First Avenue, East 34th Street, and the portion of East 30th Street between First and Second Avenues (which has a much wider profile based on the Kips Bay residential towers that are set far back from the street). The elevated FDR Drive viaduct limits most views along the adjacent service road that establishes the eastern border of the project site and the NYULMC campus.

Along First Avenue looking north toward the NYULMC campus (see Photo 5 on **Figure D-4**) the hospital and institutional buildings and campus flanks First Avenue. The 27-story Skirball Institute building is the most visually distinctive building from this vantage point while interior areas of the campus (such as Schwartz Hall and Rubin Hall on the project site) cannot be seen from this vantage point. Closer to the intersection of First Avenue and East 30th Street (Photo 6 **Figure D-4**), views toward the NYULMC campus frame the OCME building located at the northeast corner of this intersection. Views east on former East 30th Street from First Avenue include Rubin Hall which is set back from former East 30th Street behind Schwartz Hall, creating a very limited and interrupted streetwall on this section of former East 30th Street. Rubin Hall is being prepared for demolition with or without the proposed project.

The portion of East 30th Street between First and Second Avenues is another view corridor in the study area. It provides long views toward the project site portion of the NYUMLC campus (see Photos 7 and 8 on **Figure D-5**). Views east include a small segment of the FDR Drive viaduct and obscured views of the East River. Because Rubin Hall is deeply recessed from East 30th Street, it is not visually prominent in views along East 30th Street. Views on East 30th Street include the OCME building and other NYULMC campus buildings. Due to a grade change and the height of some existing buildings, longer views to Schwartz Hall are extremely limited.

East 34th Street, another view corridor in the study area, extends east-west and is lined by tall buildings which limit views north and south to the buildings lining this street. As shown in Photo 9 on **Figure D-6,** views become wider at the intersection with First Avenue, providing views to the NYULMC campus, including the northern section of the campus's mix of outbuildings and the Rusk Institute building, and the more distant Skirball Institute building to the south.

Views from the portion of the East 34th Street view corridor near the FDR Drive are largely obscured by the FDR Drive viaduct. However, as shown in Photo 10 on **Figure D-6**, views south include the northeast corner of the NYULMC campus superblock with a surface parking lot where a new clinical building known as the Kimmel Pavilion and a new Energy Building are expected to be constructed. Views also include the Smilow Research Center building. The project site, which is located south of the Smilow Research Center building, is not visible from this vantage point. Views to the eastern edge of the project site are available along the FDR Drive Service Road but are restricted by the FDR Drive viaduct (see Photo 4 on **Figure D-3** and Photo 11 on **Figure D-7**).

Looking north on First Avenue **5**

Looking northeast on First Avenue toward project site **6**

Looking east on East 30th Street toward project site **7**

Looking east on East 30th Street toward project site **8**

Looking south from First Avenue and East 34th Street **9**

Looking south from East 34th Street and FDR Drive **10**

Looking south on east side of NYULMC superblock toward project site **11**

Looking southeast from East River Esplanade at about East 33rd Street **12**

Views west on former East 30th Street from the FDR Drive Service Road (Photo 1 on **Figure D-2**) include the eastern end of the block with views of Schwartz Hall on the project site (presently obscured by temporary construction trailers on the sidewalk) and a surface parking lot on the south side of former East 30th Street (currently occupied by a large tent). The former Bellevue Hospital Psychiatric Building can be seen in views along the south side of the street, along with lower rise portions of the NYU School of Medicine (NYUSOM) building and the OCME building. As shown in Photo 2 on **Figure D-2**, views from this portion of former East 30th Street to the project site primarily include the NYUSOM building and Rubin Hall beyond. The newer Smilow Research Center building is visible beyond these buildings.

The East River Esplanade is a riverfront space that is a view corridor in the study area. The esplanade is an extended walkway along the East River, providing views of the river, Queens and Brooklyn to the east, and views of the Manhattan skyline to the north and south. However, direct views west from the esplanade are obscured by the FDR Drive viaduct, including, views to the project site and the NYULMC campus in general (see Photos 3 on **Figure D-3)**. Views west from the esplanade include a variety of new and older buildings, including the Smilow Research Center building and the Alexandria Center for Life Science at East River Science Park to the south of the NYULMC campus.

C. THE FUTURE WITHOUT THE PROPOSED ACTION

PROJECT SITE AND CAMPUS SUPERBLOCK

Absent the proposed Science Building, NYULMC would build a new facility on the project site that complies with all zoning requirements. The complying building would require the demolition of the Medical Science Building/Dean's Suite and Schwartz Lecture Hall. Abatement and demolition of Rubin Hall has begun independent of the proposed action.

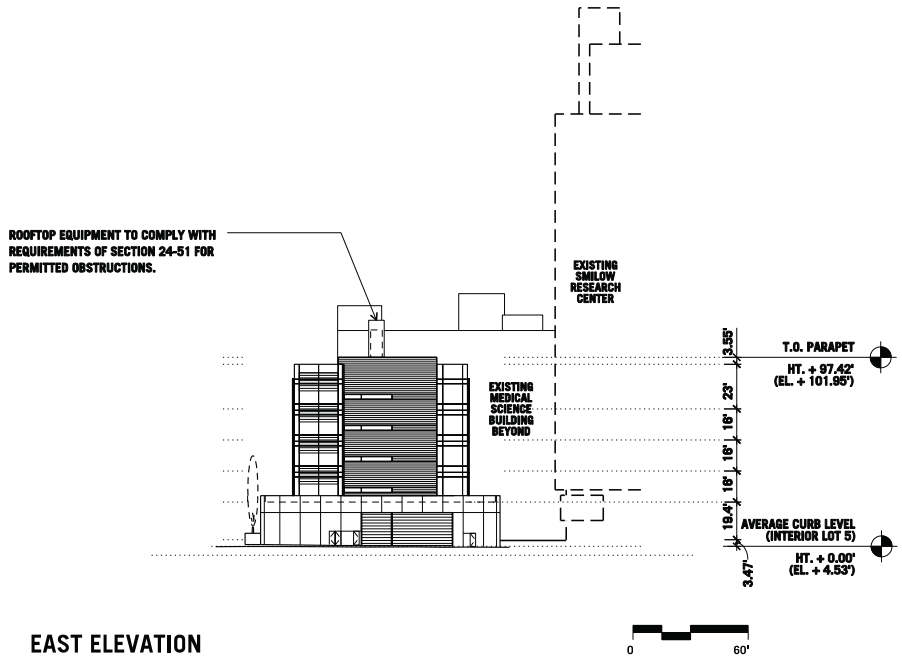
As shown in **Figure D-8,** the complying building would be approximately 97 feet tall with four floors of research facilities and a fifth floor housing mechanical. The building would contain approximately 135,524 gsf. The building façade would be similar to other new buildings on the NYULMC campus. The complying building would contain uses that would be consistent with uses that are currently present on the project site and prevalent in the study area.

As detailed in Attachment A, "Land Use, Zoning, and Public Policy" other changes on the campus superblock expected by the proposed project's completion year of 2017 include the expansion of the NYULMC Emergency Department and completion of the Kimmel Pavilion and the Energy Building.

Overall, the introduction of the complying building on the project site would not be expected to adversely alter the urban design or visual resources on the project site although it would be much shorter than some of the surrounding buildings.

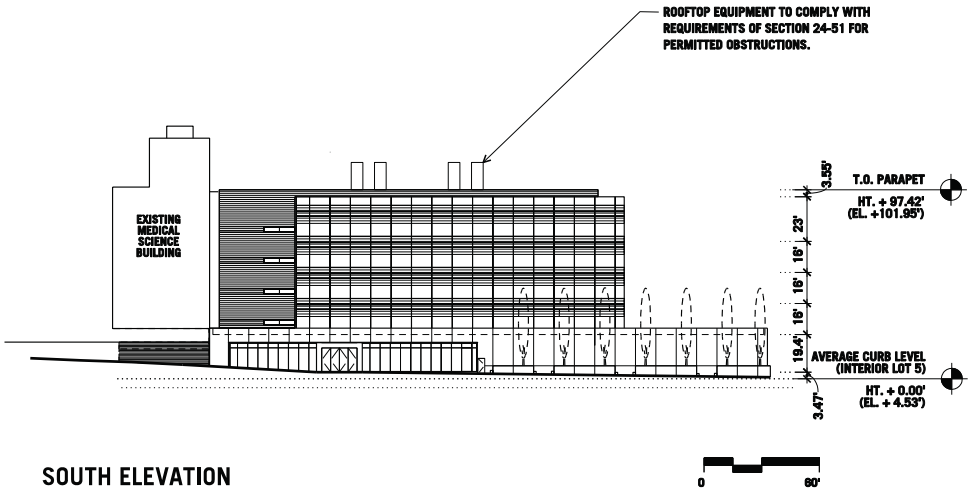
STUDY AREA

By 2017, several projects are expected to be completed in the study area, including Phase II of the Alexandria Center to the south of the project site and a small commercial building on Second Avenue at former East 30th Street. A 640-seat public school is expected to be completed at First Avenue and East 35th Street as part of a larger mixed-use development that will include an 828 unit residential development to be completed by 2017. Finally, in 2012 it is also anticipated that the 34th Street Transitway will introduce new street configurations that will enhance cross-town



EAST ELEVATION

Note: Materials are noted for illustrative purposes only and are subject to change.



SOUTH ELEVATION

Note: Materials are noted for illustrative purposes only and are subject to change.

Elevation View of Complying Building

Figure D-8

bus service and pedestrian conditions along this east-west corridor. These changes are not expected to alter the pattern of existing uses or the overall urban design character of the study area.

The development of the complying building on the project site as part of the No Action conditions would alter the urban design character and visual context for the block facing former East 30th Street by adding a modern, five-story building that would create a new street wall along the north side of the street and replace one-story Schwartz Hall. However, as described above, the project site has very little visual connection to the surrounding study area and the complying building would be expected to result in minimal changes to the overall urban design character or visual resources of the study area.

D. PROBABLE IMPACTS OF THE PROPOSED ACTION

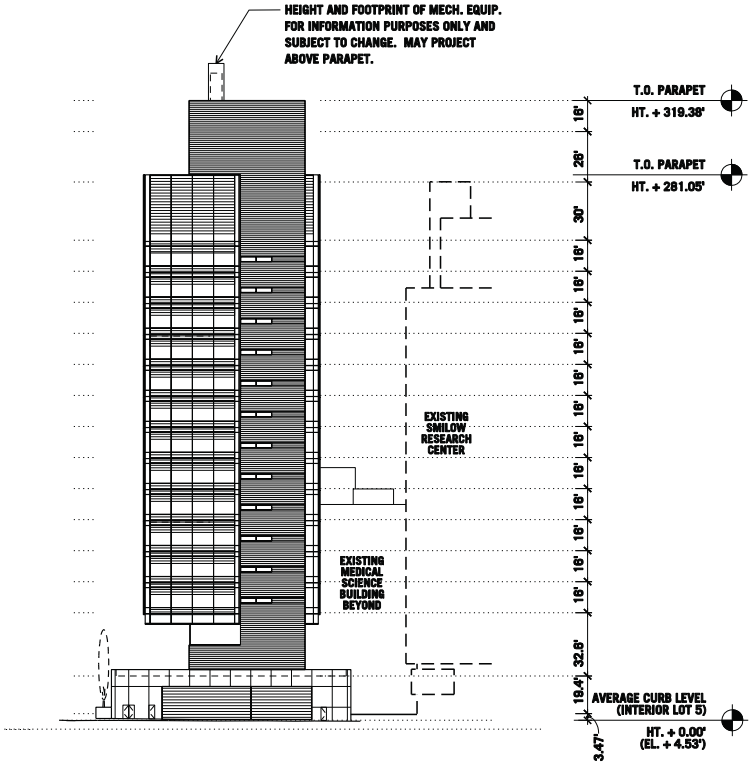
PROJECT SITE AND CAMPUS SUPERBLOCK

The proposed Science Building, similar to the No Action complying building, would require the demolition of the Medical Science Building/Dean's Suite and Schwartz Lecture Hall. Abatement and demolition of Rubin Hall has begun independent of the proposed action. However, as shown in **Figure D-9**, the proposed building would be approximately 319 feet tall with a conference facility and 12 floors of research space above which there would be additional mechanical space. The proposed building would contain approximately 443,474 gsf. **Figure D-10** presents a street profile view looking eastward on former East 30th Street from the FDR Drive Service Road under Build conditions. As shown in Figure D-10, the façade of the proposed building is expected to be a steel and glass curtain wall with masonry.

With the proposed height and setback waivers, the proposed building would be approximately 222 feet taller than the No Action building. However, the proposed building would still be in context with the existing and emerging character of the overall NYULMC campus. Most notably, it would be shorter than the Kimmel Pavilion (412 feet tall) to be constructed to the north, and only somewhat taller than the adjacent Smilow Research Center building (273 feet tall). These three buildings would create a new and modern street frontage along the eastern, FDR Drive boundary of the NYULMC campus. The new Science Building would create a more uniform streetwall along former East 30th Street compared with the existing conditions and similar to the No Action condition. Also similar to the No Action Condition it would present a more welcoming presence along former East 30th Street than the existing conditions.

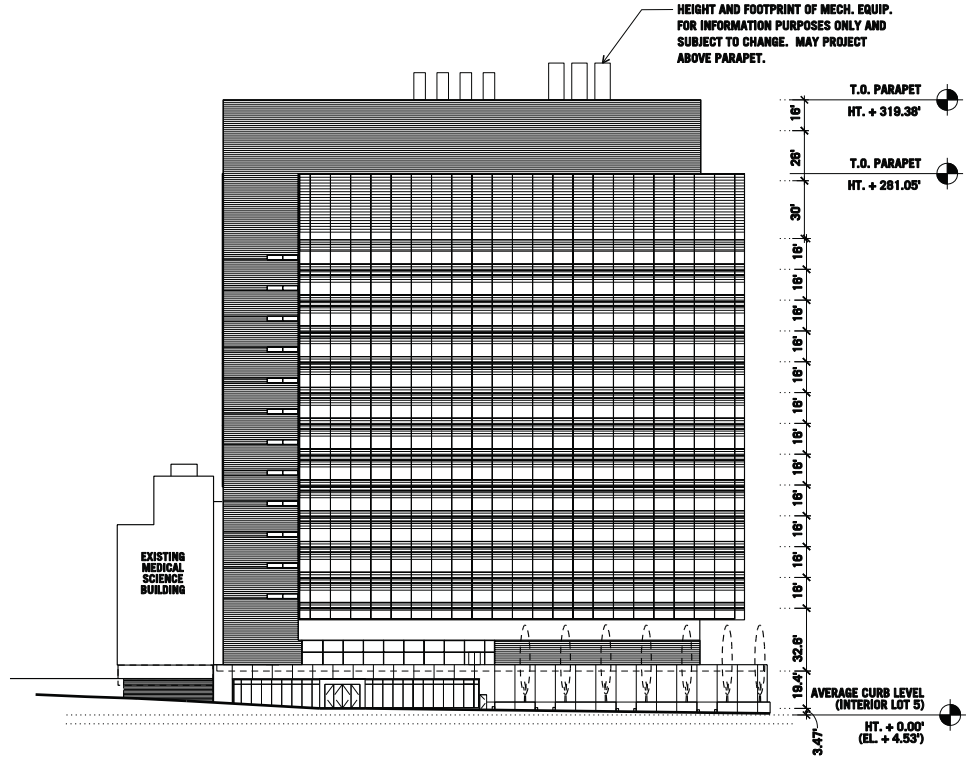
As described in Attachment A, "Land Use, Zoning, and Public Policy," the proposed Science Building would require a zoning variance from BSA to allow the following non-compliances:

- **A portion of the proposed building is located within a required rear yard equivalent (ZR Section 24-382)**. A small volume of the northeast portion of the proposed building would encroach upon the required rear yard equivalent of a through lot portion of the zoning lot.
- **The portion of the proposed building that is located within the initial setback distance exceeds the maximum permitted height of 85 feet above curb level or six stories, whichever is less, and penetrates the sky exposure plane (ZR 24-522**). A small volume of the easternmost portion of the proposed Science Building would be located within the required setback distance and would pierce the sky exposure plane applicable along the FDR Drive Service Road.



EAST ELEVATION

Note: Materials are noted for illustrative purposes only and are subject to change.



SOUTH ELEVATION

Note: Materials are noted for illustrative purposes only and are subject to change.

Elevation View of Proposed Building

Figure D-9

2.10.12

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

Illustrative Rendering of Proposed Project

Figure D-10

- **Lot coverage within the interior and through lot portions of the zoning lot exceeds 65 percent (ZR 24-11).** The construction of the proposed project would result in more than 65 percent lot coverage on the interior and through lot portions of the zoning lot.
- **The proposed building increases the degree of non-compliance allowed by prior BSA variance (Cal. No. 186-10-BZ) with respect to tower coverage limitation (ZR 24-54 and 186-10-BZ).** The portion of the proposed Science Building located above an elevation of 101.95 feet (or a height of 85 feet above curb level) would constitute tower coverage, resulting in an increased degree of non-compliance of previously approved towers on the zoning lot with applicable tower coverage limitations.

As described on page 1a of the EAS, "Project Description," and in Attachment A, "Land Use, Zoning, and Public Policy," the requested actions are necessary to facilitate the construction of a facility that meets NYULMC's programmatic needs for additional research space, efficient floor plates, and physical connections to existing research facilities.

STUDY AREA

Like the complying building in the No Action condition, the proposed Science Building would be constructed on an existing block and would not entail any changes to streets or street patterns, public open spaces, or natural features in the study area. The height of the proposed building would be similar to surrounding buildings on the NYULMC campus and superblocks in the surrounding study area.

As noted above, the project site does not have a strong visual connection with the study area and is not likely to affect sunlight conditions for pedestrians on surrounding streets, or to change or obstruct view corridors in the study area. As shown on Figure D-10, the most notable changes with the proposed project would be in the areas closest to former East 30th Street with the addition of a new, taller building on the project site that would provide a consistent streetwall to this portion of former East 30th Street. However, these changes to the project site would also occur in the No Action condition.

From the East River Esplanade, views would change somewhat and would include the proposed Science Building in views west above the FDR Drive viaduct. Like in the No Action condition, the new building would add a new structure to these views. It would be more than 100 feet taller than the complying building. However, although the proposed building would be taller, changes to this view would not be considered adverse as the new building, like the No Action building, would be consistent with the changes to the skyline of the NYULMC campus with the Smilow Research Center building and the Kimmel Pavilion, as well as other nearby developments, including the first phase of the Alexandria Center for Life Science at East River Science Park (270 feet tall) located south of the project site.

In summary, this preliminary assessment concludes that, as with the No Action condition, the proposed action would not be expected to result in any significant adverse impacts on urban design and visual resources, and does not require further analysis. ✷

A. INTRODUCTION

This section addresses the potential for the presence of hazardous materials resulting from previous and existing uses both onsite and in the surrounding area, and potential impacts associated with the proposed Science Building at the southeast corner of the New York University Langone Medical Center (NYULMC) campus with respect to any such hazardous materials. The proposed project would include demolition of the on-site buildings, followed by construction of the proposed new Science Building, with two cellar levels. This assessment concludes that the proposed project is not anticipated to result in significant adverse impacts with respect to hazardous materials.

The hazardous materials assessment was based on a Phase I Environmental Site Assessment (ESA) prepared for the project site by AKRF, Inc., dated February 2011 at which time the site included: Rubin Hall, a 15-story plus basement vacant former dormitory; Schwartz Lecture Hall, a lecture hall with a ground floor and basement; and Medical Science Building/Dean's Suite. The project site is located in the southeastern corner of a four-block superblock extending from former East 30th Street to East 34th Street.

B. EXISTING CONDITIONS

SUBSURFACE CONDITIONS

Based on U.S. Geological Survey mapping, the project site is approximately 10 feet above mean sea level, with the ground sloping down toward the East River. The Phase I ESA indicated that the site is "made land," created by landfilling in the mid-1800s and early 1900s. Subsurface investigations of the central portion of the project superblock (north of the project site) identified layers of urban fill (including wood, cinders, ash, brick and other construction debris) approximately 10 to 35 feet thick, underlain by silt with clay and/or organic material (5 to 15 feet thick), sand (5 to 40 feet thick) and/or decomposed rock (approximately 10 feet thick), underlain by competent bedrock beginning at depths of approximately 20 to more than 100 feet below grade. All layers were noted to increase in thickness toward the east, and the bedrock surface sloped steeply down toward the east.

Subsurface investigations in the central portion of the superblock encountered groundwater approximately 2.5 to 10 feet below grade, and noted that groundwater, though tidally influenced, would be expected to flow generally toward the East River, which is approximately 200 feet away. However, actual groundwater flow can be affected by many factors including subsurface openings or obstructions such as basements, underground utilities, parking garages and tunnels (including Amtrak tunnels beneath the northern portion of the superblock), bedrock geology, tidal fluctuations, and other factors beyond the scope of this study. 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 reviewed a variety of sources including: current and historic Sanborn Fire Insurance maps; state and federal environmental regulatory databases; and computerized New York City Fire Department and Department of Buildings records. The Phase I ESA also included reconnaissance of the site and surrounding neighborhood. The Phase I ESA identified the conditions listed in the bullets below. The first three bullets constitute Recognized Environmental Conditions (RECs):

- The project site was created by landfilling in the mid-1800s to early 1900s. Geotechnical borings advanced on the project superblock north of the project site in the 1950s and 1960s encountered a 10 to 35-foot thick layer of urban fill containing miscellaneous construction debris. Prior to the construction of the current structures between approximately 1952 and 1973, the project site was developed with a variety of uses including a warehouse, a lumber yard, an airplane factory and hangar, and a laboratory.
- Regulatory databases identified open and closed-status nearby petroleum spills with the potential to have affected subsurface conditions beneath the project site. NYULMC was identified in regulatory databases as a generator of hazardous waste. Five associated regulatory violations were reported between 1985 and 2005, but returns to compliance were noted in all cases. No hazardous waste was generated or stored on-site according to building management. A Phase I ESA of an off-site portion of the superblock, conducted by AKRF in 2010, indicated that hazardous waste generated at NYULMC was stored in a building north of the site (in an anticipated cross-gradient direction with respect to groundwater flow), and noted no evidence of hazardous waste releases.
- The surrounding area was historically mixed-use. Uses on off-site portions of the superblock included: Standard Gas Light Co. with a manufactured gas holder and four tanks with unspecified contents; factories; coal and lumber yards; a dyer and cleaner; a silk hose factory; garages and filling stations with buried gasoline tanks, and auto repair in the central and northern portions of the superblock (in an anticipated cross-gradient direction with respect to groundwater flow); based on their location, these uses are not likely to have significantly affected the project site. Factories, lumber yards, a filling station, a garage with buried gasoline tanks, and auto repair were located on the superblock to the west of the project site, potentially upgradient with respect to groundwater flow. Factories, a pasteurized milk laboratory, and garages and filling stations with buried gasoline tanks were historically located on blocks to the west (potentially upgradient with respect to groundwater flow). By the late 20th century, the NYULMC superblock was mostly occupied by medical uses, and more residential uses were shown in the surrounding area. The Standard Gas Light Co. was identified in regulatory databases as Consolidated Edison (Con Ed) East 32nd Street Station, a New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Site. In 2010, Con Ed conducted an investigation of the Station, including the collection of soil and groundwater samples. This investigation did not identify evidence of any significant impacts from the historical manufactured gas storage, or other evidence of spills or releases in the central portion of the superblock, where testing was conducted.
- Based on the age of the on-site buildings, fluorescent lighting components and electrical equipment observed during the reconnaissance may contain polychlorinated biphenyls (PCBs). Fluorescent lights may contain mercury. Interviews indicated that all elevators were cable-driven (electrical), and are therefore not expected to contain PCBs.

- Based on the age of the buildings, asbestos-containing materials (ACM) may be present. Suspect ACM observed during the reconnaissance included 12”x12” vinyl floor tiles and associated mastic, suspended ceiling tiles of various sizes, thermal pipe insulation, ventilation duct insulation, and sheetrock walls and ceilings.
- Based on the buildings’ age, lead-based paint may be present on painted surfaces. Painted surfaces were observed to be in good condition. During the reconnaissance, there was no observation of current residential occupancy, child care facilities or other facilities where the extended presence of children would be expected.

Subsequent to the preparation of the Phase I ESA, NYULMC entered into a Restrictive Declaration (RD) (Number CRFN2011000084677), as a part of other proposed campus redevelopment, which commits them to performing a subsurface investigation (including laboratory analysis of soil, groundwater and spoil vapor samples) in accordance with a propocol that must be pre-approved by the Mayor’s Office of Environmental Remediation (OER). Based on the findings of the investigation, a Remedial Action Plan (incorporating a Construction Health and Safety Plan) would be prepared with a scope subject to OER approval) and implemented during the subsurface disturbance associated with construction.

C. THE FUTURE WITHOUT THE PROPOSED ACTION

In the future without the proposed action (the “No Action” condition), the current on-site buildings would be demolished (following applicable requirements relating to ACM, lead-based paint and potentially PCB-containing equipmen)t and a smaller research building with two cellar levels would be constructed on the site. Therefore, without the proposed project, soil disturbance would be similar to that anticipated for the proposed project and subsurface investigation and subseqyent excavation would be conducted in accordance with the requirements of the RD.. NYSDEC requirements, should petroleum tanks and/or spills be identified, would also be followed.

Specifically, procedures would include:

- Prior to demolition, an asbestos survey would be completed and all ACM would be removed and disposed of in accordance with local, state and federal requirements.
- Any demolition activities with the potential to disturb lead-based paint would be performed in accordance with the applicable Occupational Safety and Health Administration regulation (OSHA 29 CFR 1926.62—Lead Exposure in Construction).
- Unless there were to be labeling or laboratory testing data indicating that suspect PCB-containing electrical equipment and fluorescent lighting fixtures did not contain PCBs, and that fluorescent lights did not contain mercury, disposal would be performed in accordance with applicable federal, state and local requirements.
- Disposal of any on-site chemicals would be in accordance with all applicable requirements.
- Per the RD, prior to conducting soil excavation, a Subsurface (Phase II) Investigation, including the collection and laboratory analysis of soil, soil vapor and groundwater samples, would be conducted to ascertain subsurface conditions and identify appropriate management practices during construction. A Work Plan for the Subsurface Investigation would be submitted to the Mayor’s Office of Environmental Remediation (OER) for review and approval. Prior to the proposed construction activities, and based on the findings of the investigation, a site-specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) would be prepared for implementation during construction and

submitted to OER for review and approval. The RAP would provide for the appropriate handling, stockpiling, testing, transportation, and disposal of excavated materials, including any unexpectedly encountered contamination and petroleum storage tanks, in accordance with all applicable regulatory requirements. The CHASP would ensure that all subsurface disturbance is done in a manner protective of workers, the community, and the environment and would include requirements for air monitoring during subsurface disturbance.

- All excavated soil and debris (whether contaminated or not) requiring off-site disposal would be handled and disposed of in accordance with all applicable regulatory requirements. Should petroleum tanks be unexpectedly encountered, applicable regulatory requirements (e.g., those relating to spill reporting and tank registration) would be followed to address removal of the tanks and any associated soil or groundwater contamination.
- If dewatering were to be required for construction, testing would be performed prior to dewatering to ensure that the water would meet all applicable requirements. If necessary, pretreatment would be conducted prior to discharge into the municipal sewer system, as required by NYCDEP Sewer Discharge permits.

D. PROBABLE IMPACTS OF THE PROPOSED ACTION

As with the building that would be constructed in the future without the proposed action, the proposed action would involve demolition of the existing buildings and excavation for the construction of a new building with two cellar levels. Based on the findings of the Phase I ESA, past and present uses of the site and the surrounding area may have affected subsurface conditions beneath the site. The proposed action and the future without the proposed action would result in similar subsurface disturbance, and therefore no additional hazardous materials impacts would result from the proposed project. Although both the future without the proposed action and the proposed site development could increase pathways for human exposure, with the proposed project, the potential for adverse impacts would be further reduced by performing site development activities in accordance with the procedures outlined above for the future without the proposed action.

With the performance of the work in accordance with the above, no significant hazardous materials impacts are expected to result from the proposed project. ✷

As described in the EAS, the proposed Science Building would have a population of 820 persons, of which half (410) would be new to the campus. Absent the proposed action, NYULMC would construct a complying building with estimated population new to the campus of 125. Therefore, the net increase in population generated by the proposed project is 285 employees, as analyzed below. Based on the methodologies presented in the *CEQR Technical Manual*, a Level 1 project trip generation screening assessment was conducted to determine if the proposed development would require further evaluation. As summarized in **Table F-1**, travel demand factors for this preliminary trip generation assessment were based on the *Memorial Sloan Kettering Cancer Center Rezoning FEIS*, US Census data, and information provided by NYULMC.

TRAFFIC

As stated in the *CEQR Technical Manual*, if the proposed project would generate fewer than 50 peak hour vehicle trip ends, the need for further traffic analysis would be unlikely. The proposed action would generate approximately 43, 12, and 39 more vehicle trips than the complying building during the weekday AM, midday, and PM peak hours, respectively. Therefore, a quantified traffic analysis is not warranted and the proposed action is not expected to result in any significant adverse traffic impacts within the study area.

TRANSIT

As stated in the *CEQR Technical Manual*, if the proposed project would result in fewer than 200 peak hour subway/rail or bus transit riders, further transit analyses are not typically required as the proposed project is considered unlikely to create a significant transit impact. The proposed action would generate approximately 55, 0, and 58 more subway trips, 24, 0, and 25 more bus trips, and 15, 0, and 15 more railroad trips than the complying building during the weekday AM, midday, and PM peak hours, respectively. Therefore, a detailed transit analysis is not warranted and the proposed action is not expected to result in any significant adverse impacts on transit services and facilities within the study area.

PEDESTRIAN

As stated in the *CEQR Technical Manual*, if the proposed project would result in fewer than 200 pedestrian trips during the analysis peak hours, a further detailed analysis would be unnecessary. The proposed action would generate approximately 149, 77, and 156 more person trips than the complying building during weekday AM, midday, and PM peak periods, respectively. Therefore, a detailed pedestrian analysis is not warranted and the proposed action is not expected to result in any significant adverse impacts on pedestrian facilities within the study area.

Table F-1
Trip Generation

Science Building: Net Increment	285				307.95				
	(employees)				(/1000 square feet)				
Person Trip Temporal & Directional Distribution (1)	**AM**			**Midday**			**PM**		
	52.0%			27.0%			55.0%		
	In	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
	95.0%	5.0%	100.0%	35.0%	65.0%	100.0%	15.0%	85.0%	100.0%
Modal Split (3)	**AM**			**Midday**			**PM**		
Auto	21.0%			0.0%			21.0%		
Taxi	3.0%			0.0%			3.0%		
Subway	37.0%			0.0%			37.0%		
Railroad	10.0%			0.0%			10.0%		
Bus	16.0%			0.0%			16.0%		
Walk	13.0%			100.0%			13.0%		
Total	100.0%			100.0%			100.0%		
Vehicle Occupancy									
Auto (3)	1.24								
Taxi (2)	1.35								
Daily Delivery Trip Rate (2)	0.4								
	(/1000 square feet)								
Delivery Trip Temporal & Directional Distribution (2)	**AM**			**Midday**			**PM**		
	10.0%			9.0%			5.0%		
	In	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
	50.0%	50.0%	100.0%	50.0%	50.0%	100.0%	50.0%	50.0%	100.0%
Peak Hour Person Trip	**AM**			**Midday**			**PM**		
	In	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	30	2	32	0	0	0	5	28	33
Taxi	4	0	4	0	0	0	1	4	5
Subway	52	3	55	0	0	0	9	49	58
Railroad	14	1	15	0	0	0	2	13	15
Bus	23	1	24	0	0	0	4	21	25
Walk	18	1	19	27	50	77	3	17	20
Total	141	8	149	27	50	77	24	132	156
Peak Hour Vehicle Trip	**AM**			**Midday**			**PM**		
	In	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	24	1	25	0	0	0	4	23	27
Taxi	3	3	6	0	0	0	3	3	6
Delivery	6	6	12	6	6	12	3	3	6
Total	33	10	43	6	6	12	10	29	39

Source:
1. Information provided by NYULMC. 410 Proposed Population minus 125 Complying Building Population = 285 net new
2. *Memorial Sloan Kettering Cancer Center FEIS, (CEQR # 01DCP050M)*, November 2001.
3. Reverse Journey to Work Information for census tracts # 62, 66, and 70 from 2000 US Census Data.

PARKING

As stated in the *CEQR Technical Manual*, an on- and off- street parking analysis may likely be needed if the proposed project exceeds the development densities and a quantified traffic analysis is warranted. Since the proposed action is not expected to generate incremental vehicle trips exceeding the *CEQR* analysis thresholds and a quantified traffic analysis is not required, an on- and off- street parking evaluation is not warranted and the proposed action would not result in parking shortfalls within the study area. ✷

A. INTRODUCTION

The potential for air quality impacts from the proposed project is examined in this section. Air quality impacts can be either direct or indirect. Direct impacts result from emissions generated by stationary sources at a development site, such as emissions from on-site fossil fuel combustion for heating, ventilation, and air conditioning (HVAC) systems. Indirect impacts are those caused by emissions from nearby existing stationary sources (impacts on the proposed project) or by emissions from on-road vehicle trips (mobile sources) generated by a project.

The proposed project is not expected to significantly alter traffic conditions. The maximum hourly incremental traffic from the proposed project would not exceed the *CEQR Technical Manual* carbon monoxide screening threshold of 140 peak hour trips at intersections in the study area, or the particulate matter emission screening thresholds discussed in Chapter 17, Sections 210 and 311 of the *CEQR Technical Manual*. Therefore, a quantified assessment of on-street mobile source emissions is not warranted.

Since the new Science Building's heating and hot water needs would be served by the cogeneration plant, which is part of the Energy Building, no significant fossil fuel fired HVAC systems are proposed. Therefore, no analysis of HAVC emissions from the Science Building is required. An analysis was performed to assess the impact of existing and future emission sources on the NYULMC campus at receptors on the Science Building.

This section examines the expected use of potentially hazardous materials in the proposed Neuroscience Institute's (NSI) research laboratories to be located in the new Science Building, and the procedures and systems that would be employed in the proposed laboratories to ensure the safety of staff and the surrounding community in the event of a chemical spill in one of the proposed laboratories.

Based on the analysis of the existing and future emission sources on the NYULMC campus, there would be no significant impacts on the Science Building. In addition, an analysis of the laboratory exhaust system determined there would be no significant impacts in the proposed building or on the surrounding community in the event of a chemical spill in a laboratory. On December 6, 2012, the New York City Department of Environmental Protection (DEP) completed its review of the air quality for the proposed project, and concluded that that no significant air quality impacts from the proposed project are anticipated (see Appendix B of the EAS).

B. METHODOLOGY FOR PREDICTING POLLUTANT CONCENTRATIONS

ENERGY BUILDING AND EXISTING EMISSION SOURCES

An analysis was performed to assess the potential impact of existing and future emission sources on the NYULMC campus at receptors on the Science Building. NYULMC is currently constructing an Energy Building that will include a combined heat and power (CHP) plant that will provide steam and electric power for the NYULMC campus. The CHP plant will have a maximum potential capacity of 7.5 megawatt (MW). The combustion turbine and the duct burner analyzed are designed to meet all the required steam loads for the campus, including the proposed Science Building.

The Energy Building will include two dual fuel (natural gas and No. 2 oil) back-up boilers to be used during periods when the CHP plant is not operating, due to scheduled CHP plant maintenance or other reasons. The anticipated operation of the backup boilers is minimal, and maintenance on the CHP plant will be expected to occur during non-peak demand periods. The boilers will use oil only during the winter period when the utility gas supply is interrupted. Annual boiler operation is anticipated to be a maximum of 24 days per year (263 hours per year).

Four existing emergency generators will remain on the campus in addition to six new emergency generators in the Energy Building and Kimmel Pavilion. Each building will house three new generators each rated at approximately 2.5 MW emergency generators. Both the existing and the new emergency generators will be tested periodically for a short period to ensure their availability and reliability in the event of a sudden loss in utility electrical power.

The dispersion modeling analysis was performed based on the current design parameters for the CHP Plant, back-up boilers and emergency generators, which will be included in the permit applications prepared for the NYSDEC and DEP. The methodology used for the analysis follows the approach used for the EAS prepared for Energy Building and Kimmel Pavilion, which was approved by the BSA.

DISPERSION MODEL

The potential impacts on the proposed Science Building were evaluated using the EPA/AMS AERMOD dispersion model[1]. The AERMOD model was designed as a replacement to the ISC3 model by EPA. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of terrain interactions.

The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability to calculate pollutant

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

concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. The analyses of potential impacts from exhaust stacks were made assuming stack tip downwash, urban dispersion and surface roughness length, with and without building downwash, and elimination of calms.

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

METEOROLOGICAL DATA

The meteorological data set consisted of five consecutive years of meteorological data: surface data collected at LaGuardia Airport (2006–2010) and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and temperature inversion elevation over the five-year period. These data were processed using the EPA AERMET program to develop data in a format which can be readily processed by the AERMOD model. The land uses around the site where meteorological surface data were available were classified using categories defined in digital United States Geological Survey (USGS) maps to determine surface parameters used by the AERMET program.

RECEPTOR PLACEMENT

Discrete receptors (i.e., locations at which concentrations are calculated) were chosen on the Science Building for the stationary source modeling analysis. The proposed Science Building will have sealed inoperable windows so receptors were placed only at proposed air intake locations based on the current mechanical design. All receptors were referenced to Universal Transverse Mercator (UTM) coordinates.

EMISSION ESTIMATES AND STACK PARAMETERS

For the analysis of the Energy Building and existing sources, PM and NO_2 emissions were analyzed (SO_2 emissions are considered insignificant since the CHP plant will operate on natural gas and the back-up boilers and emergency generators would operate for limited periods with ultra low sulfur furl oil). For the CHP Plant, NO_x and PM emission factors were obtained based on design information from vendors. CHP NO_x emissions will be controlled with selective catalytic reduction (SCR) with a 90 percent efficiency. It was assumed that PM_{10} emissions are equivalent to $PM_{2.5}$ for the natural gas fired combustion turbine and duct burner. For the back-up boilers, NO_x emission factor was obtained from EPA AP-42 Tables 1.3-1 and 1.4-1. The PM emission factor was obtained based on vendor information.

The reasonable worst-case short-term and annual scenarios are based on the assumptions used for the EAS prepared for the Energy Building and Kimmel Pavilion, and reflect the continuous operation of the CHP plant for 8,760 hours per year at 100 percent load.

The reasonable worst-case short-term scenario assumes daily (24-hour) continuous operation on fuel oil during January and February and on natural gas during the rest of the year. The reasonable

worst-case annual scenario assumes that the back-up boilers could be used for a maximum of 263 hours per year. For the NO_2 annual modeling analysis, the calculated total annual emissions were prorated over the entire year and conservatively assume 100 percent operation on fuel oil, in addition to the emissions from the CHP plant. Since emissions from the CHP plant are greater than the emissions from the boilers, the $PM_{2.5}$ annual analysis was performed assuming continuous operation of the CHP plant as a worst-case assumption.

For the proposed emergency generators, the major pollutants of concern are short-term emissions from PM_{10} and $PM_{2.5}$. For the new emergency generators, emission rates for PM were based on representative vendor data. For the existing emergency generators, all emission rates were based on AP-42 emission factors.

Annual impacts from the emergency generators were not analyzed since these units are only operated for short periods of time. In addition, 1-hour NO_2 concentrations from the emergency generators were not estimated since based on EPA guidance these sources are considered intermittent as they are used for extremely limited periods of time (less than 0.5 percent per year. Nevertheless, the emergency generators will be designed to meet all applicable federal, state and local regulations, which will require procurement of new equipment with a specific NO_x emission limit.

The reasonable worst-case short-term scenario for the emergency generators assumed two test scenarios, based on current NYULMC operating experience: (1) a weekly test for up to 30 minutes in length, which will be performed at partial load (50 percent load was assumed); and (2) a monthly test at full load (100 percent) for up to 90 minutes. For the new emergency generators, the analysis assumed that for the full load test one engine each on Kimmel Pavilion and Energy Building will be tested simultaneously with the CHP Plant. For the 50 percent load test, all three engines on Kimmel Pavilion, and two engines on Energy building will be tested simultaneously with the CHP Plant. For the existing emergency generators, the analysis assumed that each generator could be tested simultaneously with the other additional sources at the facility.

Maximum short-term and annual emission rates were calculated for the CHP plant, the boilers, and the emergency generators. Stack parameters and emission rates are provided in **Table G-1** for the proposed project's major sources of emissions and **Table G-2** for the existing generators that will remain in operation with the proposed project.

Annual average NO_2 concentration increments were estimated using a NO_2 to NO_x ratio of 0.75, as described in EPA's *Guideline on Air Quality Models* at 40 CFR part 51 Appendix W, Section 5.2.4.[2]

1-Hour average NO_2 concentration increment was estimated using AERMOD model's Plume Volume Molar Ratio Method (PVMRM) module to analyze chemical transformation within the model. The PVMRM module incorporates hourly background ozone concentrations to estimate NO_x transformation within the source plume. Ozone concentrations were taken from the DEC Queens College monitoring station that is the nearest ozone monitoring station and had complete five years of hourly data available. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust stack was assumed, which is considered conservative.

Total 1-hour NO_2 concentrations were determined following methodologies that are accepted by the EPA as appropriate and conservative. The methodology used to determine the compliance of

[2] http://www.epa.gov/scram001/guidance/guide/appw_05.pdf

total 1-hour NO_2 concentrations from the CHP and boiler sources with the 1-hour NO_2 NAAQS[3] was based on adding the 98th percentile modeled concentrations to the 98th percentile background monitored concentrations averaged over the latest three years. This refined approach is recognized as being conservative by EPA and the City.

Table G-1
Stack Parameters and Emission Rates – Proposed Sources(1)

Parameter	Value			
	CHP plant (2)	Boilers (3)	Emergency Generators @ 100 % load (5)	Emergency Generators @ 50% load(6)
Stack Height (ft)(4)	429	429	411.6 / 147.2	411.6 / 147.2
Stack Exhaust Inside Diameter (ft)	4.0	4.0	1.0	1.0
Stack Exit Velocity (ft/s)	91.9	66.3 / 63.8	404.2	257.7
Stack Exit Temperature (F)	283.7	300	921.9	848.5
NO_x Emission Rate (1 hour) (g/s)	0.2547	4.0787 / 3.9031	(7)	(7)
NO_x Emission Rate (Annual) (g/s)	0.2547	0.1172	(8)	(8)
PM_{10} Emission Rate (24 hour) (g/s)	0.3090	0.1095 / 0.6830	0.0031	0.00073
$PM_{2.5}$ Emission Rate (24 hour) (g/s)	0.3090	0.1095 / 0.6830	0.0031	0.00073
$PM_{2.5}$ Emission Rate (Annual) (g/s)	0.3090	0.0205	(8)	(8)

Notes:
(1) Stack parameters and emission rates for the CHP plant are presented at 59ºF (ISO) conditions. The stack height is based on the current design which will be included in the NYSDEC and DEP air permit applications.
(2) Short-term and annual emission rates are for the CHP plant operating continuously for 8,760 hours per year at 100 percent load.
(3) Short-term emission rates are for one boiler operating at any time. The first emission rate is for boiler operating on natural gas. The second emission rate is for boiler operating on fuel oil. It is assumed that fuel oil will only be utilized during January and February. Annual emission rates for the boilers assume boiler operating for 263 hours per year on fuel oil.
(4) Stack height above grade (approximately 437 feet above sea level). For the emergency generators, the first value is the stack height on top of the Kimmel Pavilion and the second value is the stack height on top of the Energy Building.
(5) Emission rates are per engine, operating at 100% load for 1.5 hours per day for monthly testing.
(6) Emission rates are per engine, operating @ 50% load for 0.5 hours per day for weekly testing.
(7) 1- Hour impacts of NO_2 from the emergency generators were not analyzed.
(8) Annual impacts from the emergency generators were not analyzed since these units are only operated for short periods of time.

Table G-2
Stack Parameters and Emission Rates – Existing Sources(1)

Parameter	Value					
	2- 1,400 kw Emergency Generators at Smilow		1-1,250 Emergency Generator at Skirball		1-1,000 kw Emergency Generator at HCC	
	100% Load	50% Load	100% Load	50% Load	100% Load	50% Load
Stack Height (ft)	275	275	310	310	120	120
Stack Exhaust Inside Diameter (ft)	1	1	1	1	1	1
Stack Exit Velocity (ft/s)	245.2	147.1	229.2	137.5	160.9	96.5
Stack Exit Temperature (F)	905	814.5	1007.1	906.4	884.1	795.7
NO_x Emission Rate (Annual) (g/s)	(2)	(2)	(2)	(2)	(2)	(2)
$PM_{2.5}$ Emission Rate (24-hour) (g/s)	0.00675	0.00112	0.00603	0.00101	0.00482	0.0008
$PM_{2.5}$ Emission Rate (Annual) (g/s)	(2)	(2)	(2)	(2)	(2)	(2)

Notes:
(1) Stack parameters are based on data for similar sized engines.
(2) Annual impacts from the emergency generators were not analyzed since these units are only operated for short periods of time.
(3) 1- Hour impacts of NO_2 from the emergency generators were not analyzed.

[3] http://www.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf

Total hourly NO_2 concentrations throughout the modeling period were determined by adding the maximum 1-hour modeled concentration to the maximum 98th percentile background concentration, averaged over three years, in accordance with the form of the 1-hour standard.

BACKGROUND CONCENTRATIONS

To estimate the maximum expected pollutant concentration at a given receptor, the predicted impacts must be added to a background value that accounts for existing pollutant concentrations from other sources that are not directly accounted for in the model (see **Table G-3**).

Table G-3
Maximum Background Pollutant Concentrations

Pollutant	Average Period	Location	Concentration (μg/m^3)	NAAQS (μg/m^3)
NO_2	1-hour[(1)]	Queens College II, Queens	126.1	188
	Annual[(2)]		67.7	100
PM_{10}	24 Hour[(3)]	Madison Avenue, Manhattan	63	150

Sources: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2007-20011
(1) 3-year average of the annual 98th percentile daily maximum 1-hr average concentration (2009-2011).
(2) 5-year maximum from 2007 – 2011 from Queens College II for consistency with the 1-hour averages.
(3) 3-year highest second-highest measured value from 2009– 2011.

The background levels are based on concentrations monitored at the nearest NYSDEC ambient air monitoring stations over a recent five-year period for which data are available, with the exception of PM_{10}, which is based on three years of data, consistent with DEP guidance. For the PM_{10} 24-hour average, the highest second-highest measured values over the specified period were used. Consistent with the form of the standard, for the 1-hour NO_2 averaging period, the 3-year average of the annual 98th percentile daily maximum 1-hr average concentration was used. The annual average background values are the highest measured average concentrations. It was conservatively assumed that the maximum background concentrations occur on all days.

EMERGENCY GENERATORS

Two emergency diesel-fueled generators with a capacity of 2.5 megawatts each would be installed to serve the proposed project in the event of the loss of utility electrical power. The emergency generators would be tested periodically for a short period to ensure its availability and reliability in the event of a sudden loss in utility electrical power. It would not be utilized in a peak load shaving program,[4] minimizing the use of this equipment during non-emergency periods. Emergency generators are exempt from NYSDEC air permitting requirements, but would require a permit or registration issued by DEP, depending on the generator capacity. The emergency generators would be installed and operated in accordance with DEP requirements, as well as other applicable codes and standards. Potential air quality impacts from the emergency generator would be insignificant, since it would be used only for limited periods for testing purposes outside of an actual emergency use.

[4] The term "peak load shaving" refers to the use of customer-operated (non-utility) generators to produce electricity at the request of the local electrical utility in order to reduce the electrical demand during peak demand periods, particularly during the summer period.

CHEMICAL SPILL ANALYSIS

INTRODUCTION

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

The following section details the expected usage of potentially hazardous materials, as well as the systems that would be employed at the proposed project to ensure the safety of the staff and the surrounding community in the event of an accidental laboratory chemical spill in the science laboratories. A quantitative analysis employing mathematical modeling was performed to determine potential impacts of a chemical spill on nearby places of public access, including nearby buildings, and potential impacts due to recirculation into air intake systems of the new Science Building.

LABORATORY FUME HOOD EXHAUSTS

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

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

- Type of exhausts - common exhaust plenum tied into approximately four cannon fans;
- Exhaust flow rate – approximately 53,200 cubic feet per minute leaving the canon fans;
- Exhaust velocity – 4,798 feet per minute per fan; and
- Effective stack height – 45 feet above stack exhaust (approximate).

PLANNED OPERATIONS

An inventory of chemicals which may be present in a typical laboratory in the proposed Science Building was examined. From the chemical inventory, approximately 20 chemicals were selected for further examination, based on their toxicity and potential for air quality impacts. Common buffers, salts, enzymes, nucleotides, peptides, and other bio-chemicals were not considered in the analysis since they are not typically categorized as air pollutants. Nonvolatile chemicals (a vapor pressure of less than 10 mm Hg) were excluded as well. **Table G-4** shows the hazardous chemicals selected. The vapor pressure shown for each chemical is a measure of the material's volatility—its tendency to evaporate, or to form fumes or vapors, which is a critical parameter in determining potential impacts from chemical spills. The exposure standards (OSHA permissible exposure limit [PEL], National Institute for Occupational Safety and Health

[NIOSH], immediately dangerous to life or health [IDLH], and OSHA and/or NIOSH short-term exposure level [STEL] and ceiling values) are measures of the material's toxicity—more toxic substances have lower exposure standards.

Table G-4
Expected Hazardous Materials in the Proposed Laboratories

Chemical [CAS #]	Vapor Pressure mm Hg	PEL PPM	STEL PPM	IDLH PPM	Ceiling PPM
Acetaldehyde [75-07-0]	740	200	-	2000	-
Acetonitrile [75-05-8]	73	40	-	500	-
Acrolein [107-02-8]	210	0.1	0.3	2	-
Benzene [71-43-2]	75	1	1	500	-
Carbon Tetrachloride [56-23-5]	91	10	2	200	25
Chloroform [67-66-3]	160	-	2	500	50
Diethylamine [109-89-7]	192	25	25	200	-
Dioxane, 1,4- [123-91-1]	29	100	-	500	1
Epichlorohydrin [106-89-8]	13	5	-	75	-
Ethylene Dichloride [107-06-2]	64	50	2	50	100
Glutaraldehyde [111-30-8]	17	-	-	-	0.2
Halothane [151-67-7]	243	-	-	-	2
Hydrazine [302-01-2]	10	1	-	50	0.03
Hydrochloric Acid [7647-01-0]	160	-	-	50	5
Hydrofluoric Acid [7664-39-3]	25	3	-	30	6
Methoxyflurane [76-38-0]	23	-	-	-	2
Methylene Chloride [75-09-2]	350	25	125	2300	1000
Nitric Acid [7697-37-2]	48	2	4	25	-
Phosphorous Trichloride [7719-12-2]	100	0.5	0.5	50	-
Propylene Oxide [75-56-9]	445	100	-	400	-
Pyridine [110-86-1]	16	5	-	1000	-
Triethylamine [121-44-8]	54	25	-	200	-

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

ESTIMATES OF WORST-CASE EMISSION RATES

The dispersion of hazardous chemicals from a spill within one of the proposed laboratories was analyzed to assess the potential for exposure of the general public and staff within the new Science Building as well as nearby buildings to hazardous fumes in the event of an accident. Evaporation rates for volatile hazardous chemicals expected to be used in the proposed laboratory were estimated using the model developed by the Shell Development Company[5], as referenced in the *CEQR Technical Manual*. The Shell model, which was developed specifically to assess air quality impacts from chemical spills, calculates evaporation rates based on physical

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

properties of the material, temperature and rate of air flow over the spill surface. Room temperature conditions (20° C) and an air-flow rate of 0.5 meters/second were assumed for calculating evaporation rates.

Based on relative STELs and the vapor pressures of the chemicals listed in Table G-1, a subset of the most potentially hazardous chemicals, shown in **Table G-5**, were selected for the "worst-case" spill analysis. Besides the relative toxicities, other factors such as molecular weight, container size, and frequency of use were also considered. Chemicals with high vapor pressures evaporate most rapidly. Among the chemicals with high vapor pressures compiled for Table G-1, the chemicals selected also have the lowest STELs. Since the chemicals selected for detailed analysis are most likely to have the highest emissions rates and the lowest exposure standards, if the analysis of a potential spill of these chemicals resulted in no significant impacts, it would indicate that the other chemicals listed in Table G-1would also not present any significant potential impacts in the event of a spill.

Table G-5
Chemicals Selected for Worst-Case Spill Analysis

Chemical	Quantity (liters)	Evaporation Rate (gram/meter^2/sec)	Emission Rate(1) (gram/sec)
Acrolein	0.50	0.91	0.56
Benzene	0.47	0.41	0.46
Carbon Tetrachloride	0.58	0.91	1.02
Chloroform	0.90	1.33	1.48
Ethylene Dichloride	0.36	0.45	0.50
Halothane	1.63	3.03	3.38
Phosphorous Trichloride	0.59	0.93	1.03

Notes:
(1) Average emission rate.
(2) Quantity of spill was calculated based on assumed spill area of 12 sq. ft. and chemical vapor pressure

The analysis conservatively assumes that a chemical spill in a fume hood would extend to an area of 12 square feet (approximately 1.1 square meters). The emission rates were determined using the evaporation rates and assuming this maximum spill area. For modeling purposes, the emission rates shown in **Table G-5** are calculated for a 15-minute time period. The vapor from the spill would be drawn into the fume hood exhaust system and released into the atmosphere via the roof exhaust fans. The high volume of air drawn through this system provides a high degree of dilution for hazardous fumes before they are released above the roof. The effective exhaust stack height of the fans would be approximately 45 feet above the top of the exhaust stack.

RECIRCULATION MODELING

The potential for recirculation of the fume hood emissions back into the building air intakes was assessed using the Wilson method[6]. This empirical procedure, which has been verified by both wind-tunnel and full-scale testing, is a refinement of the 1981 ASHRAE Handbook procedure,

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

and takes into account such factors as plume momentum, stack-tip downwash, and cavity recirculation effects. The procedure determines the worst-case, absolute minimum dilution between exhaust vent and air intake. Three separate effects determine the eventual dilution: internal system dilution, obtained by combining exhaust streams (i.e., mixing in plenum chambers of multiple exhaust streams, introduction of fresh air supplied from roof intakes); wind dilution, dependent on the distance from vent to intake and the exit velocity; and dilution from the stack, caused by stack height and plume rise from vertical exhaust velocity. The critical wind speed for worst-case dilution is dependent on the exit velocity, the distance from vent to intake, and the cross-sectional area of the exhaust stack.

DISPERSION MODELING

Maximum concentrations at elevated receptors downwind of the fume exhausts were estimated using the EPA/AMS AERMOD dispersion model[7]. AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and includes handling of terrain interactions. The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by nearby structures. Hourly meteorological data collected at the LaGuardia Airport station from 2006 through 2010 were used in this analysis. The analysis of potential impacts from a chemical spill was conducted assuming stack tip downwash, urban dispersion and surface roughness length, with and without building downwash, and with elimination of calms.

Discrete receptors (i.e., locations at which concentrations are calculated) were chosen on nearby buildings for the laboratory spill analysis. The model receptor network consisted of locations along the sides and roof of the buildings, at operable windows, intake vents, and otherwise accessible locations such as terraces. Rows of receptors were placed in the model at spaced intervals on the buildings at multiple elevations. 7-Minute digital elevation model (DEM) files were obtained for the receptor area. A terrain pre-processor program was used to determine the representative elevations for each receptor. All receptors were referenced to Universal Transverse Mercator (UTM) coordinates. The receptor network included buildings on the NYULMC campus as well as existing and approved buildings in the study area that are assumed to be constructed in the No Build condition.

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

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

C. PROBABLE IMPACTS OF THE PROPOSED PROJECT

ENERGY BUILDING AND EXISTING SOURCES

The maximum predicted concentrations from the modeling analysis were added to the maximum ambient background concentrations and compared to the NAAQS. The results of this analysis are presented in **Table G-6** for NO_2 and PM_{10}. Impacts from the proposed project are less than their respective NAAQS; therefore the proposed project would not result in any significant adverse air quality impacts.

Maximum concentrations of $PM_{2.5}$ from the Energy Building and existing sources on the proposed project were estimated. Impacts were compared to the City's interim guidance criteria for $PM_{2.5}$. The maximum predicted 24-hour and localized annual average incremental $PM_{2.5}$ concentrations are presented in **Table G-7**.

Table G-6
Future (2017) Maximum Modeled Pollutant Concentration (in µg/m^3)

Pollutant	Averaging Period	Maximum Modeled Impact	Background	Total Concentration	NAAQS
NO_2	1-hour	3.50	126.1	129.6	188
	Annual	0.01	67.7	67.7	100
PM_{10}	24-hour	1.94	63	64.9	150

Table G-7
Future (2017) Maximum Predicted $PM_{2.5}$ Concentrations (in µg/m^3)

Pollutant	Averaging Period	Maximum Concentration	Interim Guidance Threshold
$PM_{2.5}$	24-hour	1.94	5/2[(1)]
	Annual (discrete)	0.02	0.3

Note:
[(1)] 24-hour $PM_{2.5}$ interim guidance criterion, > 2 µg/m^3 (5 µg/m^3 not-to-exceed value), depending on the magnitude, frequency, duration, location, and size of the area of the predicted concentrations.

As shown in Table G-7, the maximum 24-hour incremental impacts at any discrete receptor location would be less than the applicable interim guidance criteria of 2 µg/m^3 and 5 µg/m^3. On an annual basis, the maximum projected $PM_{2.5}$ increments would be less than the applicable interim guidance criterion of 0.3 µg/m^3 for local impacts and 0.1 for neighborhood scale impacts. Therefore, no significant adverse air quality impacts are predicted on the proposed Science Building from the Energy Building and existing sources.

CHEMICAL SPILL ANALYSIS

RECIRCULATION ANALYSIS

The recirculation analysis indicates that the minimum potential dilution factor between the fan exhausts and the nearest air intake below the rooftop is over 998 (i.e., pollutant concentrations at the nearest intake to the exhaust fan would be 998 times less than the concentration at the fan exhaust). Thus, for example, an acrolein spill in a fume hood as described above would produce a maximum concentration at the nearest intake location of about 0.039 parts per million (ppm).

The results of the recirculation analysis are presented in **Table G-8**. The results indicate that a spill in a fume hood as described above would produce a maximum concentration at the nearest intake location well below the corresponding STELs or ceiling values set by OSHA and/or NIOSH for each of the chemicals analyzed. Consequently, it can be concluded that no significant impact would be expected due to recirculation of fume hood emissions back into the proposed Science Building's air intakes in the event of a chemical spill.

Table G-3
Fume Hood Recirculation Analysis
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Acrolein	0.3	0.071
Benzene	1.0	0.023
Carbon Tetrachloride	2.0	0.026
Chloroform	2.0	0.048
Ethylene Dichloride	2.0	0.020
Halothane	2.0	0.067
Phosphorous Trichloride	0.5	0.029
Note: * 15-Minute Average emission rate		

DISPERSION ANALYSIS

The results of the analysis of potential emissions from the fume hood exhaust system are shown below in **G-9**. The maximum concentrations at elevated receptors downwind of the fume hood exhausts were estimated using the methodology previously described, and were determined to be below the STEL levels.

Table G-9
Maximum Predicted Concentrations (ppm)

Chemical	STEL/OSHA Ceiling	15-Minute Average
Acrolein	0.3	0.27
Benzene	2.0	0.09
Carbon Tetrachloride	1.0	0.10
Chloroform	2.0	0.19
Ethylene Dichloride	2.0	0.08
Halothane	2.0	0.26
Phosphorous Trichloride	0.5	0.11
Note: * 15-Minute Average emission rate		

The results of the laboratory chemical spill analysis demonstrate that no significant adverse impacts from the exhaust system of the laboratories to be located in the new Science Building, or on other nearby buildings in the surrounding community, would be expected with the project. ✷

A. INTRODUCTION

The proposed Science Building on the NYU Langone Medical Center (NYULMC) campus 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 [PCEs] which would be necessary to cause a 3 dBA increase in noise levels). However, the effect on the project of ambient noise levels adjacent to the project site were considered in accordance with the guidelines presented in the *CEQR Technical Manual*. This potential is assessed below.

B. ACOUSTICAL FUNDAMENTALS

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

"A"-WEIGHTED SOUND LEVEL (DBA)

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

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

Table H-1
Common Noise Levels

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

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

SOUND LEVEL DESCRIPTORS

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise that fluctuates over extended periods have been developed. One way is to describe the fluctuating sound heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted by $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

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

For purposes of the proposed action, the L_{10} descriptor has been selected as the noise descriptor to be used in this noise impact evaluation. The 1-hour L_{10} is the noise descriptor used in the *CEQR Technical Manual* noise exposure guidelines for City environmental impact review classification.

C. NOISE STANDARDS AND CRITERIA

NEW YORK CEQR NOISE CRITERIA

The *CEQR Technical Manual* defines attenuation requirements for buildings based on exterior noise level (see **Table H-2**, "Required Attenuation Values to Achieve Acceptable Interior Noise Levels"). Recommended noise attenuation values for buildings are designed to maintain interior noise levels of 45 dBA or lower for research and conference room uses and are determined based on exterior $L_{10(1)}$ noise levels.

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

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

Notes:
[A] The above composite window-wall attenuation values are for residential dwellings, medical facility, etc 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.
[B] Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.
Source: New York City Department of Environmental Protection.

D. EXISTING NOISE LEVELS

Existing noise levels at the proposed project site were measured at three (3) locations (see **Figure H-1**). **Table H-3** lists the receptor site locations and their representative uses. Receptor Sites 1, 2, and 3 were used to determine CEQR building attenuation requirements for the proposed Science Building.

Table H-3
Noise Receptor Locations

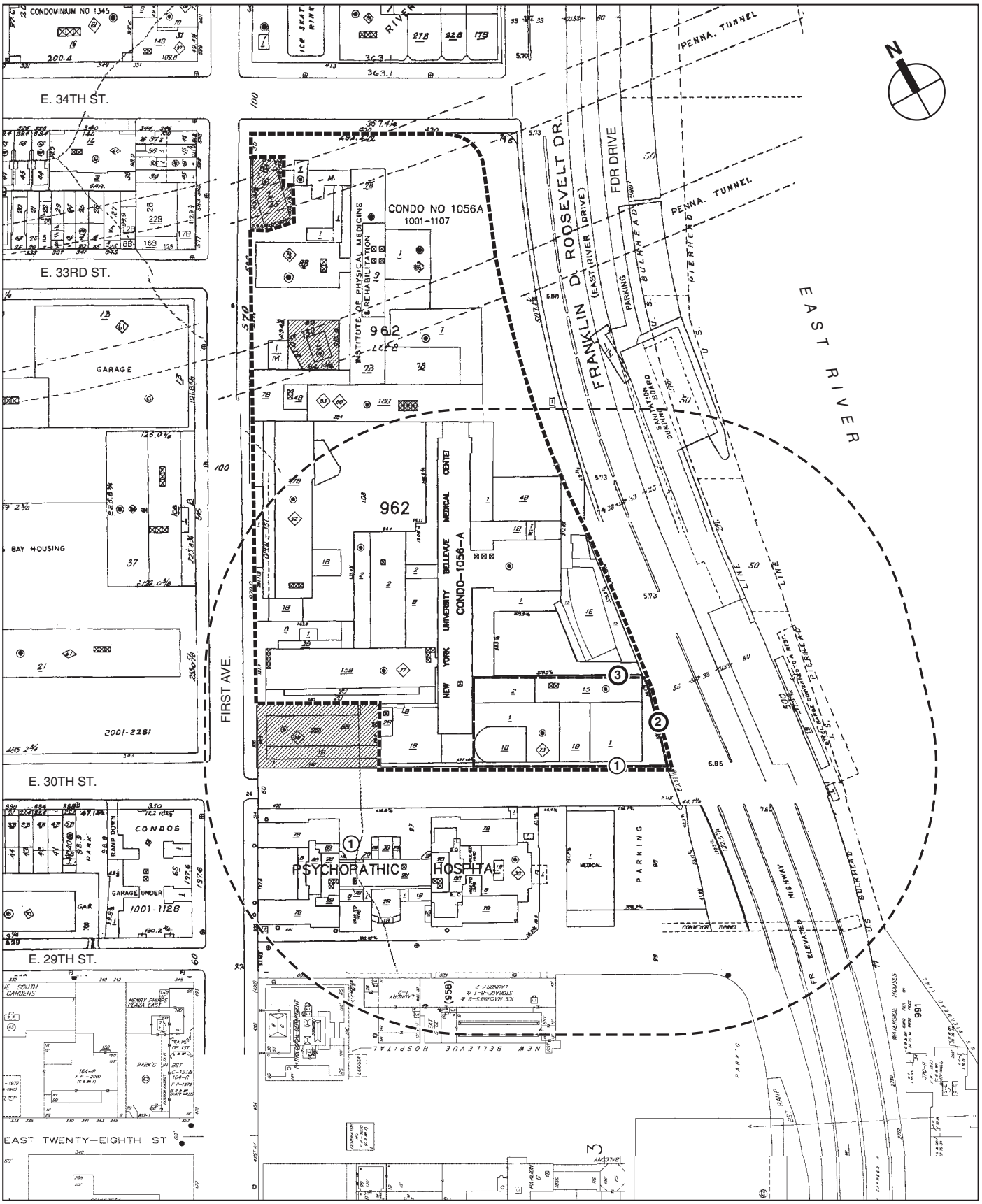
Receptor	Location	Elevation	Representation
1	Former East 30th Street between FDR Service Road and First Avenue	Street level	South Façade (facing former East 30th Street) and West Façade (Facing NYU Rusk Institute)
2	Rooftop basketball court of Schwartz Lecture Hall	Approximately 3 ft above the elevated FDR viaduct	East Façade (facing elevated FDR Viaduct)
3	North Façade of Rubin Hall – Outside Room 225	Approximately 3 ft above the elevated FDR viaduct	North Façade (facing pedestrian walkway/courtyard and partially facing FDR)

At Receptor Sites 1, 2, and 3, existing noise levels were measured for 20-minute periods during the three weekday peak periods—AM (7:30 to 9:15 AM), midday (MD) (12:00 PM to 2:00 PM), and PM (4:30 to 6:30 PM). Measurements were taken on February 10, 2011.

EQUIPMENT USED DURING NOISE MONITORING

Measurements were performed using a Brüel & Kjær Sound Level Meter (SLM) Type 2260 (S/N 2375602), a Brüel & Kjær ½-inch microphone Type 4189 (S/N 2378182), and a Brüel & Kjær Sound Level Calibrator Type 4231 (S/N 2412436). The SLM has a laboratory calibration date of July 30, 2010 which is valid through July of 2011. The Brüel & Kjær SLM is a Type 1 instrument according to ANSI Standard S1.4-1983 (R2006). For Site 1 the

12.15.11



Project Site Boundary

Out Parcel

400-Foot Perimeter

Noise Receptor Locations

Elevated Noise Receptor Locations

Zoning Lot Boundary

0 100 200 FEET

SCALE

Noise Recptor Locations

NYULMC Science Building

Figure H-1

instrument/microphone was mounted on a tripod at a height of approximately 5 feet above the ground. At Site 2, the microphone was mounted on a pole approximately 3 feet above the elevated FDR viaduct. At Site 3, the microphone was extended on a pole out of a third floor window and was lowered to a height approximately 3 feet above the elevated FDR viaduct. Microphones were mounted at least approximately 5 feet away from the building or any other 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 were digitally recorded by the sound level meter and displayed at the end of the measurement period in units of dBA. Measured quantities included L_{eq}, L_1, L_{10}, L_{50}, L_{90}, and 1/3 octave band levels. A windscreen was used during all sound measurements except for calibration. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.

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

Table H-4
Existing Noise Levels at Sites 1, 2, and 3 (in dBA)

Site	Measurement Location	Time	L_{eq}	L_1	L_{10}	L_{50}	L_{90}
1	Former East 30th Street between FDR Service Road and First Avenue	AM	66.3	77.1	67.9	63.3	61.1
		MD	63.2	71.2	65.7	61.4	59.3
		PM	65.1	75.1	67.4	61.8	58.8
2	Rooftop basketball court of Schwartz Lecture Hall	AM	70.8	78.6	73.2	69.1	67.2
		MD	69.8	77.7	71.1	68.7	66.7
		PM	68.4	77.9	69.3	66.0	63.9
3	North Façade of Rubin Hall – Outside Room 225	AM	72.8	81.6	74.6	71.0	69.1
		MD	69.5	74.8	70.8	69.1	67.1
		PM	69.9	74.6	71.5	69.4	67.6

Note: Measurements were conducted by AKRF Acoustics Department on February 10, 2011.

At all monitoring sites, vehicular traffic noise from the elevated FDR viaduct was the dominant noise source. Vehicular traffic noise from the surrounding roadways and helicopter traffic noise from the nearby East 34th Street Heliport was audible and included in the measurements, but was not considered a dominant noise source. Measured levels are moderate to high and reflect the level of vehicular activity on the adjacent streets and the helicopter approach and take offs at the East 34th Street Heliport. In terms of the CEQR criteria, the existing noise levels at Site 1 would be in the "marginally acceptable" category and Sites 2 and 3 would be in the "marginally unacceptable" category.

E. NOISE ATTENUATION MEASURES

As shown in Table H-2, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$ noise levels in order to maintain interior noise levels of 45 dBA or lower for research and conference room uses. The results of the building attenuation analysis are summarized in **Table H-5**.

Table H-5
Science Building CEQR Attenuation Requirements

Proposed Building Façade Locations	Maximum Measured L_{10} (in dBA)	Attenuation Required (in dBA)
North Façade (Facing Pedestrian Walkway)	74.6	31
East Façade (Facing FDR Drive)	73.2	31
West Façade (Facing Existing Buildings)	67.9	N/A
South Façade (Facing Former East 30th Street)	67.9	N/A

Notes:
Attenuation requirements are for spaces containing noise sensitive uses.
(1) Non noise sensitive uses would require 5 dBA less attenuation.
(2) CEQR attenuation requirements do not apply to mechanical space uses.

The attenuation of a composite structure is a function of the attenuation provided by each of its component parts and how much of the area is made up of each part. Normally, a building façade consists of the wall, glazing, and any vents or louvers for heating, ventilation, and air conditioning (HVAC) units in various ratios of area. Currently, the proposed design for the building includes acoustically rated windows and central air conditioning (a means of alternate ventilation). The proposed building's façades, including these elements, would be designed to provide a composite Outdoor-Indoor Transmission Class (OITC) rating greater than or equal to the attenuation requirements listed in Table H-5. The OITC classification is defined by the American Society of Testing and Materials (ASTM E1332-10) and provides a single-number rating that is used for designing a building façade including walls, doors, glazing, and combinations thereof. The OITC rating is designed to evaluate building elements by their ability to reduce the overall loudness of ground and air transportation noise. By adhering to these design specifications (i.e., 31 dBA attenuation on the North and East facades and providing alternative ventilation), the proposed building will thus provide sufficient attenuation to achieve the CEQR interior noise level guideline of 45 dBA L_{10} for noise-sensitive research and conference room uses.

Based upon the $L_{10(1)}$ values measured at the project site, the proposed project's design measures would be expected to provide sufficient attenuation to achieve the CEQR interior noise level requirements.

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

A. INTRODUCTION

This chapter considers the potential for adverse impacts during construction of the proposed Science Building on the NYU Langone Medical Center (NYULMC) campus. This chapter provides a description of the types of activities likely to occur during construction, compares construction of the No Action building to construction of the proposed building, and then assesses the potential for significant adverse impacts from the construction activities. The methods that may be employed to avoid or minimize the potential for significant adverse impacts are also considered.

Existing buildings on the site are outmoded and have been vacated and will be demolished independent of the proposed project. Nevertheless, these activities have been conservatively included in the construction analysis to present complete disclosure of potential impacts. Construction of the proposed building is expected to take place during an approximately 51-month period. By comparison, construction of the No Action building would take place over a 43-month period. No significant adverse impacts are anticipated because construction of the proposed Science Building would be very similar to construction of the No Action building, except that construction of No Action building would be completed more quickly. NYULMC would commit to using Best Available Technology (BAT) for construction equipment and other impact avoidance measures to the extent feasible, as described in this attachment.

Construction worker and vehicle trips, and construction truck trips projected for peak construction are not expected to result in significant adverse traffic and parking and transit and pedestrians impacts. Coordination with the New York City Department of Transportation (NYCDOT) Office of Construction Mitigation and Coordination (OCMC) would be undertaken to ensure proper implementation of maintenance and protection of traffic (MPT) plans and requirements.

Air pollutant emissions from construction equipment and trucks would be significantly reduced by using BAT to the extent feasible to control emissions and other additional measures, as practicable. The additional measures address both the emissions levels and the location of sources relative to nearby sensitive locations such as residences, schools, and playgrounds. With BAT and additional measures, significant impacts on air quality during construction are not expected to occur.

For noise impact determination purposes, significant adverse impacts are based on whether maximum predicted incremental noise levels at sensitive receptor locations off-site would be greater than the impact criteria suggested in the *City Environmental Quality Review (CEQR) Technical Manual* for two consecutive years or more. Noise from construction activities and some construction equipment is regulated by the NYC Noise Control Code and by the United States Environmental Protection Agency (EPA). In addition, NYULMC would commit to a proactive approach to minimize noise during construction activities. This approach employs a wide

variety of measures that greatly exceed standard construction practices, but the implementation of which is deemed feasible and practicable to minimize construction noise and reduce potential noise impacts. These measures would be implemented and described in the Construction Noise Mitigation Plan required by the NYC Noise Control Code.[1] This program includes both source controls and path controls, which are described in this attachment.

Preparation and enforcement of a Health and Safety Plan (HASP) is expected to prevent any significant adverse impacts from hazardous materials.

B. DESCRIPTION OF CONSTRUCTION ACTIVITIES

REMEDIATION AND ABATEMENT

Abatement of asbestos, lead-based paint, and polychlorinated biphenyls (PCBs), and removal of any petroleum storage tanks would proceed prior to demolition of existing buildings. Remediation and abatement would occur by floor prior to interior demolition of the buildings on site. This work would be undertaken by specially trained workers. In addition, where soil contamination is suspected, the soils would be removed prior to general excavation.

An NYC-certified asbestos investigator would inspect the buildings for asbestos-containing materials (ACMs). If ACMs are found, these materials would be removed by a New York State Department of Labor (NYSDOL)-licensed asbestos abatement contractor prior to building demolition. Asbestos abatement is strictly regulated by the New York City Department of Environmental Protection (NYCDEP), NYSDOL, EPA, and the United States Occupational Safety and Health Administration (OSHA) to protect the health and safety of construction workers and nearby residents and workers. Depending on the extent and type of ACMs, these agencies would be notified of the asbestos removal project and may inspect the abatement site to ensure that work is being performed in accordance with applicable regulations. After the abatement is completed, and the work areas have passed a visual inspection and monitoring, if applicable, the general demolition work can begin. Demolition of buildings with the potential to disturb lead-based paint would be carried out in accordance with the applicable OSHA regulations.

As described in Attachment E, “Hazardous Materials,” because potential sources of contamination including historical manufactured gas storage, petroleum spills, and coal, and lumber storage, manufacturing, historical and current petroleum storage, and current medical and laboratory use and hazardous waste generation have been identified on and near the project site, if required by the New York City Department of Environmental Protection (NYCDEP), a Subsurface (Phase II) Investigation would be conducted to determine whether these potential sources have impacted the project site. If contaminated soils are found, a Remedial Action Plan (RAP) would be developed to remediate the soils. Disturbance of existing soils during the demolition and excavation tasks described below would be conducted in accordance with a construction HASP.

The HASP would detail measures to reduce the potential for exposure (e.g., dust control) and measures to identify and manage known contamination and unexpectedly encountered contamination. The HASP would include mitigation procedures to prevent unsafe exposure to

[1] NYC Noise Control Code (i.e., Local Law 113). Citywide Construction Noise Mitigation, Chapter 28, Department of Environmental Protection of New York City, 2007.

contaminant vapors and particulates. In the event that soil-containing petroleum or other compounds above state-approved cleanup levels are discovered during excavation activities, such soil would be segregated and disposed of in accordance with all applicable federal, State, and local regulations and guidelines.

No petroleum storage tanks were identified at the project site in the Phase I ESA (see Attachment E, "Hazardous Materials"). Any unrecorded underground storage tanks (USTs) encountered during excavation would be removed and disposed of in accordance with federal, State, and City regulations. If contaminated soil is excavated during the tank removal, it would be remediated according to the requirements of the NYSDEC Spill Response and Remediation (Spills) program, and samples would be collected to ensure that all soil exceeding applicable guidance values is removed.

SITE SETUP AND DEMOLITION

Site setup would remove all loose materials, prepare material lay-down areas, install security fencing with access gates, and setup construction trailers with temporary power. The purpose is to prepare the site for the construction activities.

Typical demolition requires a solid temporary fence and netting around a building to prevent accidental dispersal of building materials into areas accessible to the general public. Independent of the proposed project, the interior demolition of the Schwartz Lecture Hall and Medical Science Building/Dean's Suite would follow abatement floor-by-floor, and then the structures would be deconstructed floor-by-floor. Abatement and demolition of Rubin Hall has begun independent of the proposed project. As the buildings are deconstructed, excavators, front-end loaders, and cranes would be used as necessary to load materials into dump trucks. The debris would be sorted prior to disposal at landfills to maximize recycling opportunities.

EXCAVATION AND FOUNDATIONS

Because of the high water table, unstable soil conditions, and expected underground obstructions from earlier buildings and walls on the site, the foundation would employ secant piles (described in detail below). The secant piles would be drilled into the ground to minimize vibrations affecting nearby buildings. The secant piles would act as the foundations walls and would also prevent groundwater from seeping through the sides and into the excavation. After the secant piles have been installed in one section of the site, and the drill rigs have been moved to another section, excavation of the soils would begin. When all the secant piles have been installed, all the soil and rock would be excavated to the finish depth. At that point, construction of the below-grade space begins. The finish elevation of the proposed Science Building would be approximately 26 feet below grade. A slab-on-grade would be poured for the cellar, and structural supports for the building would be installed.

Foundation work would include the use of cranes, large drill rigs, pumps, concrete pumps, compressors, and a variety of small tools as well as concrete trucks. Concrete trucks coming to the site would park along the Franklin D. Roosevelt (FDR) Drive Service Road or former East 30th Street, where they would pump the concrete. Several trucks could be pumping concrete at the same time. Foundation work would also require pile drivers and a boring machine for caissons.

SECANT WALL

Secant wall construction is a specialized technique for building foundations when the new construction is close to or adjacent to buildings that could be damaged by vibrations. The technique has been used in the rebuilding of downtown Manhattan and is currently being used in sections of the Second Avenue subway. Secant wall construction drills or augurs an opening for the piles in the ground, rather than using a pile driver or vibratory hammer to pound the piles into the ground.

Along the perimeter of the new foundations, a hole is drilled or augured to the final depth, which would be about 30 feet below street level. The hole, which can be 2 to 4 feet in diameter, is held open with a bentonite slurry. Bentonite is a type of clay that at high concentrations has the consistency of a gel. The bentonite is pumped down the hole, and then a cage of steel reinforcing bars is lowered into the hole. The reinforcing cage is carefully measured to fit within the diameter of the hole and can either be fabricated on the site or brought to the site in smaller sections for assembly. Depending on the detailed design, H-shaped steel beams may be used instead of the cage of reinforcing bars. Each such reinforcement cage or steel beam is likely to measure between 30 to 35 feet long. The hole is then filled with concrete from the bottom up, which is pumped down tubes lowered to the base of the hole. The rising level of concrete in the hole displaces the bentonite slurry. After the first hole is drilled and filled with concrete, the process is repeated. The second hole is located the diameter of the hole minus 3 to 6 inches away from the first pile. As an example, if the diameter of the hole is 48 inches, the second pile would be constructed between 36 to 42 inches from the edge of the first pile. After the second pile is constructed, the third pile is drilled and constructed between the first two. The in-between pile would have an overlap of 3 to 6 inches into the first 2 piles. This interlocking forms a strong, waterproof wall. This process is repeated around the perimeter of the site. Because of the size of the proposed Science Building, it is expected that 2 drill rigs and cranes would be operating to install the secant wall.

The bentonite slurry that is displaced during the construction of the secant wall is reused. The displaced bentonite slurry is pumped into an on-site recycling facility. The recycling facility consists of a pump, a mixer, several silos, and a separator, known as a “desander.” At the recycling facility, suspended soil and sand would be removed from the slurry, so that the clean slurry could be reused for another panel.

The construction of the secant wall would involve drill rigs and cranes within the site. The drill rigs are used to make the holes, and the cranes for placing the cages of reinforcing bars. In addition, the center of the site would be used for the bentonite recycling facility and for fabricating the reinforcing cages. Portions of the reinforcing cages could be fabricated off-site, but may be done on-site. Other equipment would include concrete pumps, air compressors, and generators. The concrete trucks would unload and marshal on the curb lane of the FDR Service Road or former East 30th Street behind Jersey barriers with noise walls.

EXCAVATION

Excavation would begin while the secant wall is being constructed, and on reaching the underlying water table, construction-dewatering operations would begin. Soil and encountered debris, such as old bulkheads, would be excavated and stockpiled for drying. After drying, the soil and debris would be loaded onto trucks for carting from the site. As the excavation becomes deeper, a temporary ramp would be built to provide access for the dump trucks to the work site. In addition, internal steel bracing and/or external soil/rock anchors (i.e., tiebacks) would be installed on, against, or through the secant wall to ensure its stability. As the soil is excavated from the basin formed by the secant wall,

the soil on the outside exerts a large force trying to bend the walls inward. The steel braces and/or tiebacks are designed to resist this force until the below-grade foundations and structures are built. These structures then resist the inward force on the slurry wall.

DEWATERING

Due to the high water table, dewatering may be necessary. The pumped water would be sent to an on-site sedimentation tank so that the suspended solids could settle out. The decanted water would be discharged into the NYC sewer system, and the settled sediment conveyed to a licensed disposal area. Discharge into the sewer system is governed by NYCDEP regulations.

For water discharged into the NYC sewer system, NYCDEP regulations specify the following maximum concentration of pollutants:

- Petroleum hydrocarbons 50 parts per million
- Cadmium 2 parts per million
- Hexavalent chromium 5 parts per million
- Copper 5 parts per million
- Amenable cyanide 0.2 part per million
- Lead 2 parts per million
- Mercury 0.05 part per million
- Nickel 3 parts per million
- Zinc 5 parts per million

In addition, NYCDEP limits other pollutants, such as total suspended particles, in the discharge water. NYCDEP also imposes project specific limits, depending on the location of the project and contamination that has been found in nearby areas. For large-volume discharges into the sewer system—which is not expected at the project site—NYCDEP samples and tests the discharge water.

UTILITY AND SEWER CONNECTION

New water lines and sanitary sewers are expected to be required to connect the new buildings to existing utility lines in the streets. In addition, upgraded telecommunications connections would be required. It is expected that these would be trenched in former East 30th Street or the FDR Drive Service Road. Upon completion the roadway would be repaved in accordance with NYCDOT specifications. Traffic control measures would be coordinated with NYCDOT and implemented while work is ongoing to protect the workers and to maintain traffic flow. The new water and sewer connections would be designed and constructed to NYCDEP standards. NYCDEP would review and approve the connections. The review process would include evaluation to ensure that service to users would not be disrupted or impaired while the temporary measures are in place. The new building would also be connected through the campus to the new Energy Building.

CORE AND SHELL—SUPERSTRUCTURE AND ENCLOSURE

This phase of construction would include the framework (beams and columns) and floor decks as well as the façades. These activities would require the use of cranes, compressors, personnel and material hoists, concrete pumps, on-site reinforcing bar bending jigs, welding equipment,

and a variety of hand-held tools, in addition to the delivery trucks that would bring construction materials to the site.

The façade of the building is expected to be a steel and glass curtain wall with masonry. The exterior is typically assembled off-site and trucked to the site. Façade panels would be lifted into place by large cranes from the bed of the tractor trailers and secured on the face of the building.

INTERIORS AND FINISHING

This would include the construction of interior partitions, installation of lighting fixtures, interior finishing (flooring, painting, etc.), and mechanical and electrical work, such as the installation of elevators. Mechanical and other interior work would overlap with core and shell construction. Equipment used during interior construction would include exterior hoists, pneumatic equipment, delivery trucks, and a variety of small hand-held tools.

While there are generally a large number of workers on-site, this stage of construction is the quietest (especially when the enclosure is complete) and does not generate fugitive dust.

Commissioning occurs at the end of construction and involves completing all of the punch list items, which are typically small tasks that were not completely finished. In addition, final cleanup and touchup of the site and final approvals from city and state authorities are part of the commissioning.

C. GENERAL CONSTRUCTION PRACTICES

Certain practices would be observed throughout construction of either the No Action building or the proposed Science Building. A contact person for community relations throughout the construction period would be designated. This person would serve as the contact for the community to voice concerns about construction activities and would be available to meet with the community to resolve concerns or problems. In addition, the New York City Department of Buildings (NYCDOB) has a telephone system to report any construction complaints anonymously. NYCDOB investigates all complaints and may shut down construction if any violations of city regulations are found. In addition, NYCDOB may institute fines and other penalties.

The following describes typical New York City construction practices. In certain instances, project practices may vary from those described below.

ACCESS AND DELIVERIES

Access to the construction site would be controlled. The work area would be fenced off, and limited access points for workers and trucks would be provided. Typically, worker vehicles would not be allowed into the construction area. Security guards and flaggers would be posted, and all persons and trucks would have to pass through security points. After work hours, the gates would be closed and locked. Unauthorized access would be prevented after work hours and during the weekend.

Material deliveries to the site would be controlled and scheduled. Unscheduled or haphazard deliveries would be minimized.

HOURS OF WORK

Construction activities for the buildings would take place in accordance with New York City laws and regulations, which allow construction activities to take place between 7:00 AM and 6:00 PM. Construction work would begin at 7:00 AM on weekdays, with most workers arriving between 6:00 AM and 7:00 AM. Typically, work would end at 3:30 PM, but it could be extended until 6:00 PM for such tasks as finishing a concrete pour for a pad, or completing the bolting of a steel frame erected that day. Extended workday activities would not include all construction workers on-site, but only those involved in the specific task. Extended workdays would occur during foundation and superstructure tasks, and limited extended workdays could occur during other tasks over the course of construction.

At limited times over the course of constructing a building, weekend work would be required. Weekend work requires a permit from NYCDOB and, in certain instances, approval of a noise mitigation plan from NYCDEP under the City's Noise Code. The New York City Noise Control Code (Local Law 113 of 2005), effective July 1, 2007, limits construction (absent special circumstances as described below) to weekdays between the hours of 7:00 AM and 6:00 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6:00 PM and 7:00 AM and on weekends) may be permitted only to accommodate: (i) emergency conditions; (ii) public safety; (iii) construction projects by or on behalf of City agencies; (iv) construction activities with minimal noise impacts; and (v) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. In such cases, the numbers of workers and pieces of equipment in operation would be limited to those needed to complete the particular authorized task. Therefore, the level of activity for any weekend work would be less than a normal workday. The typical weekend workday would be on Saturday, beginning with worker arrival and site preparation at 7:00 AM, and ending with site cleanup at 5:00 PM.

A few tasks may have to be completed without interruption, and the work could extend past 6:00 PM. In certain situations, concrete must be poured continuously to form one structure without joints. This type of concrete pour is usually associated with foundations and structural slabs at grade, which often require a minimum of 12 hours or more to complete.

SIDEWALK AND LANE CLOSURES

It is likely that a lane along the FDR Drive Service Road and along former East 30th Street up to the entrance of the Smilow Building would be closed to allow for construction access. This closure, which may not be necessary in its entirety for the duration of construction, would be coordinated with NYCDOT OCMC pursuant to the MPT plan. Sidewalk sheds would likely be erected to protect pedestrians passing by the construction site.

STAGING AND LAYDOWN AREAS

Staging and laydown areas are expected to be located adjacent to the project site along the FDR Drive Service Road and former East 30th Street. Materials that are needed during the day, such as reinforcing bars and prefabricated pieces, are usually delivered early in the day and are stored until needed. In certain cases, several days' worth of construction materials would be stored.

CONSTRUCTION WORKER PARKING

It is not expected that the construction workers would be able to park their vehicles on-site. Therefore, workers who drive to the project site would park either on-street or in off-street parking lots and garages.

D. THE FUTURE WITHOUT THE PROPOSED ACTION

In the future without the proposed action, NYULMC has determined that its needs are so great that it would build a new research building in an as-of-right configuration (No Action building) that complies with all the zoning requirements. As it could only be five stories tall, it would not contain all the research facilities to meet NYULMC's needs.

Rubin Hall has been vacant since 2010 (students formerly housed in dormitory rooms in Rubin Hall were relocated to other existing NYULMC buildings in the area), and abatement and demolition of the building has begun independent of the proposed project. Demolition of the other existing buildings on the site would occur independent of the proposed project, and construction of the No Action building is expected to take approximately 43 months. Schwartz Lecture Hall and the Medical Science Building/Dean's Suite would be demolished in Month 1 and the construction of the No Action building would be complete in Month 44. Demolition would be completed in Month 14. Eleven months of excavation and foundation work would follow. The structure would be completely enclosed by the end of Month 35. **Table I-1** presents the estimated schedule.

Table I-1
Preliminary Construction Schedule of No Action Building

Activity	Start Month	Finish Month	Duration (months)
Abatement and demolition of Schwartz and MSB/Dean's Suite	1	14	14
Secant Wall & Foundations	15	25	12
Steel Frame	26	31	6
Exterior Curtain Wall	29	35	6
Mechanical, Electrical, & Plumbing	29	35	6
Interior Architectural	32	41	12
Commissioning & Finishes	42	44	3

Notes: Certain construction activities overlap.
Rubin Hall will be demolished independently of the No Action project
Source: Turner Construction Company

Table I-2 presents the estimated numbers of workers and delivery trucks expected per day for construction of the No Action building. The peak numbers of workers would be 246 workers in Month 31 and the peak number of truck deliveries would be 38 per day in Months 32, 33, 43 and 35.

Table I-2
Number of Construction Workers and Delivery Trucks (per day) by Month
No Action Building

Month	1	2	3	4	5	6	7	8	9	10	11	12	13
Workers	30	30	30	30	30	30	30	30	30	30	30	30	30
Trucks	6	6	6	6	6	6	6	6	6	6	6	6	6
Activities	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem
Month	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**
Workers	30	19	36	53	79	110	115	128	141	161	173	217	218
Trucks	6	15	15	15	15	15	15	15	15	15	15	15	12
Activities	Dem	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	S
Month	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**
Workers	222	229	230	242	246	235	233	218	191	180	183	139	121
Trucks	12	12	25	25	25	38	38	38	38	25	25	25	25
Activities	S	S	S, Ext, MEP	S, Ext, MEP	S, Ext, MEP	I, Ext, MEP	I, Ext, MEP	I, Ext, MEP	I, Ext, MEP	I	I	I	I
Month	**40**	**41**	**42**	**43**	**44**							**AVG**	**MAX**
Workers	105	95	62	39	26	-	-	-	-	-	-	111	246
Trucks	25	25	10	8	8	-	-	-	-	-	-	16	38
Activities	I	I	C	C	C	-	-	-	-	-	-	-	-

Notes:
Dem: Demolition
E & F: Excavation and Secant Wall
S: Steel Frame
Ext: Exterior Curtain Wall
MEP: Mechanical, Electrical and Plumbing
I: Interiors
C: Commissioning & Finishes

E. PROBABLE IMPACTS OF THE PROPOSED ACTION

The following analysis describes the construction activities and schedule with the proposed Science Building, compares the proposed construction with the No Action building and assesses the overall temporary effects of construction on the relevant areas of concern: land use, socioeconomic conditions, community facilities and services, historic resources, hazardous materials, transportation, air quality, and noise. Existing buildings on the site are outmoded and have been or are being vacated and demolished independent of the proposed project. Nevertheless, these activities have been conservatively included in the construction analysis to present complete disclosure of potential impacts.

CONSTRUCTION ACTIVITIES AND SCHEDULE

Demolition of the existing buildings on the site and construction of the proposed Science Building is expected to take approximately 51 months. Independent of the proposed project, abatement and demolition of Rubin Hall has already begun; demolition of the Schwartz Lecture Hall and the Medical Science Building/Dean's Suite would start in 2012, and completion and occupancy of the proposed Science Building would occur in 2017. **Table I-3** presents the estimated schedule. The overall construction of the proposed buildings would be 7 months longer than construction of the No Action building. Similar to the No Action building, demolition would occur during the first 14 months of construction. Twelve months of excavation and foundation work would follow. The structure would be completely enclosed by the end of Month 39.

Table I-3
Preliminary Construction Schedule of Proposed Science Building

Activity	Start Date	Finish Date	Duration (months)
Abatement and demolition of Schwartz and MSB/Dean's Suite	1	14	14
Secant Wall & Foundations	15	25	12
Steel Frame	26	33	8
Exterior Curtain Wall	30	39	10
Mechanical, Electrical, & Plumbing	30	39	10
Interior Architectural	36	48	12
Commissioning & Finishes	48	51	4

Notes: Certain construction activities overlap.
Rubin Hall is being demolished independent of the proposed project.
Sources: Turner Construction Company

Table I-4 presents the estimated numbers of construction workers and delivery trucks expected per day for each month of construction. The numbers of construction workers would peak in Month 39 with up to approximately 376 workers and the number of truck deliveries would peak in Month 34 when 45 trucks per day would be expected.

Table I-4
Number of Construction Workers and Delivery Trucks (per day) by Month
Proposed Science Building

Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Workers	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Trucks	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Activities	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem	Dem
Month	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
Workers	23	46	60	92	122	151	166	167	194	214	260	241	255	298
Trucks	15	15	15	15	15	15	15	15	15	15	15	15	13	13
Activities	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	E & F	S	S
Month	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
Workers	311	321	322	324	337	333	358	347	360	360	376	327	271	258
Trucks	13	25	25	25	25	45	40	40	40	40	40	26	26	25
Activities	S	S, Ext, MEP	S, Ext, MEP	S, Ext, MEP	S, Ext, MEP	S, Ext, MEP, I	Ext, MEP, I	Ext, MEP, I	Ext, MEP, I	Ext, MEP, I	Ext, MEP, I	I	I	I
Month	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**				**AVG**	**MAX**
Workers	232	211	184	164	146	144	102	65	33				169	376
Trucks	25	25	25	25	25	25	10	10	5				18	45
Activities	I	I	I	I	I	I	C	C	C				-	-

Notes:
Dem: Demolition
E & F: Excavation and Secant Wall
S: Steel Frame
Ext: Exterior Curtain Wall
MEP: Mechanical, Electrical and Plumbing
I: Interiors
C: Commissioning & Finishes

DIFFERENCES BETWEEN NO ACTION AND PROPOSED PROJECT

Construction of the proposed project would take 7 months longer than the No Action building. **Table I-5** shows the difference between estimated workers and trucks for the No Action building and the proposed Science Building on a month by month basis. The proposed Science Building would average about 58 more workers and 2 trucks per day than the No Action building. The maximum difference would be about 255 more workers per day in Month 39 just as the proposed building is being completely enclosed, and 25 more trucks per day in Months 45 through 48.

Table I-5
Differences between Workers and Trucks for the No Action Building and the Proposed Science Building

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Workers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Month	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
Workers	4	10	7	13	12	36	38	26	33	41	43	23	33	69
Trucks	0	0	0	0	0	0	0	0	0	0	0	3	1	1
Month	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**
Workers	81	79	76	89	104	115	167	167	177	221	255	222	176	196
Trucks	-12	0	0	-13	-13	7	2	15	15	15	15	1	1	15
Month	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**					
Workers	193	185	184	164	146	144	102	65	33					
Trucks	17	17	25	25	25	25	10	10	5					

For the first 14 months of construction there would be no difference in the number of workers. This is during the period of demolition when activities would be the exactly the same for both projects. For the proposed project 12 months of excavation and foundation work would follow demolition as compared to 11 months for the No Action building. For the first 25 months there would be no difference in the number of trucks. This period would include both the demolition and the excavation and foundation stages of construction.

The proposed project would be completely enclosed by the end of Month 39 as compared to the end of Month 35 for the No Action building. Interiors, finishing and commissioning work would account for the last 13 months of construction of the proposed project as opposed to 12 months with the No Action building.

PROBABLE IMPACTS

LAND USE

Demolition, excavation and construction activities prior to the enclosure of the structure would be disruptive to nearby sensitive land uses. The demolition effort would occur independent of the proposed project, and would be the same with either the No Action building or with the proposed project. The excavation and foundation work would be one month longer for the proposed project. Full enclosure of the building would occur 3 months later with the proposed project than with the No Action building. Once the buildings are largely enclosed and almost all the work is on the interior of the building, construction would be much less disruptive.

The closest buildings are on the NYULMC campus. To the west on the same block is a building belonging to the Office of the Chief Medical Examiner. To the south across former East 30th Street is a temporary structure housing the morgue used for the September 11 victims and to its west is the former Bellevue Psychiatric Building. The nearest public open space is a short segment of the East River Esplanade east of the project site and beyond the FDR Drive and its service roads. Overall, given the small/brief differences in construction between the No Action building and the proposed project, intervening traffic thoroughfares (former East 30th Street and the FDR Drive), and the measures to be taken to avoid impacts, as described below, construction of the new building is not expected to result in any significant adverse land use impacts.

SOCIOECONOMIC CONDITIONS

Construction would create direct benefits resulting from expenditures on labor, materials, and services, as well as substantial indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the direct activity. Construction would also contribute to increased tax revenues for the City and State, including those from personal income taxes. There would be no significant adverse impacts on socioeconomic conditions due to construction.

COMMUNITY FACILITIES AND SERVICES

Ambulance access to the NYULMC Emergency Department on First Avenue at East 33rd Street and to the Bellevue Emergency Department (two blocks south of the project site) via First Avenue and the FDR Service Road would not be affected.

OPEN SPACE

The difference in the number of construction workers coming to the site for the No Action building and the number of construction workers for the proposed buildings is well below the threshold for analysis. There would be no adverse impacts due to an increase in open space users.

The nearest publicly accessible open spaces are the raised public plaza at the Alexandria Center for Life Science and the nearby segment of East River Esplanade. Open space users are already subject to noise from traffic on the FDR Drive and its service roadways and the 34th Street heliport. The increase in construction noise with the proposed buildings would be similar to the increase in noise with the No Action building. Potential noise and air quality impacts would be reduced by measures as discussed below and legally mandated measures.

HISTORIC RESOURCES

The New York City Landmarks Preservation Commission (LPC) determined that the project site is not archaeologically sensitive. The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) had previously determined that the NYULMC campus (including the buildings on the project site) was not eligible for listing on the State and National Registers of Historic Places (S/NR). Within the study area, the Bellevue Psychiatric Building is S/NR eligible and is located across former East 30th Street, approximately 70 feet from the project site. With the preparation and implementation of a Construction Protection Plan (CPP) for this architectural resource, the proposed project would not be expected to result in adverse impacts on any historic and cultural resources.

The CPP would contain measures to avoid construction-related impacts including ground-borne vibration, falling debris, and accidental damage from heavy machinery. The CPP would be developed in consultation with LPC and OPRHP and implemented by a professional engineer before any demolition, excavation, and construction. The CPP would follow the guidelines set forth in section 523 of the *CEQR Technical Manual*, including conforming with LPC's *New York City Landmarks Preservation Commission Guidelines for Construction Adjacent to a Historic Landmark* and *Protection Programs for Landmark Buildings*. The CPP would also comply with the procedures set forth in DOB's *Technical Policy and Procedure Notice* (TPPN) #10/88.

NATURAL RESOURCES

The site is occupied by several buildings and paved parking areas. The site provides no nesting or breeding opportunities for animal species. The only possible use is foraging by urban species, such as rats, feral cats, squirrels, and pigeons. Therefore, construction on the site would not have a significant adverse impact on natural resources.

HAZARDOUS MATERIALS

The presence of hazardous materials threatens human health only when exposure to those materials occurs. Even then, a health risk requires both an exposure pathway to the contaminants and sufficient exposure to produce adverse health effects.

With the No Action building, soil disturbance would be similar to that anticipated for the proposed project, though because the complying building would be constructed as-of-right, controls typically required under SEQRA such as a Subsurface (Phase II) Investigation, Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) would not be required to be implemented. However, legal requirements (including NYSDEC regulations) would need to be followed: should petroleum tanks and/or spills be identified; for off-site disposal of soil/fill; and for handling of ACM, lead-based paint and potentially PCB-containing equipment.

With the proposed project, more stringent controls would be implemented to prevent exposing construction workers and nearby persons to hazardous materials and exposure pathways. The proposed project would include the following health and safety and remedial measures above those for the No Action building and they would govern both demolition and soil disturbance activities. These measures would be conducted in compliance with all applicable laws and regulations and would conform to appropriate engineering practices. Measures would include:

- Procedures for pre-demolition removal of asbestos and appropriate management of lead-based paint and PCB-containing equipment.
- A Subsurface (Phase II) Investigation to determine whether potential sources of contamination have impacted the project site.
- If contaminated soils are found, development of a RAP and HASP for site remediation, excavation, and redevelopment that would include procedures for managing both known contamination issues and any unexpectedly encountered contamination issues. The HASP would also include procedures for minimizing the generation of dust that could affect the surrounding community.

With the implementation of these measures, no significant adverse impacts related to hazardous materials would be expected to occur as a result of construction of the proposed project.

SOLID WASTE AND SANITATION

Building materials would be delivered to the project site, and waste materials would be hauled away by private carters. The volume of solid waste generated by construction of the proposed project would be similar to the amount generated by construction of the No Action building. Therefore no significant adverse impacts to solid waste and sanitation services would occur during the construction period.

TRANSPORTATION

Traffic and Parking

The difference in the number of workers coming to the site with the proposed project as compared to the No Action Building is expected to peak in Month 39 when 255 more workers are expected, while the increase in the number of trucks is expected to peak in Months 45 through 48 with 25 additional trucks compared to the No Action Building. Based on the travel characteristics presented in the *First Avenue Properties Rezoning Final Supplemental Environmental Impact Statement (FSEIS)*, approximately 40 percent of the net construction workers would be expected to travel via auto at a vehicle occupancy rate of 1.90 and 80 percent of the peak period arrival and departure trips would take place during the peak travel hour. Applying these travel demand factors, the net construction workers would yield 23 auto trips arriving between 6:00 AM and 7:00 AM and departing between 3:00 PM and 4:00 PM. It should be noted that during days when extended work shifts are required, the number of construction worker vehicles departing during the 3:00 PM and 4:00 PM hour would be fewer than those projected, as a small number would depart later in the day between 5:00 PM and 7:00 PM.

As with other delivery traffic in New York City, construction truck traffic would concentrate in the earlier parts of the day, peaking in the early morning (between 6:00 AM and 7:00 AM) and diminishing gradually throughout the day. Up to approximately 20 percent of total arrival and departure truck trips are expected to occur during the 6:00 AM to 7:00 AM hour and up to approximately 10 percent in the 3:00 to 4:00 PM peak construction hour. In accordance with guidance from the *CEQR Technical Manual*, 1 truck equals 2 Passenger Car Equivalents (PCE). For the increment between the No Action Building and the proposed Science Building, the number of PCEs would be 4 during each of the 7:00 to 8:00 AM and 3:00 to 4:00 PM peak construction hours. These trucks would be required to use NYCDOT-designated truck routes.

Using the number of vehicle worker trips plus the PCE of the trucks, the increment between construction of the No Action Building and the proposed Science Building would result in 23 and 27 PCEs in the 6:00 AM to 7:00 AM and 3:00 PM to 4:00 PM construction peak hours, respectively.

Table I-6
Summary of Net Construction Vehicle Trips

Time	Manpower				Truck Delivery				Total Vehicle Trip PCE		
	Person Trip		Auto Trip		Truck Trip		Truck PCE				
	In	Out	In	Out	In	Out	In	Out	In	Out	Total
05 AM - 06 AM	0	0	0	0	0	0	0	0	0	0	0
06 AM - 07 AM	113	0	23	0	0	0	0	0	23	0	23
07 AM - 08 AM	28	0	6	0	1	1	2	2	8	2	10
08 AM - 09 AM	0	0	0	0	1	1	2	2	2	2	4
09 AM - 10 AM	0	0	0	0	1	1	2	2	2	2	4
10 AM - 11 AM	0	0	0	0	1	1	2	2	2	2	4
11 AM - 12 PM	0	0	0	0	1	1	2	2	2	2	4
12 PM - 01 PM	0	0	0	0	1	1	2	2	2	2	4
01 PM - 02 PM	0	0	0	0	1	1	2	2	2	2	4
02 PM - 03 PM	0	14	0	3	1	1	2	2	2	5	7
03 PM - 04 PM	0	113	0	23	1	1	2	2	2	25	27
04 PM - 05 PM	0	14	0	3	0	0	0	0	0	3	3
05 PM - 06 PM	0	0	0	0	0	0	0	0	0	0	0
Daily Total	141	141	29	29	9	9	18	18	47	47	94

Note: Auto trips were calculated based on a 40-percent auto share with a vehicle occupancy rate of 1.90.

Since the net increases in construction-generated traffic are below the *CEQR* analysis threshold of 50 peak hour vehicle trips and the incremental parking demand would be a very small percentage of the area's overall parking supply, no further detailed analyses are warranted and there would not be a potential for any significant adverse traffic and parking impacts.

The curb lane and sidewalk on the southbound FDR Drive Service Road and former East 30th Street may be temporarily closed to accommodate construction activities. Sidewalk protection or temporary sidewalks would be provided, as stipulated in MPT plans approved by NYCDOT, along the FDR Drive Service Road and former East 30th Street to maintain pedestrian access. Staging areas would be required from the start of foundation work until cranes and hoists are completely removed at the completion of the steel frame and exterior curtain wall. Because the majority of construction activities would be accommodated on-site, construction trucks and equipment laydowns would be staged nearby, most likely along the FDR Drive Service Road and former East 30th Street.

Transit and Pedestrians

As discussed above, construction of the proposed Science Building would result in 255 more construction workers per day than the No Action building during peak construction. With approximately 40 percent of these incremental construction workers commuting by auto, most of the remaining 60 percent, approximately 153 workers, would travel via transit. This level of increased transit usage, especially during hours that are outside of the commuter peak periods, would not result in the potential for any significant adverse transit impacts. Similarly, the incremental pedestrian trips would also not result in the potential for any significant adverse pedestrian impacts.

AIR QUALITY

Construction activities have the potential to impact air quality as a consequence of engine emissions from on-site construction equipment, as well as dust generating activities. In general, much of the heavy equipment used in construction has diesel-powered engines and produces relatively high levels of nitrogen oxides and particulate matter. Gasoline engines produce relatively high levels of carbon monoxide. Fugitive dust is composed of particulate matter. As a result, the primary air pollutants of concern for construction activities include nitrogen dioxide (NO_2), particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and carbon monoxide (CO).

The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine particulate matter. To ensure that the construction of the proposed project results in the lowest feasible diesel particulate matter (DPM) emissions, an emissions reduction program would be implemented and would consist of the following components:

1. *Diesel Equipment Reduction.* The construction of the proposed project could minimize the use of diesel engines and use electric engines operating on grid power instead, to the extent practicable. Construction contracts would specify the use of electric engines where available and practicable and ensure the distribution of power connections as needed and subject to availability;

2. *Clean Fuel*. ULSD would be used exclusively for all diesel engines throughout construction. This would enable the use of tailpipe reduction technologies (see below) and would directly reduce DPM and sulfur oxides (SO_x) emissions;

3. *Planning*. Certain emission sources (e.g., concrete trucks and pumps, cranes, large generators) would be located as far as possible from residential buildings and public spaces, to the extent practicable;

4. *Idle Time Restrictions*. The construction specifications would include the restriction of on-site vehicle idle time to three minutes for all vehicles that are not using the engine to operate a loading, unloading, or processing device (e.g., concrete mixing trucks);

5. *Best Available Tailpipe Reduction Technologies.* Nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) could utilize the best available tailpipe technology for reducing DPM emissions. Diesel particle filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts could specify that all diesel nonroad engines rated at 50 hp or greater and all controlled-fleet trucks would utilize DPFs or other tailpipe reduction technology, either original equipment manufacturer (OEM) or retrofit technology with add-on controls, verified to reduce DPM emissions by at least 90 percent (when compared with the uncontrolled exhaust of an equivalent engine). Ninety percent reduction has been verified by a study of actual reductions of $PM_{2.5}$ emissions from comparable engines used at a New York City construction site. Controls may include active DPFs,[1] if necessary;

6. *Utilization of Tier 3 or Newer Equipment.* In addition to the tailpipe controls commitments, the construction program would mandate the use of Tier 3[2] (or newer) construction equipment for nonroad diesel engines greater than 50 hp. The use of newer engines, is expected to reduce the likelihood of DPF plugging due to soot loading (i.e., clogging of DPF filters by accumulating particulate matter); and the more recent the "Tier," the cleaner the engine for all criteria pollutants, including PM. Additionally, while all engines undergo some deterioration over time, "newer," as well as better maintained, engines will emit less PM than their older Tier or unregulated counterparts. Therefore, restricting site access to equipment with lower engine-out PM emission values would enhance this emissions reduction program and implementation of DPF systems, as well as reduce maintenance frequency due to soot loading (i.e., less downtime for construction equipment to replace clogged DPF filters). The use of Tier 3 or newer equipment would reduce emissions of NO_x (including NO_2) and hydrocarbons as compared to older, non-Tier 3 equipment. In addition, to minimize emissions of NO_2 from the proposed project's construction activities to the

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[1] Two types of DPFs are currently used: passive and active. Most DPFs currently in use are the "passive" type, which means that the heat from the exhaust is used to regenerate (burn off) the PM to eliminate the buildup of PM in the filter. Some engines do not maintain temperatures high enough for passive regeneration. In such cases, "active" DPFs can be used (i.e., DPFs that are heated either by an electrical connection from the engine, by plugging in during periods of inactivity, or by removal of the filter for external regeneration).

[2] The first federal regulations for new nonroad diesel engines were adopted in 1994, and signed by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. The Tier 1 through 3 standards regulate the EPA criteria pollutants, including particulate matter (PM), hydrocarbons (HC), oxides of nitrogen (NO_x) and carbon monoxide (CO). Prior to 1998, emissions from nonroad diesel engines were unregulated. These engines are typically referred to as Tier 0.

maximum extent practicable, non-road diesel-powered vehicles and construction equipment meeting or achieving the equivalent the EPA Tier 4 Non-road Diesel Engine Emission Standard would be used where conforming equipment is widely available, and the use of such equipment is practicable.

The program of these six measures constitutes Best Available Technology (BAT) and is the state-of-the-art in reducing air emissions during construction. Due to the use of BAT, emissions levels during construction would be lower as compared with typical construction activity.

Construction also has the potential to adversely affect air quality as a result of activities that generate fugitive dust. In order to minimize fugitive dust, the following components would also be implemented as part of the construction program:

1. *Planning*. Fugitive dust control plans could be required as part of contract specifications;
2. *Watering*. Truck routes and exposed excavation areas would be watered as needed;
3. *Cleaning*. Truck exit areas would be established for washing off the wheels of all trucks that exit the construction sites, and could include drive off pads;
4. *Stabilization*. In cases where truck routes would remain in the same place for an extended period, the routes could be stabilized, covered with gravel, or temporarily paved to avoid the re-suspension of road dust;
5. *Truck Covers*. Dust covers for dump trucks would be required.

The use of six measures that constitute BAT for air emissions and the five measures for fugitive dust would ensure that air pollutants emissions remain below the level of significance.

NOISE

Impacts on community noise levels during construction can result from noise from construction equipment operation, and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations.

Noise from construction activities and some construction equipment is regulated by the New York City Noise Control Code and by EPA. The New York City Noise Control Code, as amended December 2005 and effective July 1, 2007, requires the adoption and implementation of a noise mitigation plan for each construction site, limits construction (absent special circumstances as described below) to weekdays between the hours of 7:00 AM and 6:00 PM, and sets noise limits for certain specific pieces of construction equipment. Construction activities occurring after hours (weekdays between 6:00 PM and 7:00 AM, and on weekends) may be authorized in the following circumstances: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise impacts; and (5) where undue hardship is demonstrated resulting from unique site characteristics, unforeseen conditions, scheduling conflicts and/or financial considerations. EPA requirements mandate that certain classifications of construction equipment meet specified noise emissions standards.

In addition, NYULMC would commit to the source and path control measures identified in the Construction Mitigation Plan required by the New York City Noise Control Code. In terms of

source controls (i.e., reducing noise levels at the source), the following measures for construction, which go beyond typical construction techniques, would be implemented:

- A wide range of equipment that produces lower noise levels than typical construction equipment required by the New York City Noise Control Code would be utilized. **Table I-7** shows the noise levels for typical construction equipment and the noise levels for the equipment that would be used for construction of the proposed project.

Table I-7
Typical Noise Emission Levels for Construction Equipment

Equipment Item	Noise Level at 50 ft. (dBA)
Air compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer, Drills	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

Sources: Citywide Construction Noise Mitigation, Chapter 28, Department of Environmental Protection of New York City, 2007; Transit Noise and Vibration Impact Assessment, Federal Transit Administration (FTA), May 2006; and Subchapter 5 of the NYC Noise Control Code.

- Generally, the construction managers would schedule and perform noisy work during times of highest ambient noise levels.
- Dominant noisier equipment, such as tower cranes, loading and unloading trucks, concrete pumps, concrete trucks, and trash hauling trucks would minimize banging, clattering, and buzzing.
- As early in the construction period as practicable, electrical-powered equipment would be selected for certain noisy equipment, such as bar benders, cement mixers, concrete vibrators, hoists, miscellaneous tools, paver cutters, saws, scissor lifts, sprayers, and welders (i.e., early electrification).
- Minimize the use of impact devices as practicable, such as jackhammers, pavement breakers, pneumatic tools, and hoe rams, and only necessary equipment would be on-site.

  Typical equipment (i.e., compressors, jackhammers, and trash hauling vehicles) used at the construction sites would be less noisy than the sound level standards specified in Subchapter 5 of the New York City Noise Control Code.
- Where practicable and feasible, construction sites would be configured to minimize back-up alarm noise. In addition, trucks would not be allowed to idle more than three minutes at the construction site based upon New York City Local Law.
- Contractors and subcontractors would be required to properly maintain their equipment and have quality mufflers installed.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the analysis assumes that the following measures would be implemented:

- Noisier equipment, such as tower cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from sensitive receptors, to the extent feasible.
- Noise barriers would be utilized to provide shielding. The construction sites would have a minimum 8-foot-high barrier, with a 15-foot-high barrier adjacent to residential and other sensitive locations. Where possible, concrete trucks and delivery trucks would be behind these barriers.
- Path noise control measures (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) were assumed to be used for certain dominant noise equipment (i.e., concrete trowels, break ram, and paver cutter). The details to construct noise barriers, enclosures, tents, etc. are based upon the instructions of Chapter 28, “Citywide Construction Noise Mitigation.” in New York City Noise Control Code.

Acoustical curtains would be used where internal construction activities use the equipment listed above, to break the line-of-sight and provide acoustical shielding between noise sources and sensitive receptors.

RODENT CONTROL

Construction contracts would include provisions for a rodent (mouse and rat) control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During the construction phase, as necessary, the contractor would carry out a maintenance program. Coordination would be maintained with appropriate public agencies. Only U.S. Environmental Protection Agency (EPA) and New York State Department of Environmental Conservation (DEC) registered rodenticides would be permitted,

and the contractor would be required to perform rodent control programs in a manner that avoids hazards to persons, domestic animals, and non-target wildlife.

CONCLUSIONS

By comparison to construction of the No Action Building, the proposed project would not result in any significant adverse impacts. Further, with all the measures discussed above for protection of historic resources, management of hazardous materials, reduction of air emissions, and implementation of noise measures, construction of the proposed project would have less adverse impacts than the No Action Building. ✷

A. INTRODUCTION

NYU Langone Medical Center (NYULMC) is seeking zoning variances from the New York City Board of Standards and Appeals (BSA) to support development of the proposed Science Building, to be located on the southeast corner of its campus. The NYULMC campus is located on the superblock bounded by former East 30th and East 34th Streets, between the FDR Drive Service Road and First Avenue in Manhattan.

This chapter analyzes the extent to which the proposed action may alter neighborhood character. Neighborhood character is considered to be an amalgam of various elements, including land use, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, traffic, and noise. Following the guidelines of the *City Environmental Quality Review (CEQR) Technical Manual*, the assessment in this chapter focuses on the defining elements that contribute to the character of the neighborhood.

B. EXISTING CONDITIONS

The existing character of the project site and the neighborhood that surrounds it is defined in large part by the medical facilities and other institutions that predominate.

As described in greater detail on page 1a of the EAS, "Project Description," the project site, located on the southeast corner of the larger campus superblock that is bounded by Frist Avenue and the Franklin D. Roosevelt (FDR) Drive Service Road and former East 30th and East 34th Streets, is occupied by Rubin Hall, Schwartz Lecture Hall, and Medical Science Building. The 15-story Rubin Hall has been vacant since 2010 (students formerly housed in dormitory rooms in Rubin Hall were relocated to other existing NYULMC buildings in the area), and abatement and demolition of the building has begun independent of the proposed project. A one-story portion of Schwartz Lecture Hall and a two-story portion of the Medical Science Building would be demolished for the proposed building. These buildings contain outdated facilities.

Three outparcels on the superblock that are not part of the NYULMC zoning lot include two small parcels owned by Amtrak and a third at the corner of the former East 30th Street that belongs to the Office of Chief Medical Examiner (OCME) of the City of New York. Directly west of the NYULMC campus, NYULMC's Arnold & Marilyn Greenberg Hall, a mixed-use building with dormitory and NYULMC office space, is located on the superblock otherwise occupied by Kips Bay Towers, between East 33rd and East 30th Streets between First and Second Avenues. Other NYULMC uses not on the campus superblock but in the study area include outpatient surgery, musculoskeletal institute, clinical cancer center, multiple ambulatory care centers, research laboratories, and administrative offices.

Opposite the project site on the south side of former East 30th Street, adjacent to the FDR Drive, is Memorial Park, the temporary structure for the morgue for September 11 victims. To the west of that, the former Bellevue Hospital Psychiatric Building is a 9-story brick building that has

been operated by the New York City Department of Homeless Services as the 30th Street Men's Shelter since 1985.

The surrounding neighborhood includes a mix of medical institutional, non-medical institutional, residential, retail, open space and transportation uses. However, it is the institutional uses—primarily related to medicine and research—that have the greatest influence on the character of the area. Major institutional uses extend south along the First Avenue corridor and include Bellevue Hospital Center, Hunter College Brookdale Health Science Center, the Veterans Administration Hospital, and a New York City Department of Health Public Health Laboratory.

Other institutional uses, more typical of those found throughout Manhattan, include City offices and facilities, the Churchill School, the Chapel of the Sacred Hearts of Jesus and Mary, St. Vartan Armenian Cathedral, and a mission to the United Nations.

Residential uses are also found in parts of the study area, which contains a mix of modern, tall apartment towers and smaller-scale buildings, including 4- and 5-story tenement buildings. Larger residential buildings include: the Rivergate, which occupies a full block and is 35 stories (315 feet tall); the Corinthian, a 55-story (546-foot-tall) apartment building; Manhattan Place, a 35-story (363-foot-tall) apartment complex; and the Horizon Apartments, a 42-story (403-foot-tall) building. Commercial uses in the area tend to be concentrated in the ground floors of buildings along First and Second Avenues. There is one park within the project's study area (St. Vartan Park), esplanade areas along portions of the waterfront, and privately owned publicly accessible open spaces at some of the larger residential buildings in the neighborhood. The FDR Drive, a busy elevated highway, runs parallel to the East River through the eastern part of the neighborhood.

As described in Attachment C, "Historic and Cultural Resources," the project site and the remainder of the NYULMC campus do not contain any known or potential architectural resources. There are two known architectural resources (the former Bellevue Psychiatric Building, S/NR-eligible, and the R&S Building, S/NR-listed) and one potential architectural resource (Kips Bay Towers) in the study area. The former Bellevue Psychiatric Building (S/NR-eligible), is located to the south of the project site, on the southeast corner of First Avenue and East 30th Street, approximately 70 feet from the project site. In accordance with Section 523 of the *CEQR Technical Manual*, a Construction Protection Plan would be developed for this building to avoid inadvertent adverse impacts during construction. The proposed new Science Building would not obstruct views to the historic buildings associated with the Bellevue hospital complex south of former East 30th Street or Kips Bay Towers across First Avenue. Further, the Kips Bay Towers complex has existed in a context that includes the evolving NYULMC complex since its construction. Overall, the proposed action would have no effect on historic and cultural resources.

In terms of urban design, the neighborhood is characterized by a wide range of building types of varying heights, styles and designs. As discussed in Attachment B, "Urban Design and Visual Resources," the project site is occupied by three buildings: the 15-story Rubin Hall, the one-story Schwartz Lecture Hall, and a two-story portion of the Medical Science Building which contains the Dean's Suite of administrative offices. The remainder of the NYULMC campus includes multiple mid- and high-rise buildings between 6 and 27 stories in height, which are connected by smaller 1- and 2-story structures. The buildings are mostly clad in glass, metal, and brick and are of modern design.

The area includes four large superblocks: the one on which the project site is located, the superblock occupied by Kips Bay Towers to the west, the Bellevue Hospital Center superblock south of the project site, and a fourth superblock south of East 29th Street and west of First Avenue. The remainder of the study area is mostly developed in the typical Manhattan grid pattern with wide avenues running north-south and narrow streets running east-west.

The streetscape of the study area is urban in character, with wide sidewalks on East 34th Street and First and Second Avenues and a very narrow sidewalk on the western side of the FDR Drive service road. The study area includes typical street furniture, including newspaper stands, parking meters, phone booths, and garbage bins. The majority of the study area's pedestrian traffic is concentrated along East 34th Street and First and Second Avenues. Noise levels are generally high and reflect the busy level of vehicular traffic on area streets. The nearby heliport at the water's edge also contributes to the high urban noise levels.

C. THE FUTURE WITHOUT THE PROPOSED ACTION

As described in greater detail in Attachment A, "Land Use, Zoning, and Public Policy," the future without the proposed action (the "No Action" condition) assumes that an approximately 135,524 gross square foot, four-story tall plus mechanical space, complying building would be constructed on the project site for a new Science Building. The as-of-right project would be consistent with other uses and building types on the block and in the surrounding area. As described above, the neighborhood has a long history of medical, research, and academic uses, which continues today.

As described in greater detail in Attachment A, "Land Use, Zoning, and Public Policy," other projects are planned or underway that may be completed by the project build year of 2017, including the expansion and improvement of NYULMC's Emergency Department, the 34th Street Transitway and the Alexandria Center for Science and Technology at East River Science Park. To the north, portions of the rezoned First Avenue Properties site may be redeveloped with a public school, residential towers, retail, and open space. Additional development in the area will include smaller residential and commercial projects. In addition, the proposed NYULMC Kimmel Pavilion and Energy Building to be located on the northeast portion of the superblock at East 34th Street and the FDR Drive is expected to be complete by 2017.

The expansion of the NYULMC Emergency Department is expected to improve upon the emergency services and its design and use would be compatible with surrounding buildings and the medical character of the area.

While the 34th Street Transitway project is primarily intended to reduce travel time and increase the level of comfort for customers, improvements are planned that will change the streetscape and thus have a minor effect on neighborhood character. These include the addition of curbside bus lanes, bike lanes on First and Second Avenues, and pedestrian safety islands at certain intersections south of 34th Street to help reduce crossing distances for pedestrians.

The Alexandria Center for Science and Technology at East River Science Park will be consistent with the surrounding medical-oriented uses. The tall new buildings, of contemporary design, are already visible from the surrounding area and contribute to the area's diverse skyline.

The proposed Kimmel Pavilion would result in a new, approximately 895,000 gross square foot hospital building with inpatient rooms, operating and guided procedure rooms, and observation unit for post procedure patients, a state-of-the-art sterile processing department for operating room instruments, and expansions of the loading docks and materials management department.

The approximately 113,760 gross square foot Energy Building would house a combined heat and power plant, primary electric service and emergency generators to support the campus, as well as space for patient care (specifically, radiation oncology). Both the Kimmel Pavilion and the Energy Building would be physically linked to and function with the existing Tisch Hospital. The Kimmel Pavilion and Energy Building project would continue and enhance the existing hospital uses on the superblock.

The other projects, with a combination of residential towers and retail and open space uses, would be consistent with the residential character of the neighborhood, which already includes similar uses.

D. PROBABLE IMPACTS OF THE PROPOSED ACTION

According to the 2010 *CEQR Technical Manual*, it is unlikely that a project would have neighborhood character impacts in the absence of an impact in any of the relevant technical areas. As described elsewhere in this EAS and its attachments, the proposed project and the BSA actions would not have a significant adverse impact in any of the technical areas that contribute to neighborhood character, including land use, socioeconomic conditions, open space, historic and cultural resources, urban design and visual resources, shadows, traffic, and noise.

The effects of the proposed action on neighborhood character would be substantially the same as conditions in the future without the proposed action. The proposed project would be consistent with the character of the surrounding neighborhood. The project site and the superblock on which it is located are now and have traditionally been associated with medical uses. The NYULMC campus itself is part of a larger concentration of similar uses that contain medical, research and associated facilities, such as Bellevue Hospital and East River Science Park. Residential, commercial and open space uses, which are all found throughout the area, have long existed alongside the medical- and research-oriented facilities in the area and the proposed project would represent a continuation of that history. The project would not result in any significant adverse impacts to socioeconomic conditions or noise. Further, the net new population on the campus would not result in 500 or more employees, the *CEQR Technical Manual* threshold requiring an open space assessment, and no significant adverse impacts on open space would occur with the project.

As with the No Action condition, the proposed action would require the demolition of the existing buildings on the project site. Since none of these buildings were identified as historic resources and the site is not considered archaeologically sensitive, there would not be any adverse impact on Historic resources.

In terms of urban design and visual character, the proposed Science Building would be 16 stories (approximately 319 feet) high to the top of the mechanical space, whereas the No Action building would be four stories high (approximately 97 feet). The proposed project would have a similar footprint to the No Action building. The proposed building would still be in context with the existing and emerging character of the overall NYULMC campus. Most notably, it would be similar in height to the adjacent Smilow Research Center building (273 feet), and both buildings would be shorter than the Kimmel Pavilion (412 feet) expected to be constructed to the north. These three buildings would create a new and modern street frontage along the western, First Avenue boundary of the NYULMC campus. The new Science Building would create a more uniform streetwall along former East 30th Street compared with the existing conditions and similar to the No Action condition. As with the No Action condition, the proposed action would

not be expected to result in any significant adverse impacts on urban design and visual resources.

Shadows cast by the proposed building would be of limited duration and extent, and would not result in any significant adverse impacts. Shadows from the proposed building would fall on the Water Club Esplanade, which beings at former East 30th Street and extends north along the waterfront to East 32nd Street, and is a connector space that walkers and bike riders travel through, and does not appear to be a "destination" space. These shadows would not be expected to cause any significant adverse shadow impacts to any vegetation in the planters or to any users of the Esplanade. Shadows from the proposed building that would be cast on portions of the East River would be of limited duration and extent; because current flows swiftly in the East River, phytoplankton and other natural elements would move quickly through the shaded areas, and the project would not have any significant adverse impacts on primary productivity in the East River.

The proposed project would not result in 50 or more peak hour vehicle trips, the *CEQR Technical Manual* threshold requiring a traffic analysis, and the project would not result in any significant adverse impacts to traffic. Therefore, there would be no potential for increases in noise due to traffic.

Overall, the proposed action would not have a significant adverse impact on neighborhood character. ✷

Appendix A

For Internal Use Only:	WRP no._____
Date Received:_____	DOS no._____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed action subject to CEQR, ULURP, or other Local, State or Federal Agency Discretionary Actions that are situated within New York City's designated Coastal Zone Boundary must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program (WRP)*. The WRP was adopted as a 197-a Plan by the Council of the City of New York on October 13, 1999, and approved in coordination with local, state and Federal laws and regulations, including the State's Coastal Management Program (Executive Law, Article 42) and the Federal Coastal Zone Management Act of 1972 (P.L. 92-583). As a result of these approvals, state and federal discretionary actions within the city's coastal zone must be consistent to the maximum extent practicable with the WRP policies and the city must be given the opportunity to comment on all state and federal projects within its coastal zone.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, other State Agency or the New York City Department of City Planning in its review of the applicant's certification of consistency.

A. APPLICANT

1. Name: **NYU Langone Medical Center**

Address: **c/o Elise Wagner, Kramer Levin Naftalis & Frankel LLP.**
1177 Avenue of the Americas, New York, NY 10036

3. Telephone: **212-715-9189** Fax: **212-715-8208**

E-mail Address: **ewagner@kramerlevin.com**

4. Project site owner: **NYU Langone Medical Center**

B. PROPOSED ACTIVITY

1. Brief description of activity: **The applicant, the New York University Langone Medical Center (NYULMC), is seeking a zoning variance from the Board of Standards and Appeals (BSA) to facilitate the development of a new 443,474 gross square foot (gsf) Science Building at 401 East 30th Street at the FDR Drive. See EAS page 1a for further information.**

2. Purpose of activity: **To provide a new Science Building that would focus on biomedical research. The new building would house the Neuroscience Institute. In addition to research facilities, the building is also expected to house administrative offices for the School of Medicine, seminar and conference space, and research support space.**

3. Location of activity: **NYULMC Campus** Borough: **Manhattan**

Street Address or Site Description: **401 East 30th Street (within the superblock bounded by former East 30th and East 34th Streets between the FDR Drive Service Road and First Avenue).**

Proposed Activity Cont'd

4. If a federal or state permit or license was issued or is required for the proposed activity, identify the permit type(s), the authorizing agency and provide the application or permit number(s), if known:

   None

5. Is federal or state funding being used to finance the project? If so, please identify the funding source(s).

   Yes – Empire Opportunity Fund (Empire State Development Corporation) (approved in April 2011)

		Yes	No
6.	Will the proposed project result in any large physical change to a site within the coastal area that will require the preparation of an environmental impact statement?		
	If yes, identify Lead Agency:		X

An Environmental Assessment Statement has been prepared. The lead agency is the New York City Board of Standards and Appeals (BSA).

7. Identify **City** discretionary actions, such as **zoning amendment or adoption of an urban renewal plan**, required for the proposed project.

   A zoning variance is being sought from BSA to allow the following non-compliances: A portion of the proposed building is located within a required rear yard equivalent (Zoning Resolution [ZR] Section 24-382); the portion of the proposed building that is located within the initial setback distance exceeds the maximum permitted height of 85 feet above curb level or six stories, whichever is less, and penetrates the sky exposure plane (ZR 24-522); lot coverage within the interior and through lot portions of the zoning lot exceeds 65 percent (ZR 24-11); and the proposed building increases the degree of non-compliance allowed by prior BSA variance (Cal. No. 186-10-BZ) with respect to tower coverage limitation (ZR 24-54 and 186-10-BZ).

C. COASTAL ASSESSMENT

The following questions represent, in a broad sense, the policy of the WRP. The number in the parentheses after each question indicated the policy or policies that are the focus of the question. A detailed explanation of the Waterfront Revitalization Program and its policies are contained in the publication the *New York City Waterfront Revitalization Program.*

Check either "Yes" or "No" for each of the following questions. Once the checklist is completed, assess how the proposed project affects the policy or standards indicated in "( )" after each question with a Yes response. Explain how the action is consistent with the goals of the policy or standard.

Location Questions:		**Yes**	**No**
1.	Is the project site on the waterfront or at the water's edge?		X
2.	Does the proposed project require a waterfront site?		X
3.	Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land underwater, or coastal waters?		X

Policy Questions:		**Yes**	**No**
	The following questions represent, in a broad sense, the policies of the WRP. Numbers in parentheses after each questions indicate the policy or policies addressed by the question. The new Waterfront Revitalization Program offers detailed explanations of the policies, including criteria for consistency determinations.		
	Check either "Yes" or "No" for each of the following questions. For all "yes" responses, provide an attachment assessing the effects of the proposed activity on the relevant policies or standards. Explain how the action would be consistent with the goals of those policies and standards.		
4.	Will the proposed project result in revitalization or redevelopment of a deteriorated or under- used waterfront site? (1)		X
5.	Is the project site appropriate for residential or commercial redevelopment? (1.1)		X
6.	Will the action result in a change in scale or character of a neighborhood? (1.2)		X
7.	Will the proposed activity require provision of new public services or infrastructure in undeveloped or sparsely populated sections of the coastal area? (1.3)		X

Policy Questions cont'd:		**Yes**	**No**
8.	Is the action located in one of the designated Significant Maritime and Industrial Areas (SMIA): South Bronx, Newtown Creek, Brooklyn Navy Yard, Red Hook, Sunset Park, or Staten Island? (2)		**X**
9.	Are there any waterfront structures, such as piers, docks, bulkheads or wharves, located on the project sites? (2)		**X**
10.	Would the action involve the siting or construction of a facility essential to the generation or transmission of energy, or a natural gas facility, or would it develop new energy resources? (2.1)		**X**
11.	Does the action involve the siting of a working waterfront use outside of a SMIA? (2.2)		**X**
12.	Does the proposed project involve infrastructure improvement, such as construction or repair of piers, docks, or bulkheads? (2.3, 3.2)		**X**
13.	Would the action involve mining, dredging, or dredge disposal, or placement of dredged or fill materials in coastal waters? (2.3, 3.1, 4, 5.3, 6.3)		**X**
14.	Would the action be located in a commercial or recreational boating center, such as City Island, Sheepshead Bay or Great Kills or an area devoted to water-dependent transportation? (3)		**X**
15.	Would the proposed project have an adverse effect upon the land or water uses within a commercial or recreation boating center or water-dependent transportation center? (3.1)		**X**
16.	Would the proposed project create any conflicts between commercial and recreational boating? (3.2)		**X**
17.	Does the proposed project involve any boating activity that would have an impact on the aquatic environment or surrounding land and water uses? (3.3)		**X**
18.	Is the action located in one of the designated Special Natural Waterfront Areas (SNWA): Long Island Sound-East River, Jamaica Bay, or Northwest Staten Island? (4 and 9.2)		**X**
19.	Is the project site in or adjacent to a Significant Coastal Fish and Wildlife Habitats? (4.1)		**X**
20.	Is the site located within or adjacent to a Recognized Ecological Complex: South Shore of Staten Island or Riverdale Natural Area District? (4.1and 9.2)		**X**
21.	Would the action involve any activity in or near a tidal or freshwater wetland? (4.2)		**X**
22.	Does the project site contain a rare ecological community or would the proposed project affect a vulnerable plant, fish, or wildlife species? (4.3)		**X**
23.	Would the action have any effects on commercial or recreational use of fish resources? (4.4)		**X**
24.	Would the proposed project in any way affect the water quality classification of nearby waters or be unable to be consistent with that classification? (5)		**X**
25.	Would the action result in any direct or indirect discharges, including toxins, hazardous substances, or other pollutants, effluent, or waste, into any waterbody? (5.1)		**X**
26.	Would the action result in the draining of stormwater runoff or sewer overflows into coastal waters? (5.1)		**X**
27.	Will any activity associated with the project generate nonpoint source pollution? (5.2)		**X**

Policy Questions cont'd:		Yes	No
28.	Would the action cause violations of the National or State air quality standards? (5.2)		X
29.	Would the action result in significant amounts of acid rain precursors (nitrates and sulfates)? (5.2C)		X
30.	Will the project involve the excavation or placing of fill in or near navigable waters, marshes, estuaries, tidal marshes or other wetlands? (5.3)		X
31.	Would the proposed action have any effects on surface or ground water supplies? (5.4)		X
32.	Would the action result in any activities within a Federally designated flood hazard area or State designated erosion hazards area? (6)	X	
33.	Would the action result in any construction activities that would lead to erosion? (6)		X
34.	Would the action involve construction or reconstruction of flood or erosion control structure? (6.1)		X
35.	Would the action involve any new or increased activity on or near any beach, dune, barrier island, or bluff? (6.1)		X
36.	Does the proposed project involve use of public funds for flood prevention or erosion control? (6.2)		X
37.	Would the proposed project affect a non-renewable source of sand? (6.3)		X
38.	Would the action result in shipping, handling, or storing of solid wastes; hazardous materials, or other pollutants? (7)		X
39.	Would the action affect any sites that have been used as landfills? (7.1)		X
40.	Would the action result in development of a site that may contain contamination or has a history of underground fuel tanks, oil spills, or other form or petroleum product use or storage? (7.2)	X	
41.	Will the proposed activity result in any transport, storage, treatment, or disposal of solid wastes or hazardous materials, or the siting of a solid or hazardous waste facility? (7.3)		X
42.	Would the action result in a reduction of existing or required access to or along coastal waters, public access areas, or public parks or open spaces? (8)		X
43.	Will the proposed project affect or be located in, on, or adjacent to any federal, state, or city park or other land in public ownership protected for open space preservation? (8)		X
44.	Would the action result in the provision of open space without the provision for its maintenance? (8.1)		X
45.	Would the action result in any development along the shoreline but NOT include new water enhanced or water dependent recreational space? (8.2)		X
46.	Will the proposed project impede visual access to coastal lands, waters and open space? (8.3)		X
47.	Does the proposed project involve publically owned or acquired land that could accommodate waterfront open space or recreation? (8.4)		X
48.	Does the project site involve lands or waters held in public trust by the state or city? (8.5)		X

Policy Questions cont'd:		Yes	No
49.	Would the action affect natural or built resources that contribute to the scenic quality of a coastal area? (9)		X
50.	Does the site currently include elements that degrade the area's scenic quality or block views to the water? (9.1)		X
51.	Would the proposed action have a significant adverse impact on historic, archeological, or cultural resources? (10)		X
52.	Will the proposed activity affect or be located in, on, or adjacent to an historic resource listed on the National or State Register of Historic Places, or designated as a landmark by the City of New York? (10)		X

D. CERTIFICATION

The applicant must certify that the proposed activity is consistent with New York City's Waterfront Revitalization Program, pursuant to the New York State Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If the certification can be made, complete this section.

"The proposed activity complies with New York State's Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent Name: **Anne Locke—Chief Operating Officer, AKRF, Inc.**

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

Telephone **212-696-0670**

Applicant/Agent Signature: Anne M Locke Date: **May 31, 2012**

Appendix B

THE CITY OF NEW YORK LANDMARKS PRESERVATION COMMISSION
1 Centre Street, 9N, New York, NY 10007 (212) 669-7700 www.nyc.gov/landmarks

ENVIRONMENTAL REVIEW

NO LEAD AGENCY/NL-CEQR-M 1/24/2011

Project number **Date received**

Project: NYU LANGONE NEUROSCIENCE INSTITUTE 433 EAST 30 STREET BBL 1009627501

[] No architectural significance

[X] No archaeological significance

[ ] Designated New York City Landmark or Within Designated Historic District

[ ] Listed on National Register of Historic Places

[ ] Appears to be eligible for National Register Listing and/or New York City Landmark Designation

[ ] May be archaeologically significant; requesting additional materials

Comments: ARCHAEOLOGY REVIEW ONLY.

1/25/2011

SIGNATURE DATE

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OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Andrew M. Cuomo
Governor

Andy Beers
Acting Commissioner

Historic Preservation Field Services Bureau
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

February 11, 2011

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

Re: INFO REQ
NYU Langone Neuroscience Institiute
NYU Langone Medical
Complex/MANHATTAN, New York County
11PR01044

Dear Ms. Cooney:

Thank you for requesting the comments of the Field Services Bureau of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project 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 Field Services Bureau 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).

Based upon this review, OPRHP had no archaeological concerns for your project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.Please contact me at extension 3291, or by e-mail at douglas.mackey@oprhp.state.ny.us, if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

Cc: Amanda Sutphin, LPC (email)

Environmental Protection

Carter H. Strickland, Jr.
Commissioner

Angela Licata
Deputy Commissioner
of Sustainability
alicata@dep.nyc.gov

59-17 Junction Boulevard
Flushing, NY 11373
T: (718) 595-4398
F: (718) 595-4479

August 14, 2012

Mr. Rory Levy
CEQR Examiner
New York City Board of Standards and Appeals
40 Rector Street, 9th Floor
New York, New York 10006

Re: New York University Langone Medical Center Science Building
435 East 30th Street
Block 962, Lots 80, 108, and 1001–1107
DEP # 13DEPTECH008M / CEQR # 12BSA141M
New York, New York

Dear Mr. Levy:

The New York City Department of Environmental Protection, Bureau of Environmental Planning and Analysis (DEP) has reviewed the May 2012 Environmental Assessment Statement and the February 2011 Phase I Environmental Site Assessment Report (Phase I) prepared by AKRF, Inc. on behalf of New York University Langone Medical Center (NYULMC) for the NYULMC Science Building project. It is our understanding that NYULMC is seeking a zoning variance from the New York City Board of Standards and Appeals (BSA) to facilitate development of a new Science Building at 401 East 30th Street and the Franklin Delano Roosevelt (FDR) Drive Service Road, which is part of the larger NYULMC campus. The zoning variance would allow non-complying rear yard, setback, lot coverage and tower coverage development in the R8 zoning district. The proposed Science Building is expected to contain approximately 443,474 gross square feet (gsf), 16 stories (319 feet) tall, and serve an anticipated population of 820 people. The program would focus on biomedical research and the building would house the Neuroscience Institute as well as administrative offices for the School of Medicine, seminar and conference space, and research support space. The project site is currently occupied by the 15-story Rubin Hall, a one-story portion of Schwartz Lecture Hall and a two-story portion of the Medical Science Building; all contain facilities that would be demolished for the proposed project. The proposed project is located on the superblock bounded by former East 30th Street and East 34th Street between the FDR Drive Service Road and First Avenue in the Kips Bay neighborhood of Manhattan Community District 6.

The February 2011 Phase I report revealed that historical on-site and surrounding area land uses consisted of a variety of residential, commercial, and industrial uses including lumber yards, a warehouse, a kindling wood factory, stores, Standard Gas Light Co., a coal yard; stores, factories, dwellings a contractor's warehouse, a dyer and cleaner, a biscuit manufacturer, railroad

tunnels, a railroad baggage building, vacant land, a sash and blind factory, hospitals, a brewery, a piano factory, a pasteurized milk laboratory, a coal yard, an airplane factory and a hangar, an aeronautical engineering corporation, a plaster studio, a kindling wood factory, garages and filling stations with buried gasoline tanks, a silk hose factory, an auto repair shop, an auto sales and service shop, the office of the New York City Chief Medical Examiner, a medical school, greenhouses, and residential buildings. Fluorescent lighting fixtures and electrical equipment may include polychlorinated biphenyl-containing components as well as mercury-containing components. Based on the age of the subject buildings, asbestos containing materials and lead based paints could be present in the on-site structures. The New York State Department of Environmental Conservation SPILLS database identified 25 active status spills within a 1/2-mile radius of the project site.

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

- BSA should inform the applicant that past on-site and or surrounding area land uses may have impacted the soil and groundwater at this site. Therefore, a Phase II Environmental Site Assessment Investigation (Phase II) is necessary to adequately identify/characterize the surface and subsurface conditions prior to the proposed development.

- Because the site is subject to an existing Restrictive Declaration for hazardous materials (CRFN 2011000084677) a Phase II Investigative Protocol summarizing proposed soil, groundwater, and soil vapor sampling activities – along with all other relevant supporting documents – should be submitted to the Mayor's Office of Environmental Remediation for review and approval prior to any fieldwork.

Future correspondence and submittals related to this project should include the following tracking number **13DEPTECH008M**. If you have any questions, you may contact Mr. Wei Yu at (718) 595-4358.

Sincerely,

Maurice S. Winter
Deputy Director, Site Assessment

c: E. Mahoney
M. Winter
W. Yu
T. Estesen
M. Wimbish
D. Cole – OER
J. Mulligan – BSA
R. Rizzotti – BSA
File

Environmental Protection

Carter H. Strickland, Jr.
Commissioner

Angela Licata
Deputy Commissioner
of Sustainability
alicata@dep.nyc.gov

59-17 Junction Boulevard
Flushing, NY 11373
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December 6, 2012

Mr. Rory Levy
New York City Board of Standard and Appeals
40 Rector Street, 9th Floor
New York, NY 10006-1705

Re: NYULMC Science Building
560 First Avenue
Block 962, Lots 80, 108, and 1001–1107
DEP # 13DEPTECH008M / CEQR # 12BSA141M

Dear Mr. Levy:

The New York City Department of Environmental Protection Bureau of Environmental Planning and Analysis (DEP) has reviewed the revised Air Quality Chapter of Environmental Assessment Statement (EAS) prepared by AKRF, Inc. (the consultant) on behalf of the applicant, The New York University Langone Medical Center (NYULMC) along with consultants' responses to DEP comments dated November 9, 2012 and air quality modeling backups. NYULMC is seeking a zoning variance from the Board of Standards and Appeals (BSA) to facilitate the development of the new Science Building (the "proposed project") at 401 East 30th Street and the Franklin Roosevelt (FDR) Drive Service Road (the "project site"), which is part of the larger NYULMC campus. (Manhattan Block 962, Lots 80, 108, and 1001–1107). The proposed Science Building would be constructed on the project site, which is located at the southeast corner of the campus superblock, along former East 30th Street and the FDR Drive Service Road. Currently, the project site is occupied by Rubin Hall, Schwartz Lecture Hall, and Medical Science Building. The 15-story Rubin Hall has been vacant since 2010, and abatement and demolition of the building has begun independent of the proposed project. A one-story portion of Schwartz Lecture Hall and a two-story portion of the Medical Science Building would be demolished for the proposed building. The proposed Science Building is expected to contain approximately 443,474 gsf and expected to be 16 stories (319 feet) tall. The anticipated population of the building is 820 people (based on 540 square feet per person), half of whom would be new to the campus. The program for the Science Building would focus on biomedical research, and the new building would house the Neuroscience Institute. The proposed Science Building would take 36 months to construct and would be built by 2017. These discretionary city approvals are subject to City Environmental Quality Review (CEQR).

Per BSA request, we have reviewed mentioned above materials and concluded that all the consultant's responses are satisfactory.

Based on the results of Air Quality analyses performed for the Stationary (including Chemical Spills analysis) and Mobile Sources as per the City Environmental Quality Review Technical Manual, it was determined that the pollutant concentrations are below the National Ambient Air Quality Standards. Therefore, no significant air quality impacts from the proposed project are anticipated.

It should be note that DEP did not assess the Air Quality analysis for revised design the Energy Building as it is not the part of the proposed project. The current Air Quality analysis is based on new Energy Building design with 7.6 MW CHP plant capacities and the shorter stack (429 feet above grade).

Please include DEP tracking number **13DEPTECH008M** on all future correspondence and submittals for this project. If you have any questions, you may contact Mr. Alex Popov at (718) 595-4031.

Sincerely,

Chung Chan

Chung Chan,
Director
Air Quality and Noise Review and Planning