New York University
February 15, 2012
Response to CB2 Questions dated January 31, 2012
ENVIRONMENT, PUBLIC HEALTH & PUBLIC SAFETY

1. NYU current enrollment is 55,000. Concerns include:

a. What is the projected enrollment after each phase of construction? How many additional classroom seats will there be? How many faculty-housing units will be constructed? How many hotel rooms? There is a lack of clarity and details on what the population impact will be; we need more specific numbers.

The DEIS analysis projected enrollment after each phase of construction (for 2021 and 2031) by increasing NYU's estimated 2009-2010 student enrollment by 0.5 percent per year. The resulting estimates are shown in the table below.

Student Enrollment	2009-2010	2021-2022*	2031-2032*
Undergraduate Students	21,895	23,130	24,313
Graduate & Professional Students	19,287	21,417	24,096
Total	41,182	44,547	48,633

* Assumes 0.5% growth per year.

In addition there are a number of non-degree granting students taking classes primarily through the School of Continuing and Professional Studies. The DEIS analysis accounts for some visitation to the project area from this non-credit student population. Although most existing as well as future trip-making by the non-credit students would be to locations outside of the project area (i.e., in the Financial District and Midtown where the facilities are located), a trip rate of 0.25 trips per day was conservatively assumed for this population group.

The proposed new facilities will include a variety of different uses, including additional class rooms, faculty housing, dorm rooms, student activity and student service facilities, faculty offices and potentially a hotel. As described in the DEIS, the programming of the proposed new buildings allows flexibility to accommodate future needs. Up to 300 hotel rooms, 1,316 dormitory beds and 260 faculty housing units may be included in the program, as stated at pages 4-2 and 14-6 of the DEIS. These are <u>maximums.</u> The number of class room seats or faculty offices is not known at this time, as the building designs have not been finalized. It is estimated, however, the new facilities will include many hundreds of additional class room seats.

2. Noise mitigation efforts include barriers, caulking, storm windows, new A/C units and interior covers, however there were multiple concerns that these will not be enough protection against dust and pollutants and in some cases no mitigation will be done. What specific materials will be provided and to whom?

The proposed construction noise mitigation is described in Chapter 21 of the DEIS. As detailed on pages 21-19 and 21-20, the mitigation is directed to buildings (NYU and non-NYU)with single-pane windows. The section reads "In order to improve building window/wall attenuation, windows at the NYU-owned Washington Square Village and Silver Tower buildings would be re-caulked and storm windows would be offered. For the Washington Square Village buildings, NYU would offer to insulate/seal existing air conditioning units and provide an interior cover that improves the sound attenuation of the through-the-wall air conditions units, or NYU would offer to provide new air conditioning units. For the Silver Tower buildings, NYU would offer to replace existing PTAC units with high-attenuation PTAC units installed to fit properly/snugly in the PTAC sleeve. These steps are expected to increase window/wall attenuation values by up to approximately 5 dBA for the Washington Square Village buildings and by up to approximately 7 dBA for the Silver Towers buildings. At locations on non-NYU buildings where significant noise impacts are predicted to occur, absent the development of additional measures to mitigate project-related construction noise, the project sponsors would offer to provide storm windows and /or window air conditioning units for buildings without double-glazed windows and/or alternative ventilation to mitigate project-related construction noise impacts. The 505 LaGuardia Place building already has storm windows installed and a means of alternate ventilation; consequently, the mitigation offering is not warranted for this building."

Figure 20-13 of the DEIS presents the locations where significant adverse construction noise impacts were identified. The mitigation measures that are described above would be offered at these locations. Additional information about the buildings to be offered mitigation was presented to the Community Board in the power point presentation made on January 18, 2012.

These mitigation measures are specifically proposed to address significant adverse impacts with respect to noise from construction of the proposed project. They are not intended to address protection from dust and pollutants. As described in Chapter 20, "Construction Impacts," on pages 20-39 and 20-40, NYU will implement a comprehensive emissions reduction program which would include measures to control dust and reduce pollutant emissions during construction activities. With these measures in place, the analysis in the DEIS concluded that the proposed project would not result in any significant adverse impacts with respect to air quality from construction activities.

a. Barriers merely redirect noise. Where will noise barriers send the sound? Noise is not just a matter of decibels but must also take into consideration magnitude and duration. How is this factored into the DEIS?

Depending upon their design, sound barriers can reduce sound by absorbing a portion of the sound, transmitting the sound, reflecting the sound, and/or forcing the sound to take a longer path over and around the barrier. The noise analysis performed for the NYU project took into account all of the effects of the barriers mentioned above. Noise that is reflected is reduced in magnitude due to the increased distance that the noise travels.

The construction noise analysis results presented in the DEIS provides information concerning the "magnitude and duration" of increased noise levels due to project-related construction activities. As described on page 20-51 of the DEIS, "The *CEQR Technical Manual* states that significant noise impacts due to construction would occur "only at sensitive receptors that would be subjected to high construction noise levels for an extensive period of time." This has been interpreted to mean that such impacts would occur only at sensitive receptors where the activity with the potential to create high noise levels would occur for approximately two years or longer. In addition, the *CEQR Technical Manual* states that the impact criteria for vehicular sources, using the No Action noise level as the baseline, should be used for assessing construction impacts. As recommended in the *CEQR Technical Manual*, this study uses the following criteria to define a significant adverse noise impact:

- **If the No Action noise level is less than 60 dB(A) $L_{eq(1)}$, a 5 dB(A) $L_{eq(1)}$ or greater increase would be considered significant.**
- **If the No Action noise level is 61 dB(A) $L_{eq(1)}$, a 4 dB(A) $L_{eq(1)}$ or greater increase would be considered significant.**
- **If the No Action noise level is equal to or greater than 62 dB(A) $L_{eq(1)}$, or if the analysis period is a nighttime period (defined in the CEQR criteria as being between 10:00 PM and 7:00 AM), the incremental significant impact threshold would be 3 dB(A) $L_{eq(1)}$.**

Based on these criteria, the construction noise analysis conducted for the DEIS identified significant adverse impacts at various sensitive receptor locations. The analysis results at these locations, including the range of noise increases and impact duration are presented in Table 20-22 on pages 20-58 and 20-59.

3. Two nursery schools are located on the super blocks. There have been no specifics addressed regarding these schools. How does NYU intend to deal with the specific hazards and issues that will be raised for these children through the ongoing construction? The point was repeatedly made that community children will spend their entire childhoods and adolescence in a

construction site, can NYU provide the board with a peer-reviewed study on how children in urban areas are affected by construction?

With the proposed mitigation for air quality and the proposed safety construction procedures, there is no anticipated impact for this program. The University will, however, work with the individual stakeholders, including the Nursery Schools to ensure that feasible efforts are taken to address their concerns.

4. How many of NYU's expansion staff and contractors live in the community that will be affected for 20 years?

This information is not relevant to the application before the Board.

5. Under what conditions would construction crews have to resort to blasting?

As stated by Turner Construction at the meeting with the Community Board on January 18, 2012, the use of blasting to construct the buildings is not anticipated. Blasting is generally used only where large amounts of rock need to be fractured to facilitate excavation.

6. Does pedestrian assessment include elderly, disabled, strollers, children? There is general disbelief that there will be no impact during process and minimal enduring impact.

The DEIS pedestrian analyses were prepared in accordance with the City's CEQR guidelines following established methodologies and representative pedestrian flow behaviors pertained to the general population. The methodologies also take into account of slower walking speeds at school crossings and where there is a concentration of senior population. During construction, contractors are required to provide appropriate maintenance and protection of traffic for vehicular and pedestrian flow, subject to DOT approvals.

7. Asbestos and other airborne pollutants are a significant concern, please explain in layman's terms how the construction crews will handle these hazards.

Asbestos will not be used in any of the new buildings. Prior to demolition of any of the existing buildings on the site (Coles Gymnasium, the supermarket on the South Block and the one-story retail building on the North Block), and as stated in the DEIS (page 10-9), an asbestos survey must be conducted by a NYC Certified Asbestos Investigator. This involves collecting and analyzing (at a NYS accredited laboratory) representative samples of suspect materials. Once the locations and types of asbestos containing materials (ACM) are identified in the survey, specifications for its removal (abatement) are prepared by a

certified Project Designer. The abatement must be conducted by an NYS Licensed Asbestos Contractor with oversight (usually including air monitoring for asbestos fibers) by a third party NYS Certified Project Monitor.

Typically, the part of the building from which asbestos is being removed is sealed off using plastic sheeting, duct tape and negative air pressure machines fitted with HEPA filters. Signs are posted and barriers are utilized to prevent unauthorized access. Special vacuum cleaners designed for asbestos containment are used when cleaning up during and after asbestos removal. The contractor can only use industry-accepted removal procedures (which generally require wetting the material and other approaches to reduce fiber release). Following the removal, all ACM as well as disposable coveralls worn by the workers, plastic sheeting, etc. is packaged in sealed leak-tight containers with approved labeling, identifying the contents as ACM and transported in enclosed vehicles to a US EPA and NYS-approved disposal site. Before the project can be certified as complete, air clearance testing is usually required to be performed by the Project Monitor.

The generation of dust during demolition is reduced by using water and other appropriate techniques. Emissions from construction vehicles are also regulated (e.g., required exhaust filters). Dust during excavation is reduced through the use of water spray on temporary roads, excavation areas and stockpiles. Real-time air monitoring for volatile organic compounds (VOCs - typically associated with historical petroleum spills) and dust is often conducted during excavation. Monitoring for types of contaminants other than VOCs (such as heavy metals) is not usually performed, since not being volatile they are only released when they are part of or adhered to dust particles.

Further information can be found on the City's web site (http://www.nyc.gov/html/dep/pdf/air/asbestos_rules_20110203.pdf) and EPA's web site (http://www.epa.gov/asbestos/pubs/40cfr61subpartm.pdf).

8. Exactly why can't this expansion take place in the financial district area where the community would be pleased to welcome the University and are offering financial incentives?

Expansion is happening outside of the Washington Square area – particularly in Downtown Brooklyn and the East side health corridor. The proposed project is intended to serve the space needs of the Washington Square campus, so as to alleviate the spread of the University's footprint in the local area. As noted in the DEIS (page 1-25), NYU has carefully considered which university functions require location at the Washington Square campus. The proposed project is intended to accommodate those functions.

9. How will NYU enforce or control mitigations? Answer: mitigations will be contained in restrictive declaration. Since NYU has a history of vacating and

voiding their previous restrictive declarations, how can community rely on NYU? There were multiple concerns regarding NYU history of not being honest with community and not supplying answers re pollutants - e.g. pollutants from chemistry building and recent oil spill.

With respect to the proposed project, NYU will enforce and control construction practices, including mitigation measures, by requiring that its contractors adhere to the construction procedures required by the City in its SEQRA findings statement. The City will be authorized to enforce project approvals through its power to enforce the Zoning Resolution and any Special Permit issued pursuant thereto, and the additional mechanisms provided for in the Restrictive Declaration.

10. Can the construction schedule be modified to minimize inconvenience and construction impacts to community? Currently the plans include spreading out the construction over a large period of time, what possibilities are there to compress the timeframe by building concurrently instead of spreading the building phases out? In particular: Phase II Mercer Building has construction schedule of 7 years.

Building concurrently would not be expected to minimize environmental impacts. Moreover, the project has been conceived to allow buildings to be constructed over time, and in different areas of the two superblocks, as NYU requires additional space to accommodate space needs. In addition, concurrent construction would increase the impact to the surrounding neighborhood. These are large blocks, and not all residents who live on and around the blocks would be impacted by construction throughout the 19-year period.

11. Concerns and questions about underground water include:

a. What will be the impacts of constructing deep bathtubs within the water table and where will the displaced water go?

b. Is NYU working from updated maps regarding the location of underground water including underground springs, tributaries, etc.?

c. What guarantees can NYU provide that water will not be shifted or redirected and cause damage to surrounding foundations?

d. Does NYU intend to de-water?

e. What will be the impact on surrounding structures?

Groundwater is a continuous zone of saturation that encompasses an entire area below a certain depth. Groundwater commonly exists where the pore spaces in sediment, and cracks or fractures in bedrock become saturated with infiltrating water, and the elevation or point of saturation is commonly referred to as the water table. The lateral or horizontal extent of an aquifer is usually defined by a confining geologic figure such as bedrock. The measured elevation of the water table below the project site, or anywhere, is referred to

as hydraulic head. Groundwater flows in the direction of decreasing hydraulic head, and the change in hydraulic head over set distance is called hydraulic gradient. The primary forces that change groundwater parameters, such as water level elevation and groundwater flow direction, are the result of pressure changes driven by an increase or decrease in the volume of water moving through the aquifer. For example, a spring season with a large volume of snow melt and precipitation will increase storm run-off and water infiltration into the ground. The result will be in an increase in stream flow and a rise in the elevation of groundwater. A period of drought will result in decreased stream flow and lower groundwater elevations. Seasonal effects in Manhattan are moderated by the fact that much of the stormwater that falls in the area is diverted into sewers and therefore does not seep into the ground.

These changes in the groundwater system are part of an overall process commonly referred to the hydrogeologic cycle. Water evaporates from lakes, rivers, and oceans, condenses and falls to the ground in the form of precipitation, runs over and infiltrates into the ground, discharges into bodies of water, and the cycle repeats with the system constantly in motion. Secondary, man-made factors of change include, but are not limited to, pumping wells that remove groundwater, damns and retaining walls that restrict groundwater flow, and water injection. The natural tendency of an aquifer or water body affected by a man-made change is to return to equilibrium, or the natural conditions directed by the hydrogeologic cycle.

The two superblocks comprising the Proposed Development Area lie at an elevation between 30 to 40 feet above mean sea level. A Phase II Subsurface Investigation[1] and a Geotechnical Investigation[2] documented that the project area is underlain by approximately 15 to 30 feet of urban fill consisting of sand, gravel, silt, and debris (i.e., concrete, brick, wood, etc.). The fill is underlain by a layer of native sediments with varying amounts of sand, gravel, and silt, and bedrock was encountered between approximately 56 and 83 feet below grade. The findings were consistent with the Surficial Geology Map of New York,[3] which indicates that up to 150 feet of glacier sediments and sand deposits exists across southern Manhattan. The water table was documented between approximately 23 and 35 feet below grade and groundwater flowed in a west-southwest direction towards the Hudson River. The mapped geologic features suggest that the aquifer beneath the project site connects to

[1] A Subsurface (Phase II) Investigation was completed by AKRF in July 2011 and the results are summarized in NYU Core DEIS Chapter 10, "Hazardous Materials"

[2] A Geotechnical Boring Investigation was completed by I.M. PEI 7 Associates and Farkas & Baron, Consulting Engineers in 1964, and the results are summarized in NYU Core DEIS Chapter 10, "Hazardous Materials.

[3] New York State Geological Survey, Surficial Geologic Map of New York, Lower Hudson Sheet, Cadwell, D.H., 1989

the water bodies surrounding Manhattan (principally the Hudson River, Upper Bay and East River).

Concerns and questions associate with underground water included (from above):
1) What will the impacts of constructing deep bathtubs within the water table and where will the displaced water go.

The development plan will include foundations that are constructed to a depth of 40 feet below grade, which will extend up to approximately 20 feet into the aquifer. Construction of the foundation will require dewatering, which includes pumping groundwater from the project area to lower the water table and allow for work to be completed in dry conditions. The discharged water will be diverted under a NYCDEP-approved permit into the stormwater or combined sewer system and will not be injected back into the ground. When the foundation is in place and the pumps are shut off, the elevation of the groundwater will return to the pre-dewatering equilibrium levels generated by the physical characteristics of the entire groundwater system. Although a localized change in groundwater flow direction will occur in the immediate vicinity of a building as groundwater flows around a foundation (imagine water flowing around a boulder in a stream), the water level and regional flow direction will not change substantially, as they are determined by the hydrogeologic parameters described above.

The process described above is typical for NYC construction projects that involve excavation/development below the water table. Numerous buildings in Manhattan include basements and foundations that extend below the water table.

2) Is NYU working from updated maps regarding the location of underground water including underground springs, tributaries, etc.?

Springs and tributaries refer to water features on the surface and are not directly correlated to underground water. As explained above, the depth of the aquifer beneath the site was confirmed by soil borings drilled during field investigations, and the core samples did not identify any confining layers or zones of perched water above the water table. Reported water flow near the surface of the site is likely related to utility or stormwater collection features, or leaks in stormwater pipes. Figure 1 (attached) shows that the former Minetta Creek was located 1 to 4 blocks west of the project site area and will not be disturbed by the construction of the proposed new builidngs.

3) What guarantees can NYU provide that water will not be shifted or redirected and cause damage to surrounding foundations.

The aquifer beneath Manhattan exists throughout the project site and surrounding areas, so there is no "new" area that can be saturated by a shift in

the location of the aquifer. Changes to the aquifer include rising and falling of the water table, and these changes are determined by the amount of precipitation, as described by the description of the hydrogeologic cycle. As noted above, the new buildings are not expected to resulting in any substantial change to the level of the water table in the area.

4) Does NYU intend to dewater?

Dewatering will be required during excavation work that occurs below the water table.

5) What will be the impact of the surrounding structures?

Dewatering during excavation of building foundations below the water table will temporarily lower the water table in the immediate vicinity of the construction work. After the foundations are in place, the post-construction water level will return to the equilibrium pressure controlled by the aquifer. There are no foreseen impacts on surrounding structures.

11. Multiple concerns regarding the existing gardens including both the corner garden and the Sasaki Garden such as: Why can't NYU design a building with a smaller profile or push the building envelope to the east so not to destroy the corner garden? Questions were also raised regarding the staging of the Bleecker LaGuardia building so the choice of staging will not impact the garden.

We are continuing to look at staging options for the Bleecker Building and the potential for different configurations to address impacts and, as noted in the DEIS, potential relocation

12. What assurances do we have that the proposed attenuation methods will be effective?

The DEIS outlines the efficacy of the proposed mitigation measures. Some measures, such as notice mitigation, will not fully mitigate the adverse impacts of project construction.

13. How can NYU assume that the noise of the activities of 20,000 additional people in the area will not be significant?

The presence of people does not in itself result in a significant adverse noise impact. For example, Washington Square Village and University Village are large buildings with thousands of residents, and the South Block also includes the Coles Gymnasium, which is heavily utilized by NYU students, faculty and staff. Yet the DEIS (page 17-8) identifies vehicular traffic as the dominant noise source in the area.

14. As student hours vary greatly from those of families or mature, working people, how will NYU control nighttime noise from such a large increase in students?

NYU's student policies are outlined on its web site (http://www.nyu.edu/life/living-at-nyu/on-campus-living/get-to-know-yourhome/judicial-information/judicial-handbook.html). The policies state that: "Residents are expected to keep sound to reasonable levels and to comply with requests to reduce sound levels that are intrusive. Use of amplifiers or P.A. systems in the residence halls is prohibited. Pianos are not permitted in residence hall rooms. Musical instruments may be played only in designated practice areas... Residents are responsible for complying with New York City ordinances that include additional restrictions on noise after 11 PM on weeknights and 1 AM on weekends." Students violating NYU policies are subject to student discipline.

15. Emissions from retail operations vary greatly. Will NYU take into consideration that certain establishments produce more disturbances than others, and how will they deal with this fact?

The DEIS studied the potential air quality and noise impacts from traffic associated with the operation of the proposed project, including traffic associated with the proposed retail in the commercial overlay area, and determined that the impacts were not significant.