Draft Scope of Work for a Draft Environmental Impact Statement for the MSK Pavilion

CEQR No. 23DCP118M

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A. INTRODUCTION

Memorial Sloan Kettering Cancer Center (MSKCC) (the Applicant) is requesting a series of zoning actions including a rezoning from an R8 district to an R9 district; zoning text amendments, authorizations, and special permits; and a modification to a previously established Large Scale Community Facility Development (2001 LSCFD) to facilitate the development of a new 31-story inpatient hospital building for MSKCC (the Proposed Project) on the east end of the block bounded by York and First Avenues and East 66th and East 67th Streets (Block 1461, Lot 21) (the Development Site) in Manhattan Community District 8. The Proposed Project, also referred to as the "MSK Pavilion," would be devoted entirely to patient care for those whose cancer treatments cannot be addressed through MSKCC's extensive network of ambulatory services on the Main Campus and neighboring and regional facilities.

The Proposed Project would provide 28 operating/procedural suites, including recovery and intensive care facilities on 11 floors, and approximately 202 in-patient beds for acutely ill patients on 9 floors. In addition, there would be four clinical support floors and five mechanical floors distributed throughout the building. The Proposed Project would have its primary lobby along the east side of the building, and a proposed two-story bridge connecting floors 5 and 6 of the Proposed Project with floors 8 and 9 of Memorial Hospital (across East 67th Street) would serve as the primary connector for patients in either building to access medical services in the other building.

The Proposed Project would replace the two existing buildings on the Development Site, Scholars and Sloan, which contain contract housing for MSKCC staff as well as administrative offices which would be relocated to other MSK buildings. The two buildings share a below-grade parking garage with the west-adjacent Rockefeller Research Laboratories (RRL). Existing staff and research functions would remain in RRL. As part of the Proposed Project, a portion of the ground floor and below grade levels of RRL would be modified (including the loss of conference room space—approximately 2,080 gross square feet [gsf]) to accommodate the new garage in the Proposed Project and provide a parking exit to East 67th Street. With the Proposed Project, the 263-space parking garage would still connect with RRL and the Proposed Project would have an optimized layout for improved maneuverability. It would continue to be entered from East 66th Street and be available exclusively to MSK staff, patients, and visitors with valet service. No programmatic changes are proposed for the RRL building.

Public entrances to the Proposed Project lobby would be located on East 67th and East 66th Streets just off of York Avenue, and on a through-block driveway that would provide a weather protected drop-off area for patients and visitors. The entrance to the southbound driveway would be through a new curb cut on East 67th Street, and the exit would be through a new curb cut on East 66th Street. There would be a total of four service bays (including three loading docks)—three on East

67th Street that would be accessed via two new curb cuts and one on East 66th Street (also via a new curb cut).

The New York City Department of City Planning (DCP), acting on behalf of the City Planning Commission (CPC), will be the lead agency for environmental review. Based on the Environmental Assessment Statement (EAS) that has been prepared, the lead agency has determined that the Proposed Project has the potential to result in significant adverse environmental impacts, requiring that an Environmental Impact Statement (EIS) be prepared. Scoping is the first step in the preparation of the EIS; it provides an early opportunity for the public and other agencies to be involved in the EIS process. It is intended to determine the range of issues and considerations to be evaluated in the EIS. This Draft Scope of Work describes the Proposed Project and the actions necessary for its implementation, presents the proposed framework for the EIS analysis, and discusses the procedures to be followed in the preparation of the Draft EIS (DEIS). The 2021 *City Environmental Quality Review (CEQR) Technical Manual* will serve as a general guide on the methodologies and impact criteria for evaluating the Proposed Project's effects on the various areas of environmental analysis.

B. PROJECT DESCRIPTION

DESCRIPTION OF THE DEVELOPMENT SITE, REZONING AREA, AND PROJECT AREA

As shown on **Figure 1**, The Development Site is located on Manhattan Block 1461, Lot 21 (1233 York Avenue). Two adjoining buildings occupy the entire frontage of the east side of York Avenue between East 66th and East 67th Streets. Both buildings are owned by MSKCC and provide contract housing to its professional staff and students, as well as administrative support services. The north building (Scholars) is 23 stories tall, and the south building (Sloan) is 20 stories tall; together, they total approximately 292,837 gsf. They contain a total of 308 dwelling units (primarily for medical students, interns, and residents for their terms of service or academic affiliation with the Applicant) and approximately 45,039 gsf of hospital administrative office space. As noted above, there is a 263-space parking garage below the Sloan and Scholars buildings and the adjacent RRL building (Lot 13 and a portion of Lot 21), which is also owned by MSKCC and would continue in its current function. The parking garage is for MSKCC staff, patients, and visitors. There is no accessory parking for Sloan and Scholars residents in the garage.

As shown in **Figure 2**, the Rezoning Area (approximately 40,168 square feet [sf]) comprises the following portions of Block 1461:

- Western portion of Lot 21 (Development Site), currently zoned R8 residential, and
- Lot 13 (RRL site), also currently zoned R8.

The proposed Rezoning Area is part of a LSCFD that was established in 2001 and comprises MSKCC's medical buildings ranging in height from 1 to 23 stories. This interconnected campus spans most of three city blocks (Main Campus/Block 1462, and portions of Blocks 1461 and 1463) and is used exclusively for the treatment of cancers and its research institute dedicated to research related exclusively to cancers. Staff and patients in the Memorial Hospital building at 1275 York Avenue (across East 67th Street from the Development Site) on the Main Campus utilize these interconnections to access treatment centers, diagnostic centers, and procedural facilities throughout the Project Area (see **Figure 3**). The MSK buildings are interconnected at many levels,

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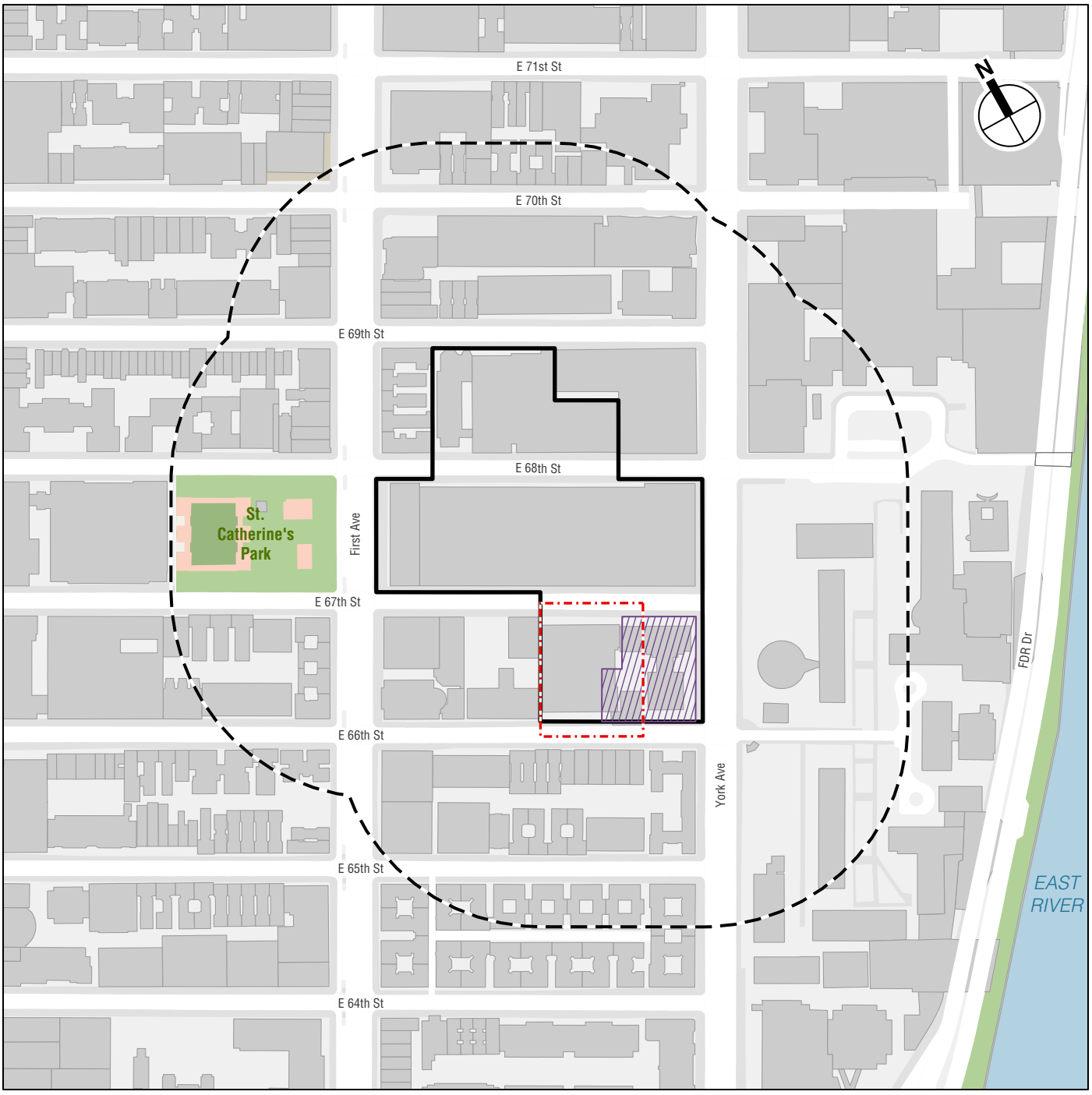


Development Site

Proposed Rezoning Area

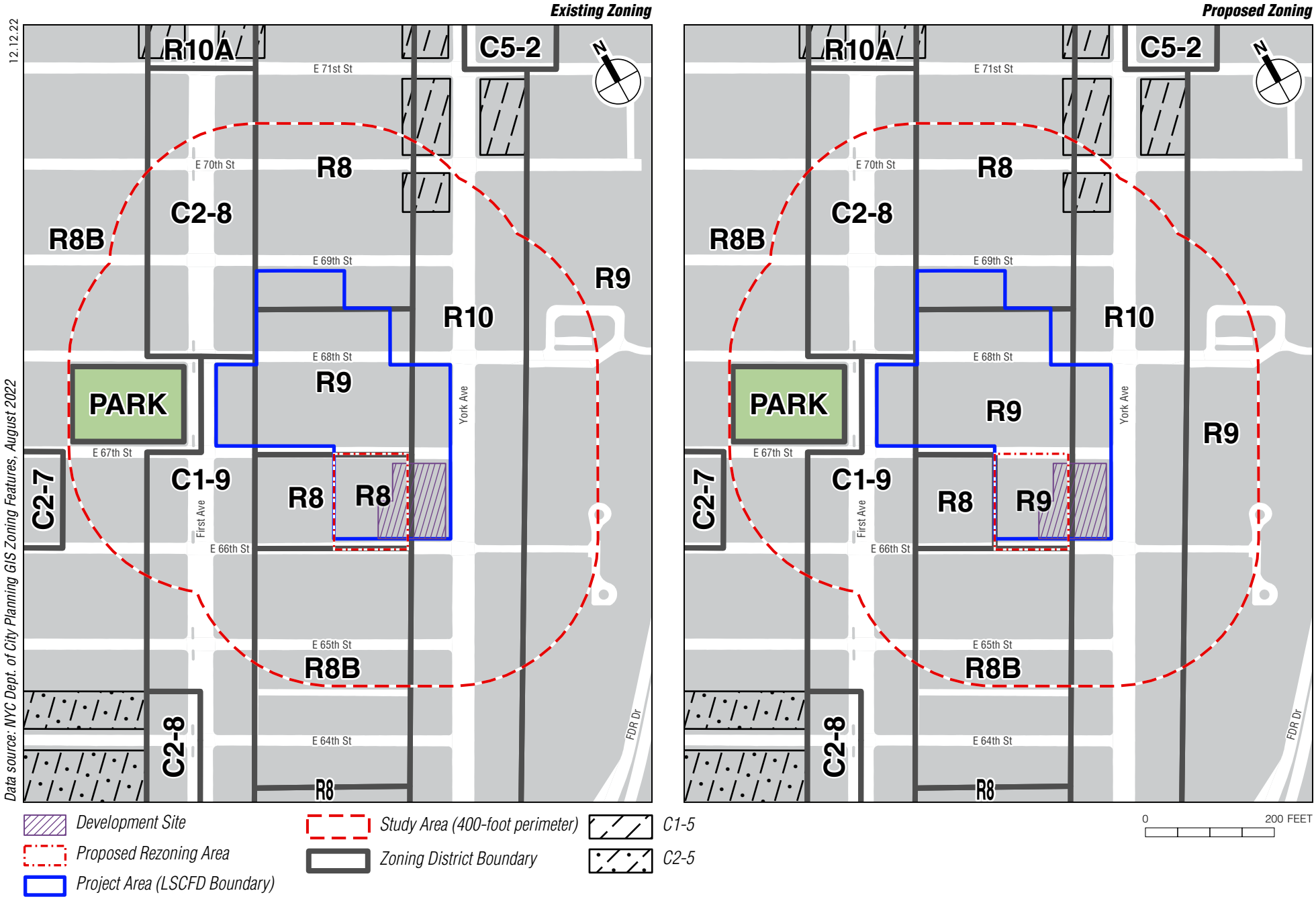
Project Area (LSCFD Boundary)

400-foot perimeter

MSK PAVILION

Project Location

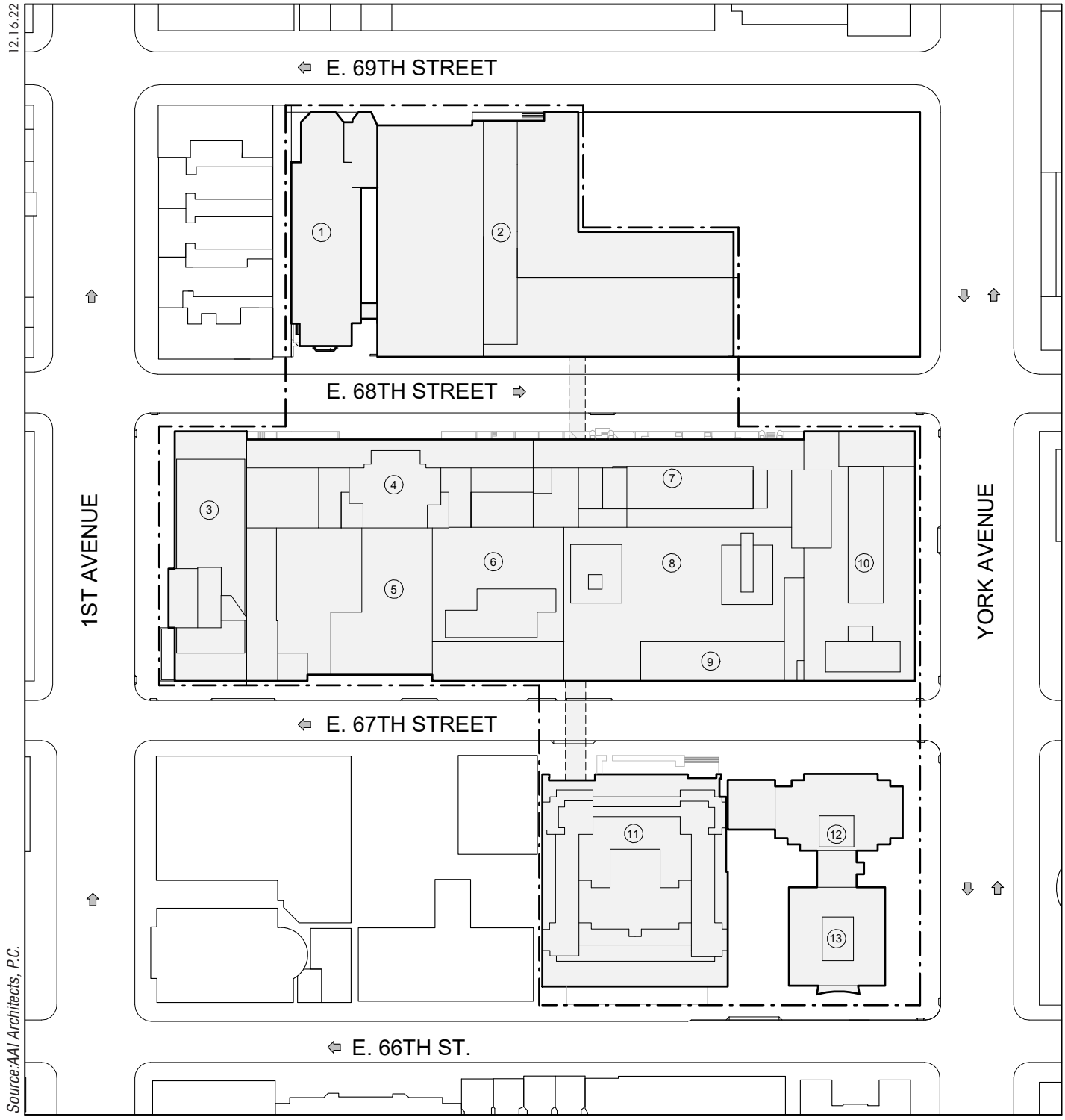
Figure 1



Existing and Proposed Zoning

MSK PAVILION

Figure 2



LEGEND

- LSCFD BOUNDARY
- EXISTING UNDERGROUND TUNNEL
- EXISTING CURB CUT
- EXISTING LSCFD BUILDING FOOTPRINT
- EXISTING BUILDING FOOTPRINT
- STREET DIRECTION

NORTH BLOCK:

1. SAINT CATHERINE OF SIENA CHURCH / 1 FLOOR
2. THE ZUCKERMAN RESEARCH CENTER / 23 FLOORS

MAIN HOSPITAL BLOCK:

3. SCHWARTZ BUILDING / 13 FLOORS
4. HOWARD BUILDING / 15 FLOORS
5. RADIATION ONCOLOGY BUILDING / 4 FLOORS
6. ENID A. HAUPT PAVILION / 7 FLOORS
7. BOBST BUILDING / 14 FLOORS
8. INFILL INFRASTRUCTURE / 9 FLOORS
9. WINSTON SURGICAL PAVILION / 4 FLOORS
10. MEMORIAL HOSPITAL / 20 FLOORS

SOUTH BLOCK:

11. ROCKEFELLER RESEARCH LABORATORY / 16 FLOORS
12. SCHOLARS RESIDENCE / 23 FLOORS
13. SLOAN HOUSE / 20 FLOORS

N

0' 50' 100' 200'

Existing LSCFD/MSKCC Campus Site Plan

including through tunnels running below both East 67th and East 68th Streets. However, there is no connection between the Sloan and Scholars buildings and the rest of campus, and these buildings are accessed through street-level entrances.

The existing permitted zoning floor area within the Project Area is approximately 2,212,906 zoning square feet (zsf) and the utilized zoning floor area is approximately 1,962,800 zsf.

DESCRIPTION OF SURROUNDING AREA

The area surrounding the Project Area is predominately institutional (hospitals, churches, and schools), residential—including multi-family walkup and elevator buildings and one- and two-family townhouses, and mixed residential and commercial uses. The areas north and east of the Project Area, including along York Avenue, are characterized primarily by large hospital and academic/research institutional uses, including New York-Presbyterian/Weill Cornell Medical Center, Hospital for Special Surgery, and Rockefeller University. Areas to the south and west of the Project Area are characterized by one- and two-family townhouses and medium-rise multi-family residential buildings along the midblocks, and medium- and high-rise mixed-use residential and ground floor commercial buildings along First Avenue. The primary public open space in the surrounding area is St. Catherine's Park, which is located one block west of the Project Area. The surrounding area also contains school and religious institution uses.

The surrounding area is zoned with high-density residential and commercial districts along the avenues: York Avenue is in an R10 residential district; First Avenue is mostly in C1-9 or C2-8 commercial districts; the midblocks in the area are generally mapped as medium-density R8 and R8B residential districts. The Rockefeller University campus to the east of the Project Area is zoned R9.

The area is served by the New York City Transit (NYCT) Q subway line, which has a train station (72nd Street Station) one avenue west of the Project Area with nearest entrance at the intersection of Second Avenue and East 69th Street. Metropolitan Transportation Authority (MTA) bus service is provided within the area along York Avenue (M31), First/Second Avenue (M15 and M15-SBS), East 67th/East 68th Street (M66), and East 71st/East 72nd Street (M72). The Citi Bike bicycle sharing station nearest to the Project Area is on First Avenue between East 67th and East 68th Streets.

DESCRIPTION OF THE PROPOSED PROJECT

The Applicant is requesting a series of zoning actions to facilitate the development of a new 31-story (up to 590 feet including mechanical bulkhead; 594 feet to top of maximum zoning envelope as described in Section D, "Analysis Framework"), approximately 901,193-gsf inpatient hospital building for MSKCC (the Proposed Project). The Proposed Project, also referred to as the "MSK Pavilion," would be devoted entirely to patient care for those whose cancer treatments cannot be addressed through MSKCC's extensive network of ambulatory services on the Main Campus and neighboring and regional facilities. The Proposed Project would provide 28 operating/procedural suites, including recovery and intensive care facilities on 11 floors and approximately 202 in-patient beds for acutely ill patients on 9 floors. In addition, there would be four clinical support floors and five mechanical floors distributed throughout the building. The lobby space would be located along the east side of the building, and a proposed two-story bridge connecting floors 5 and 6 of the Proposed Project with floors 8 and 9 of the Memorial Hospital building (across East

67th Street) would serve as the primary connector for patients in either building to access medical services in the other building (see **Figures 4 through 8**).

The Proposed Project would be located on Lot 21 and would replace the Scholars and Sloan buildings, which serve as contract housing for MSKCC staff and administrative offices. The RRL building would remain and there would be no redevelopment on Lot 13 other than for modifications to the below-grade garage and to create garage egress off East 67th Street that would continue to be available exclusively to staff, patients, and visitors with valet service. There are no programmatic changes proposed for the RRL building; however, it would lose some ground-floor conference room space (approximately 2,080 gsf) to accommodate the modified garage exit.

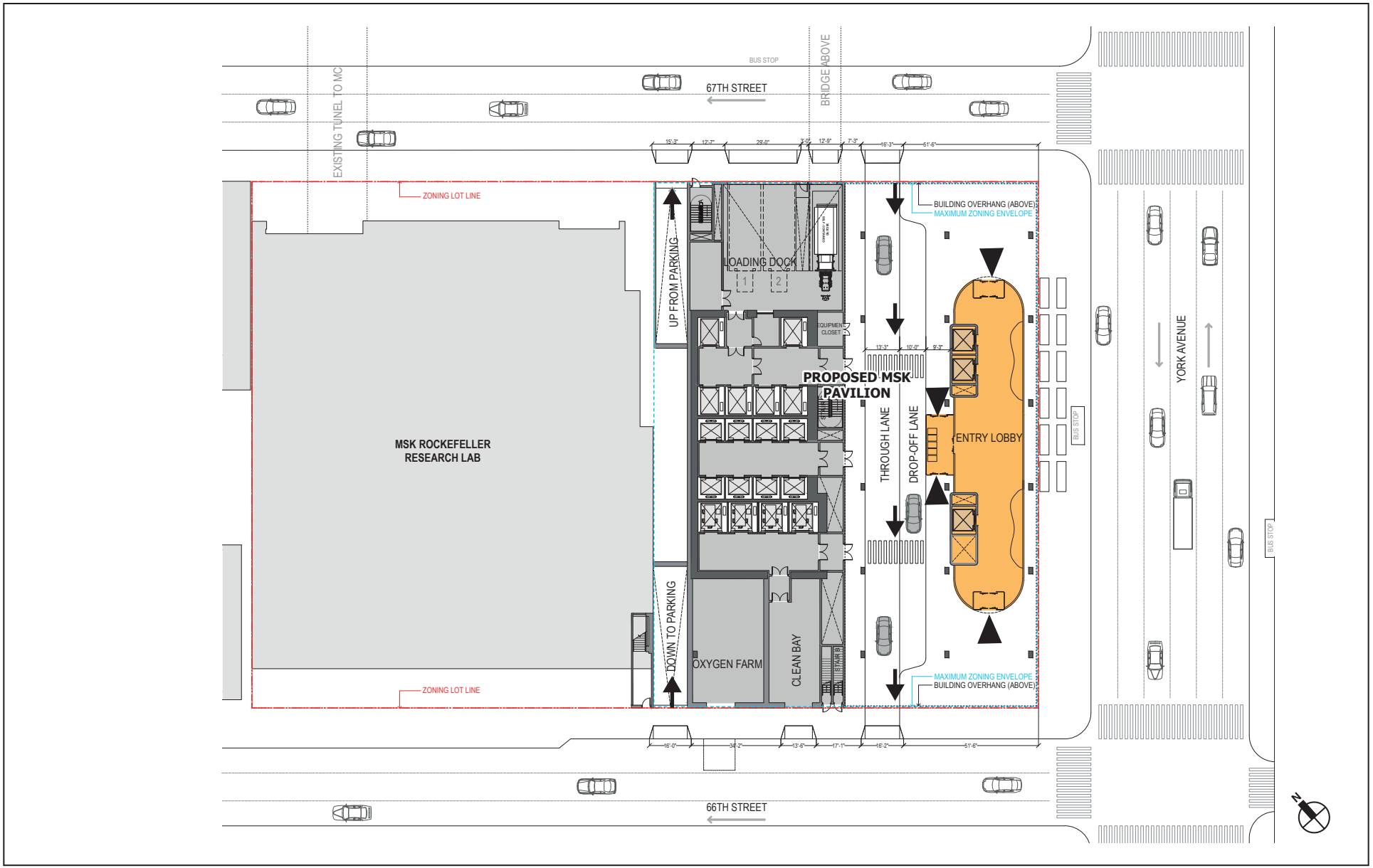
Public entrances to the Proposed Project would be located on East 67th and East 66th Streets just off of York Avenue, and on the through-block driveway and drop-off area. The entrance to the one-way southbound driveway would be through a new curb cut on East 67th Street and the exit would be through a new curb cut on East 66th Street. The garage would continue to have a total of 263 accessory parking spaces but would have an optimized layout for improved maneuverability. The garage entrance would be on East 66th Street, similar to existing/No Action conditions, but the exit would be relocated to East 67th Street. There would be a total of four service bays (including three loading docks): three on East 67th Street that would be accessed via two new curb cuts and one on East 66th Street (also via a new curb cut).

PROPOSED ACTIONS NECESSARY TO FACILITATE THE PROPOSED PROJECT

In order to accomplish the project, the Applicant is requesting the following zoning actions, all of which occur within the Project Area:

1. Zoning map amendment to rezone Block 1461, Lot 13 and the western portion of Lot 21 from R8 to R9 (see **Figure 2**).
2. Zoning text amendment to ZR Section 79-43 to authorize CPC, by special permit, to permit modification of regulations relating to lot coverage and signage within an LSCFD.
3. Modification pursuant to ZR Section 79-21 of the 2001 LSCFD Site Plans and zoning calculations previously authorized by CPC (C 010548ZSM, N 010549ZAM) to authorize the maximum permitted floor area for all zoning lots within the LSCFD to be distributed without regard for zoning lot lines.
4. Authorizations pursuant to ZR Section 79-21 to allow for the location of a new 31-story inpatient hospital building within the 2001 LSCFD without regard for (a) height and setback regulations and (b) rear yard regulations to facilitate construction of the Proposed Project.
5. Special permit pursuant to ZR Section 79-43, as amended, to permit modifications of regulations relating to height, setback, lot coverage, and signage to facilitate construction of the Proposed Project.
6. Modification as required to the 2001 LSCFD Restrictive Declaration, Drawings, and Approvals (2001 Approvals).

In addition, a Revocable Consent from the New York City Department of Transportation (DOT) is necessary for the bridge over East 67th Street. The Proposed Project would also require a Certificate of Need from the New York State Department of Health (DOH). A coordinated review will be conducted.



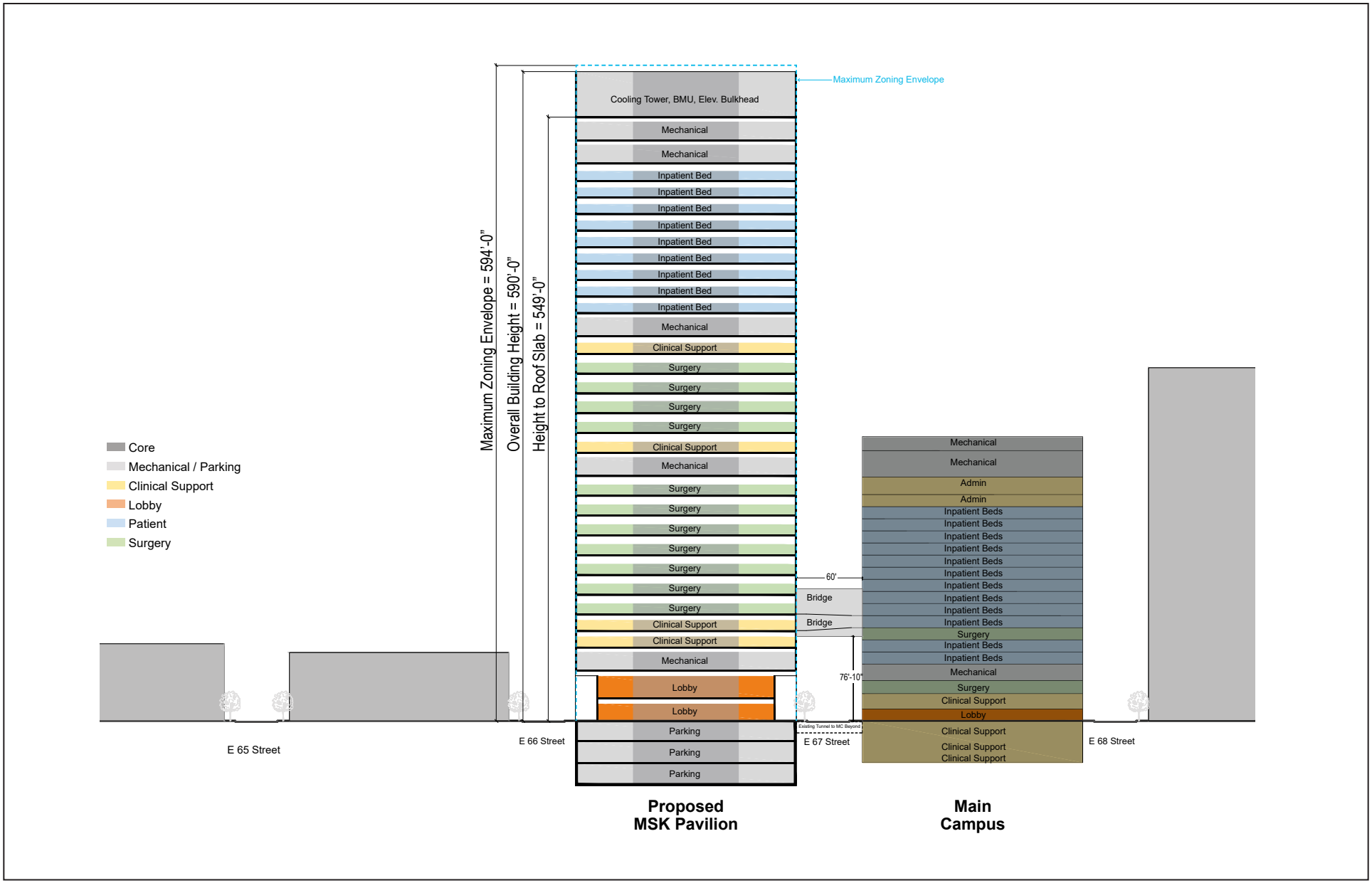
Source: Foster + Partners

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Ground Floor Plan

MSK PAVILION

Figure 4



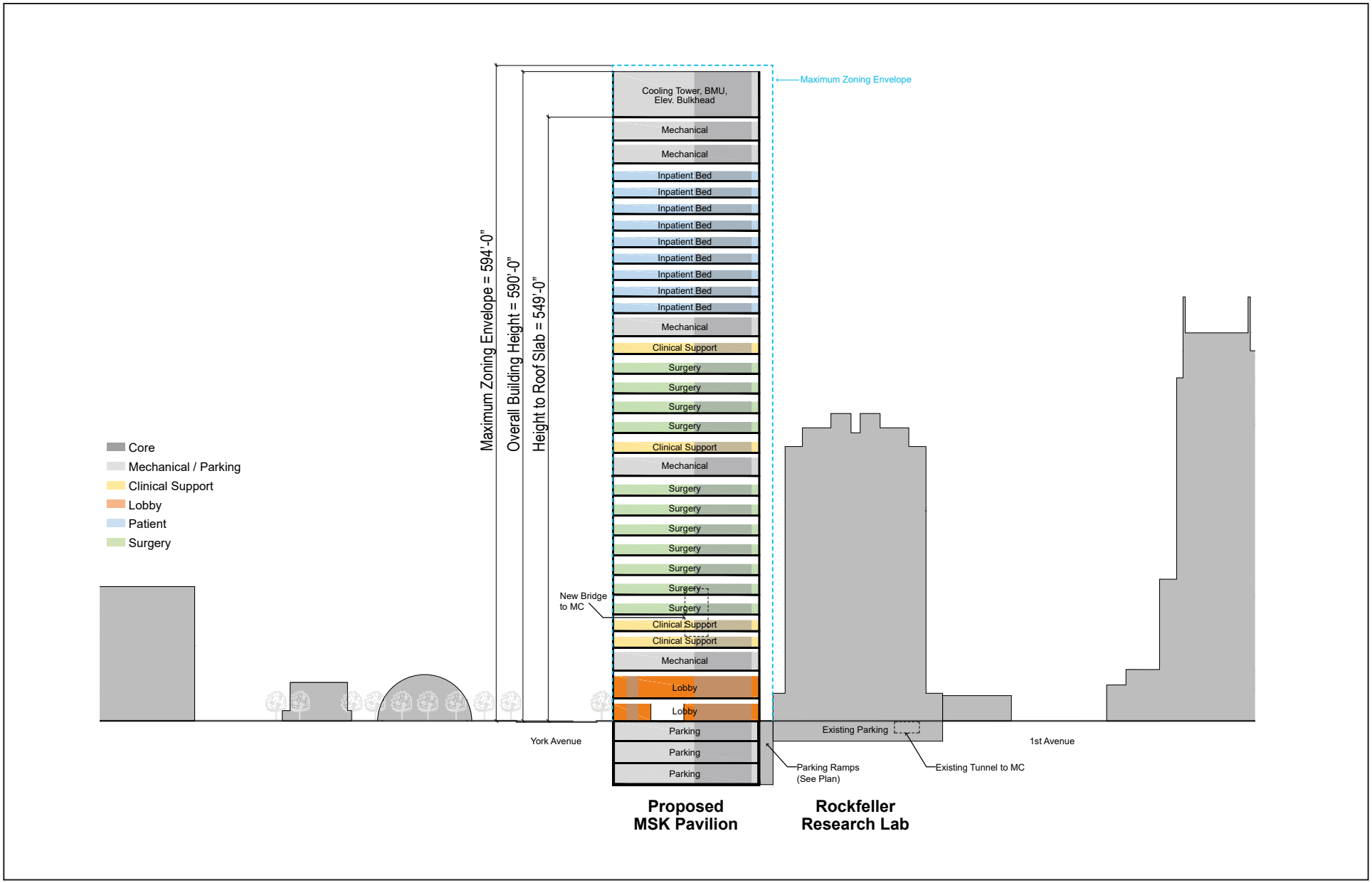
Source: Foster + Partners

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Program Stack
(North-South Section Looking West from York Avenue)

MSK PAVILION

Figure 5



Source: Foster + Partners

NOTE: FOR ILLUSTRATIVE PURPOSES ONLY

Proposed Program Stack
(East-West Section Looking South)

MSK PAVILION

Figure 6

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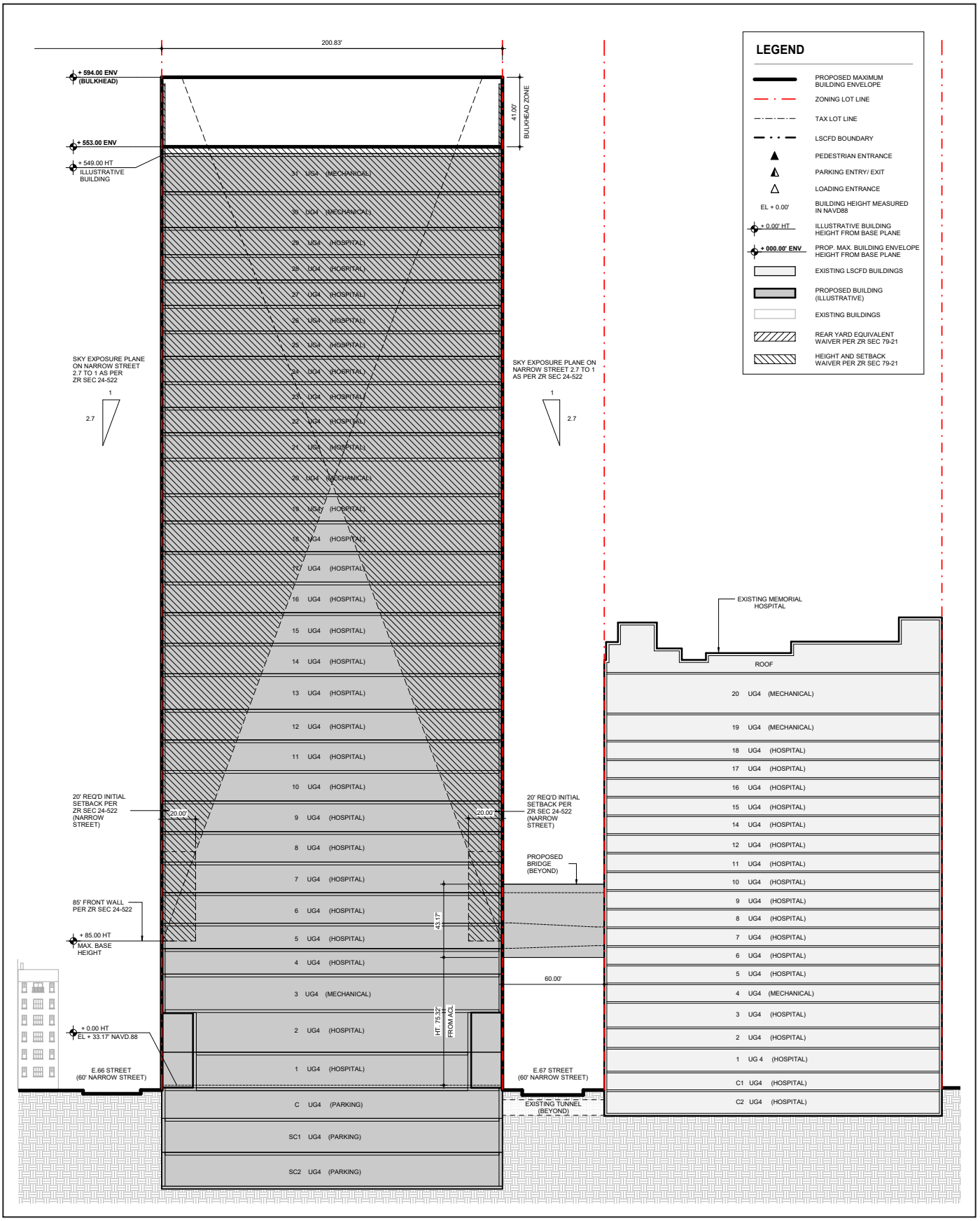

Source:AAI Architects, P.C.

Building Section - North-South Section

MSK PAVILION

Figure 7

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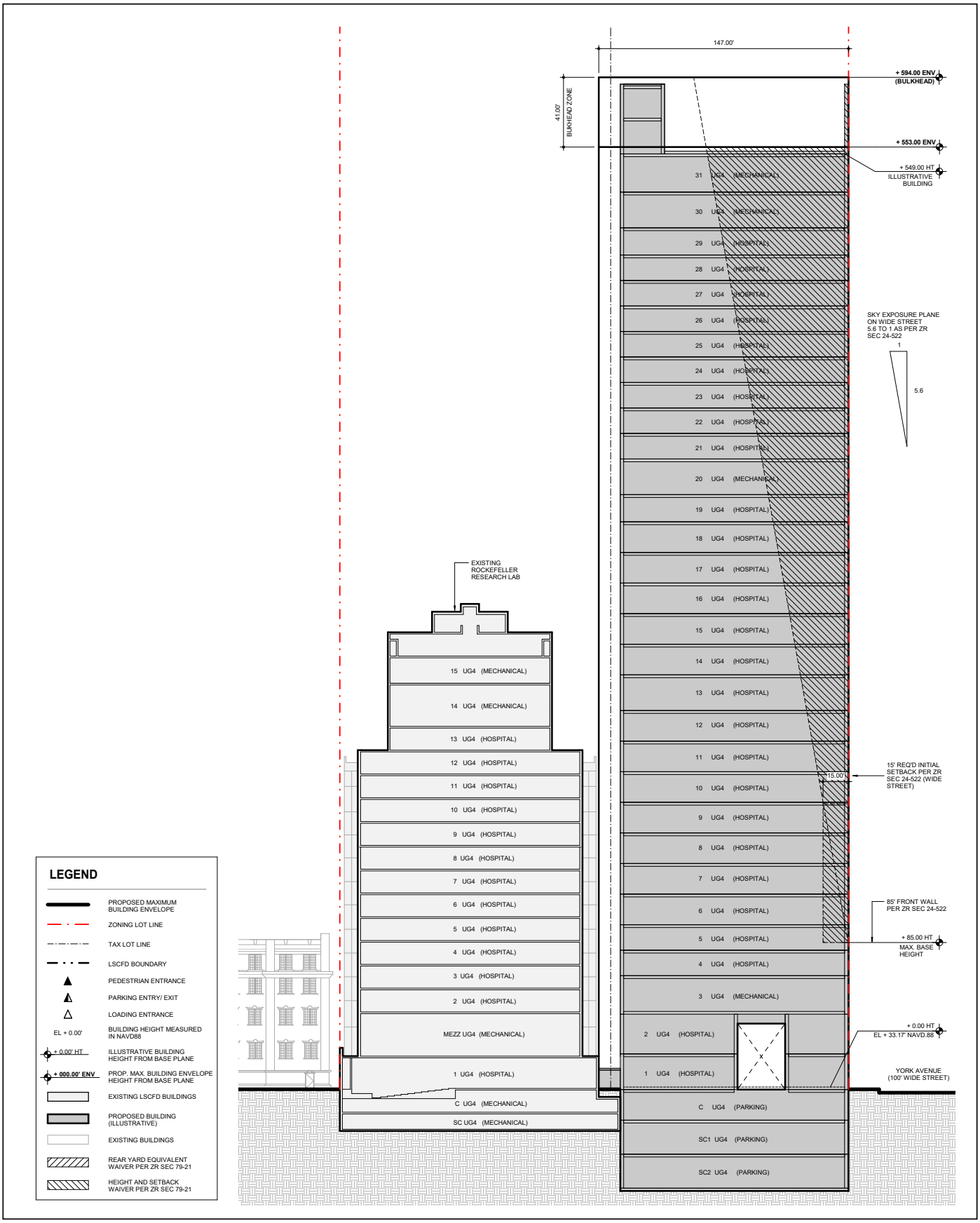

Source:AAI Architects, P.C.

Building Section - East-West Section

MSK PAVILION

Figure 8

C. PURPOSE AND NEED

The Proposed Project represents the culmination of the site selection and planning process for the "New Hospital Building" first certified by CPC into the Uniform Land Use Review Procedure (ULURP) for the 2001 Approvals and identified in the 2001 FEIS. Following two decades of strategic planning, MSKCC has now identified the Development Site as the location for this building, which would be connected physically and programmatically to the existing Memorial Hospital via a two-story patient bridge. The Proposed Project would utilize the zoning floor area attributable to the Development Site, the remaining unused zoning floor area within the 2001 LSCFD, and the additional floor area resulting from the proposed zoning map amendment to change the midblock portion of Block 1461 Lot 13 occupied by the existing RRL Building and a western portion of Lot 21 from R8 to R9. R9 districts have consistently been identified as the appropriate zoning for significant hospital campuses in Manhattan and, in fact, the rezoning of the Block 1461 midblock to R9 was certified in 2001 by CPC as such along with the midblock portions of Blocks 1462 and 1463 in conjunction with the 2001 Approvals and establishment of the 2001 LSCFD. However, the rezoning of the Block 1461 midblock was voluntarily withdrawn by MSKCC in November 2001 prior to final adoption of CPC Report 010548ZSM, with specific text stating that the rezoning of the midblock portion of Block 1461 to R9 should be more appropriately considered at such time as MSKCC's "plans for this block are more concrete." The Proposed Project represents that concrete milestone.

In addition, with the identification of the Development Site as the future location of the Proposed Project, the specific zoning actions under the 2001 Approvals can now be identified with greater on-site specificity, including new actions available or proposed to be made available within the LSCFD text regarding lot coverage, signage, yards, and height and setback necessitated to facilitate the development of the Proposed Project. Finally, a Revocable Consent and would be required for the patient bridge over East 67th Street connecting the Proposed Project to Memorial Hospital and other clinical buildings on Block 1462 (aka the Main Campus block).

Long-term, the construction of the Proposed Project would permit the staged modernization of the patient rooms in Memorial Hospital, which is now 49 years old, so that it too will be able to provide greater access to MSKCC's state-of-the-art inpatient care. MSKCC would remain operational throughout construction of the Proposed Project.

D. ANALYSIS FRAMEWORK

The lead agency is required to take a "hard look" at the environmental impacts of proposed actions and, to the maximum extent practicable, avoid or mitigate potentially significant adverse impacts on the environment, consistent with social, economic, and other essential considerations. An EIS is a comprehensive document used to systematically consider environmental effects; evaluate reasonable alternatives; and identify and mitigate, to the maximum extent practicable, any potentially significant adverse environmental impacts. The EIS provides a means for the lead and involved agencies to consider environmental factors and choose among alternatives in their decision-making processes related to a proposed action.

This section outlines the conditions to be examined in the EIS.

BUILD YEAR

The Proposed Project would be built out over the course of approximately five-and-a-half years. Following land use approvals, construction of the Proposed Project would commence in early 2025 with approximately 16 months of demolition and abatement, followed by 13 months of excavation and foundation work. Superstructure and core work would follow and would last approximately 14 months. Façade and interior fit-out work would commence approximately 5 months into the superstructure phase (overlapping for 9 months) and would last approximately 19 months. This would be followed by 11 months of commissioning and closeout work. The Proposed Project is expected to be completed and operational by 2030.

REASONABLE WORST CASE DEVELOPMENT SCENARIO

In order to assess the possible effects of the Proposed Project, a Reasonable Worst Case Development Scenario (RWCDS) was developed to account for existing conditions, the Future without the Proposed Project (No Action condition), and the Future with the Proposed Project (With Action condition). The incremental difference between the future No Action condition and future With Action condition serves as the basis for identifying potential environmental impacts, as described below.

IDENTIFICATION OF DEVELOPMENT SITES

The first step in establishing the development scenario for the Proposed Project is to identify those sites where new development could be reasonably expected to occur. As identified above, the Proposed Actions are limited to the Project Area which exclusively contains Applicant-controlled sites and would not result in development beyond that proposed for the Development Site. Since the Proposed Actions would only apply to the Development Site, there would be no other "affected sites" that would be potentially developed as a result of the Proposed Actions.

THE FUTURE WITHOUT THE PROPOSED PROJECT (NO ACTION CONDITION)

The No Action condition anticipates conditions in 2030 absent the Proposed Project. Under this scenario, the Sloan and Scholars buildings would remain on the Development Site and would continue to operate 308 housing units for medical students, interns, and residents for their terms of service or academic affiliation with the MSKCC. The units would be fully occupied under the No Action condition. In addition, the building would continue to house approximately 45,039 gsf of hospital administrative office space. The existing office space is occupied by departmental staff that support the administrative and operations functions for a portion of MSKCC's Medical & Surgical Oncology services, in addition to staff from supporting services in Environmental Health & Facilities. These operations would remain in the No Action scenario. As an LSCFD, all future development modifying the LSCFD boundaries or zoning calculations within the Project Area boundaries is subject to regulation, so there are no as-of-right development opportunities within the Project Area. If the Proposed Actions are not approved, the Proposed Project could not be built. The Applicant has determined that the Development Site is the only feasible site for the construction of the Proposed Project that can proceed without disruption or diminishment to existing hospital services.

THE FUTURE WITH THE PROPOSED PROJECT (WITH ACTION CONDITION)

The With Action condition is generally the same as the Proposed Project described in Section B. Project Description; however, the zoning approvals would allow for a slightly larger building envelope (extending an additional 4 feet in height and an additional 13 feet to the west) to provide flexibility in the building massing; therefore, to account for the With Action RWCDS in terms of bulk and height, the maximum zoning envelope will conservatively be used to represent the With Action condition in the environmental analysis.

The With Action condition would include the development of a new 31-story (up to 590 feet including mechanical bulkhead; 594 feet to top of maximum zoning envelope), approximately 901,193-gsf inpatient hospital building for the Proposed Project. The Proposed Project, also referred to as the "MSK Pavilion," would be devoted entirely to patient care for those whose cancer treatments cannot be addressed through MSKCC's extensive network of ambulatory services on the Main Campus and neighboring and regional facilities. The Proposed Project would include 28 operating/procedural suites, including recovery and intensive care facilities on 11 floors and approximately 202 in-patient beds for acutely ill patients on 9 floors. In addition, there would be four clinical support floors and five mechanical floors distributed throughout the building. The Proposed Project would have two floors of lobby space, and a proposed two-story bridge connecting floors 5 and 6 of the Proposed Project with floors 8 and 9 of the Memorial Hospital building (across East 67th Street) would serve as the primary connector for patients in the Proposed Project to access medical services on the Main Campus block.

The Proposed Project would be located on Lot 21 and would replace the Scholars and Sloan buildings, which serve as contract housing for MSKCC staff and administrative offices. The RRL building would remain and there would be no redevelopment on Lot 13 other than for modifications to the below-grade garage and to create garage egress off of East 67th that would continue to be available exclusively to staff, patients, and visitors with valet service. There are no programmatic changes proposed for the RRL building; however, it would lose some ground-floor conference room space (approximately 2,080 gsf) to accommodate the modified garage exit.

Public entrances to the Proposed Project would be located on East 67th and East 66th Streets, just off of York Avenue, and on the through-block driveway and drop-off area. The entrance to the one-way southbound driveway would be through a new curb cut on East 67th Street and the exit would be through a new curb cut on East 66th Street. The garage would continue to have a total of 263 accessory parking spaces but would have an optimized layout for improved maneuverability. The garage entrance would be on East 66th Street, similar to existing/No Action conditions, but the exit would be relocated to East 67th Street. There would be a total of four service bays (including three loading docks): three on East 67th Street that would be accessed via two new curb cuts and one on East 66th Street (also via a new curb cut) (see **Figures 4 through 8**).

As shown in **Table 1**, the Proposed Project would result in an overall development increment of approximately 606,276 gsf of hospital/community facility uses, including 202 additional hospital beds under the With Action condition as compared to the No Action condition.

Table 1
Development Program Summary

Components	Existing/No Action Condition	With Action Condition	Increment
Development Site			
Residential (gsf)	224,291	0	-224,291
Residential (DUs)	308	0	-308
Hospital Support/Office (gsf)	45,039	0	-45,039
Inpatient Hospital (gsf)	0	850,287	850,287
Inpatient Hospital (beds)	0	202	202
Parking (spaces)[1]	263	263	0
Total (gsf)	**292,837[2]**	**901,193[2]**	**606,276[2, 3]**

Notes:
gsf = gross square feet; Square footages shown are approximate and include mechanical/utility space.
DUs = dwelling units
1) Parking facility encompasses the Rockefeller Research Labs (RRL) (Lot 13) and the MSK Pavilion (Development Site) cellars.
2) Includes parking square footage.
3) Includes loss of approximately 2,080 gsf of RRL conference room space located above proposed garage exit.

Source: MSKCC, Adamson Associates International, Foster+Partners

CITY ENVIRONMENTAL QUALITY REVIEW AND SCOPING

The Proposed Actions are classified as Type 1 as defined under 6 NYCRR 617.4 and NYC Executive Order 91 or 1977, as amended, and are subject to environmental review in accordance with CEQR rules and the guidance set forth in the *CEQR Technical Manual*. An EAS was completed on Tuesday, March 28, 2023. The EAS analyzes the Proposed Project's potential to generate significant adverse environmental impacts. A Positive Declaration, issued on Tuesday, March 28, 2023, established that the Proposed Project may have a significant adverse impact on the environment, thus warranting the preparation of an EIS.

The CEQR scoping process is intended to focus the EIS on those issues that are most pertinent to the Proposed Project. The process allows other agencies and the public a voice in framing the scope of the EIS. The scoping document sets forth the analyses and methodologies that will be utilized to prepare the EIS. During the period for scoping, those interested in reviewing the Draft Scope may do so and give their comments to the lead agency. The public, interested agencies, Manhattan Community District 8, and elected officials are invited to comment on the Draft Scope, either in writing or orally, at a public scoping meeting to be held on Thursday, April 27, 2023. To continue to allow for broad public participation options, DCP will hold the public scoping meeting remotely. Comments received during the Draft Scope's public meeting and written comments received by Monday, May 8, 2023 will be considered and incorporated as appropriate into the Final Scope of Work (the "Final Scope"). The lead agency will oversee preparation of the Final Scope, which will incorporate all relevant comments on the Draft Scope and revise the extent or methodologies of the studies, as appropriate, in response to comments made during scoping. The DEIS will be prepared in accordance with the Final Scope and in conformance with all applicable laws and regulations, including SEQRA (Article 8 of the New York State Environmental Conservation Law) and its implementing regulations found at 6 NYCRR Part 617, New York City

Executive Order No. 91 of 1977, as amended, and the Rules of Procedure for CEQR, found at Title 62, Chapter 5, of the Rules of the City of New York.

Once the lead agency is satisfied that the DEIS is complete, the document will be made available for public review and comment. A public hearing will be held on the DEIS in conjunction with the CPC hearing on the land use applications to afford all interested parties the opportunity to submit oral and written comments. The record will remain open for 10 days after the public hearing to allow additional written comments on the DEIS. A Final EIS (FEIS) will be prepared that will respond to all substantive comments on the DEIS, along with any revisions to the technical analyses necessary to respond to those comments. The FEIS will then be used by decision makers to evaluate CEQR findings, which will address project impacts and proposed mitigation measures in deciding whether to approve the requested discretionary actions with or without modifications.

E. SCOPE OF WORK FOR THE EIS

The environmental review provides a means for decision-makers to systematically consider environmental effects along with other aspects of project planning and design, to evaluate reasonable alternatives, and to identify, and mitigate where practicable, any significant adverse environmental impacts.

The first step in preparing the EIS is the public scoping process. Scoping is the process of focusing the environmental impact analysis on the key issues that are to be studied in the EIS. The proposed scope of work for each technical area to be analyzed in the EIS is described in this section.

The EIS will include detailed analysis in the technical areas where the Proposed Project would potentially result in significant adverse impacts, based on the findings of the EAS. The EAS indicates that the Proposed Project does not meet the criteria warranting analysis of natural resources, solid waste and sanitation services, or energy, and no significant adverse impacts to these technical areas would occur with the Proposed Project. For the other technical areas, the scope of work for the EIS and the proposed impact assessment criteria set forth below are based on the methodologies and guidance set forth in the *CEQR Technical Manual*.

The EIS will contain the following:

- A description of the Proposed Project and its environmental setting;
- A statement of the environmental impacts of the Proposed Project, including short- and long-term effects and typical associated environmental effects;
- An identification of any adverse environmental effects that cannot be avoided if the Proposed Project is implemented;
- A discussion of reasonable alternatives to the Proposed Project;
- An identification of irreversible and irretrievable commitments of resources that would be involved if the Proposed Project is implemented; and
- A description of measures proposed to minimize or fully mitigate any significant adverse environmental impacts.

TASK 1: PROJECT DESCRIPTION

The Project Description will identify and explain the Proposed Actions and the purpose and need for the Proposed Actions. It will also describe the Proposed Project. It will contain a brief

discussion of current conditions on the Development Site, the Rezoning Area, and in the surrounding area; the No Action condition; the proposed development program; a description of the proposed site plan and the height and bulk of the proposed building; and figures to depict the Proposed Project. It will also include a description of the approvals required and the approvals processes. The analytical framework including the No Action will also be included in this chapter. The figures will present key project elements, such as a site/ground floor plan, elevations, and views of the project in its neighborhood context.

The Project Description will include appropriate materials from the ULURP application. It will describe the role of the lead agency for CEQR as well as the environmental review and ULURP processes.

TASK 2: LAND USE, ZONING, AND PUBLIC POLICY

This analysis will consider the effects of the Proposed Project in terms of land use compatibility and trends in zoning and public policy. It will also provide a baseline for other analyses in the EIS. Specifically, the assessment will:

- Provide a brief development history of the site and the study area. The study area will include the site and the area within approximately 400 feet.
- Describe predominant land use patterns in the study area, including recent development trends for the 400-foot study area (see **Figure 9**).
- Provide a zoning map and discuss existing zoning and any recent zoning actions in the study area.
- Summarize other public policies that may apply to the project site and study area, including any formal neighborhood or community plans and OneNYC.
- Describe conditions on the Development Site absent the Proposed Project (the No Action condition). Prepare a list of other projects expected to be built in the study area that would be completed before or concurrent with the Proposed Project. Describe the effects of these projects on land use patterns and development trends. Also, describe any pending zoning actions or other public policy actions that could affect land use patterns and trends in the study area, including plans for public improvements.
- Describe the Proposed Project and provide an assessment of the impacts of the Proposed Actions and Proposed Project on land use and land use trends, zoning, and public policy. Consider the effects related to issues of compatibility with surrounding land use, consistency with zoning and other public policy initiatives, and the effect of the Proposed Project on development trends and conditions in the area.

TASK 3: COMMUNITY FACILITIES AND SERVICES

According to the *CEQR Technical Manual*, a community facilities and services assessment is warranted if a project has the potential to result in either direct or indirect effects on community facilities. Community facilities include public schools, libraries, publicly funded early childhood programs, and healthcare facilities, as well as fire and police protection. Direct effects occur when a proposed project physically alters or displaces a community facility. Indirect effects result from increases in population that place added demand on community facility service delivery, and CEQR guidance provides that an indirect effects assessment of healthcare facilities and fire and



Existing Land Use

MSK PAVILION

Figure 9

police protection are typically only warranted when the proposed project would result in the introduction of a new neighborhood where none existed before. The Proposed Project would have direct effects on a health care facility, MSKCC; it would not have direct effects on other types of community facilities. Since no residential units are included in the project, which would increase population in the area, an indirect effects analysis of the Proposed Project is not needed. Therefore, the community facilities and services assessment will be limited to direct effects of the Proposed Project on health care facilities.

The direct effects assessment will evaluate the potential impacts of the Proposed Project on community facilities (healthcare facilities in particular) as compared to No Action condition and will determine whether the Proposed Project would disrupt the delivery of healthcare services, either permanently or temporarily. This assessment will consist of a description of existing conditions at MSKCC including the physical conditions of the hospital complex, types of services provided, and the area(s) and population served. Any anticipated changes to services in the future No Action condition will also be identified. An evaluation of service delivery and conditions under the With Action condition as compared to the No Action condition will be provided and, based on how the Proposed Project would change the affected facility and delivery of services (including during construction), the extent to which services would be disrupted or precluded will be assessed. If the elimination or disruption of service caused by the Proposed Project would place an additional demand on other nearby facilities, an examination of indirect effects on those facilities caused by the initial direct impact may be warranted and would be conducted following CEQR guidance.

TASK 4: OPEN SPACE

The *CEQR Technical Manual* recommends performing an open space assessment if a project would have a direct effect on an area open space or an indirect effect through increased population. As stated in the EAS, the Proposed Project would result in a net increment of approximately 657 workers, 240 patients, and 480 daily visitors; therefore, a preliminary open space assessment will be prepared to determine the need for further analysis. If warranted, a detailed assessment will be prepared.

Tasks for the open space analysis will include the following:

- Inventory existing open space and recreational facilities within approximately ¼-mile of the Development Site (see **Figure 10**). Tally open space acreage for passive and active publicly accessible open spaces.
- Estimate population of the open space study area.
- In conformance with *CEQR Technical Manual* methodologies, assess the adequacy of existing publicly accessible open space facilities. The assessment of adequacy is based on a comparison of the ratio of open space per 1,000 people to City guidelines.
- Assess expected changes in future levels of open space supply and demand in the build year, based on other planned development projects in the study area. Develop open space ratios for future conditions and compare them with existing ratios to determine changes in future levels of adequacy.
- Based on the Proposed Project's estimated population, assess its effects on open space supply and demand. This assessment will be based on a comparison of open space ratios with the project to open space ratios without the Proposed Project.

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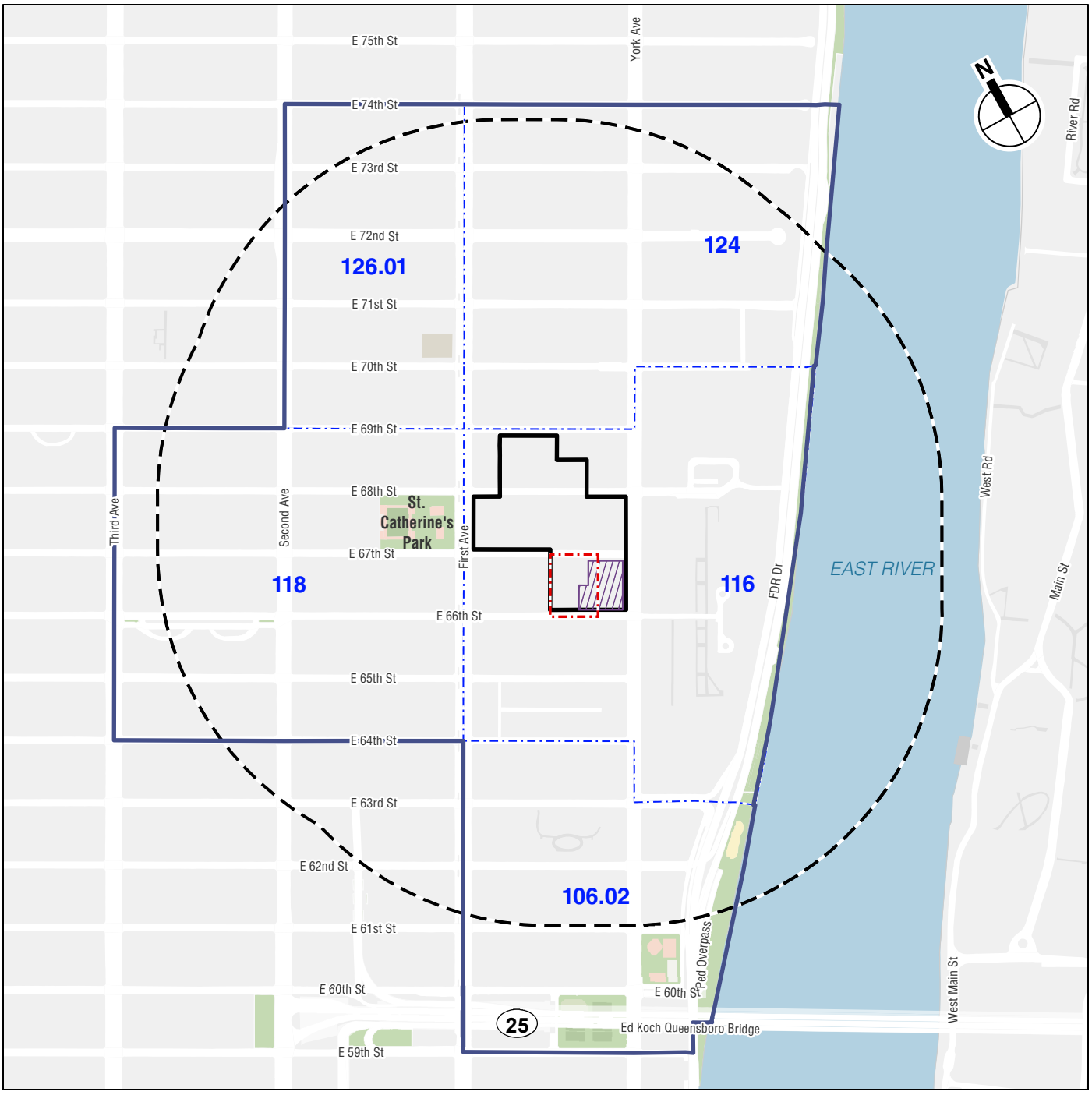

Development Site

Proposed Rezoning Area

Project Area (LSCFD Boundary)

Quarter-mile perimeter

Non-Residential Study Area

116 *Census Tract Boundary*

Open Space Study Area

MSK PAVILION

Figure 10

- In coordination with other tasks, identify any potential direct impacts on nearby open space from shadows, air quality, or noise generated by the Proposed Project.
- A preliminary assessment will be conducted to determine if a detailed open space analysis is necessary and, if so, preparation of such an analysis in accordance with the *CEQR Technical Manual*.
- If the results of the detailed analysis identify a potential for significant adverse impacts, potential mitigation measures will be discussed.

TASK 5: SHADOWS

Under CEQR, a shadows assessment is required for proposed actions that would result in new structures greater than 50 feet in height, or of any height if the project site is adjacent to a sunlight-sensitive resource. According to the *CEQR Technical Manual*, sunlight-sensitive resources include publicly accessible parks and plazas, sunlight-dependent features of historic resources such as stained-glass windows, Greenstreets (planted areas in traffic islands), and natural resources such as water bodies and wetlands.

The With Action condition would reach a maximum zoning envelope height of 594 feet on the Development Site. In addition, the Development Site is located across the street from a portion of the Rockefeller University campus, which has been determined eligible for listing as a historic district on the State and National Registers of Historic Places (S/NR) and designation as a New York City Historic District. The trees, lawns, and other plantings that comprise the campus's landscaping would be considered sunlight-dependent features requiring a shadows assessment. The Development Site is also a block away from St. Catherine's Park. Therefore, a shadows assessment will be conducted to determine if and when project-generated shadow would reach these resources or any other nearby sunlight-sensitive resources and how much of the resources would be affected by the Proposed Project.

The shadows assessment will follow the tiered methodology described in the *CEQR Technical Manual* and will include the following tasks:

- For the first tier of the screening assessment, develop a base map illustrating the project site in relation to publicly accessible open spaces, historic resources with sunlight-dependent features, and natural features in the area. Determine a simple radius around the Proposed Project representing the longest shadow that could be cast.
- If there are sunlight-sensitive resources within this radius, the assessment proceeds to the second tier, which reduces the area that could be affected by project shadow by accounting for the fact that shadows can never be cast between a certain range of angles south of the project site due to the path of the sun through the sky at the latitude of New York City.
- If the second tier of assessment does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening assessment further refines the area that could be reached by project shadow by looking at specific representative days in each season and determining the maximum extent of shadow over the course of each representative day. For this tier, develop a three-dimensional computer model of the elements of the base map developed in the previous tiers, including the topography, existing streets and buildings, sunlight-sensitive resources, the proposed building, and the Future No Action conditions.

- If the third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, conduct a detailed analysis: Use three-dimensional computer modeling software to determine the extent and duration of new shadows that would be cast on sunlight-sensitive resources as a result of the Proposed Project on four representative days of the year.
- Document the analysis with graphics comparing shadows resulting from the No Action condition with shadows resulting from the Proposed Project, with incremental shadow highlighted in a contrasting color. A summary table listing the entry and exit times and total duration of incremental shadow on each applicable representative day for each affected resource will be included.
- Assess the significance of any shadow impacts on sunlight-sensitive resources. If the results of the analysis identify a potential for significant adverse impacts, potential mitigation measures will be discussed.

TASK 6: HISTORIC AND CULTURAL RESOURCES

Historic and cultural resources include archaeological (buried) resources and architectural resources. According to the *CEQR Technical Manual*, a historic and cultural resources assessment is required if a project would have the potential to affect either archaeological or architectural resources.

ARCHAEOLOGICAL RESOURCES

The Proposed Project requires subsurface disturbance on the Development Site; however, as noted in the EAS, the New York City Landmarks Preservation Commission (LPC) determined in a letter dated December 23, 2022 that it has no archaeological concerns for the Project Site. Therefore, no further archaeological analysis is required.

ARCHITECTURAL RESOURCES

The Development Site does not contain any architectural resources. As noted in the EAS, in a comment letter dated December 23, 2022, LPC determined that it has no concerns for the buildings on the Projected Development Site as they have no architectural significance. However, there are architectural resources in the surrounding area, including the Rockefeller University campus, much of which is within an S/NR-eligible and New York City Landmark (NYCL)-eligible historic district. Therefore, consistent with the *CEQR Technical Manual*, the historic and cultural resources analysis of the EIS will include the following tasks:

- Select the study area for architectural resources which will be the area located within 400 feet from the borders of the Development Site.
- Map and briefly describe known architectural resources in the study area. Consistent with the guidance of the *CEQR Technical Manual*, known architectural resources include: NYCLs, Interior Landmarks, Scenic Landmarks, New York City Historic Districts; resources calendared for consideration as one of the above by LPC; resources listed on or formally determined eligible for inclusion on the S/NR, or contained within a district listed on or formally determined eligible for listing on the Registers; resources recommended by the New York State Board for listing on the Registers; and National Historic Landmarks.

- Conduct a field survey by an architectural historian of the study area to determine whether there are any potential architectural resources that could be affected by the Proposed Project. Potential architectural resources comprise properties that appear to meet the eligibility criteria for NYCL designation and/or S/NR listing. The field survey will be supplemented, as necessary, with research at relevant repositories, online sources, and current sources prepared by LPC and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP). Determinations of eligibility from LPC will be requested for any potential architectural resources.
- Assess the potential impacts of the Proposed Project on any identified architectural resources, including visual and contextual changes as well as any direct physical impacts. Potential impacts will be evaluated through a comparison of the future No Action condition and future With Action condition, and a determination made as to whether any change would alter or eliminate the significant characteristics of the resource that make it important.
- If applicable, develop measures in consultation with LPC to avoid, minimize, or mitigate any adverse impacts on historic and cultural resources.

TASK 7: URBAN DESIGN AND VISUAL RESOURCES

According to the methodologies of the *CEQR Technical Manual*, if a project requires actions that would result in physical changes to a project site beyond those allowed by existing zoning and which could be observed by a pedestrian from street level, a preliminary assessment of urban design and visual resources should be prepared. The Proposed Project includes a series of zoning approvals to allow additional floor area and to waive bulk and height, setback, and signage on the Development Site. In addition, a two-story bridge would be constructed over East 67th Street connecting the Proposed Project and Memorial Hospital. These zoning actions and the pedestrian bridge would change the urban design and visual character of the Development Site. Therefore, a preliminary assessment of urban design and visual resources will be prepared to determine whether the Proposed Project, in comparison to the No Action condition, would create a change to the pedestrian experience that is sufficiently significant to require greater explanation and further study.

The analysis will be undertaken based on the *CEQR Technical Manual* methodologies, as follows:

- Following the guidelines of the *CEQR Technical Manual*, the study area for the preliminary assessment of urban design and visual resources will be consistent with that of the study area for the analysis of land use, zoning, and public policy. As necessary, the delineation of the study area will take into consideration any more distant views of the Proposed Project. A description of visual resources in the study area and view corridors, if any, will be provided.
- The preliminary assessment will include a concise narrative and graphics depicting the existing project site, the future No Action condition, and the future With Action condition. The assessment will present photographs, depictions of the Proposed Project, including project drawings and site plans, and view corridor assessments.
- The preliminary assessment will determine whether the Proposed Project, in comparison to the No Action condition, would create a change in the pedestrian experience that would result in significant adverse impacts to urban design and visual resources.

A detailed urban design and visual resources analysis would be prepared if warranted based on the findings of the preliminary assessment. The detailed analysis would describe the Proposed Project and the urban design and visual resources of the surrounding area. The analysis would describe the potential changes that could occur to urban design and visual resources in the With Action condition, in comparison to the No Action condition, focusing on the changes that could negatively affect a pedestrian's experience of the area.

If necessary, mitigation measures to avoid or reduce potential significant adverse impacts will be identified.

TASK 8: HAZARDOUS MATERIALS

This chapter will address the potential presence of hazardous materials, petroleum products, and/or other environmental concerns on the property, as well as necessary measures that would be required, either prior to or during construction and/or operation of the Proposed Project, to avoid significant adverse effects. A Phase I Environmental Site Assessment (ESA) will be prepared and used to summarize the potential for hazardous materials at the site. Based on the results of the Phase I ESA, the lead agency, and the New York City Department of Environmental Protection (DEP) may require preparation of a Phase II Subsurface Investigation (laboratory analysis of soil, groundwater, and soil vapor samples) during the CEQR process. In advance of conducting the testing, a Work Plan for the investigation will need to be submitted to the agencies for approval. Based on the results of the testing, DEP may require preparation of a Remedial Action Plan (RAP) and associated Construction Health and Safety Plan (CHASP) for implementation during construction. If necessary, an (E) Designation, in accordance with the *CEQR Technical Manual*, Section 11-15 (Environmental Requirements) of the Zoning Resolution of the City of New York and Chapter 24, Title 15, of the Rules of the City of New York governing the placement of (E) Designations, will be placed on the property.

TASK 9: WATER AND SEWER INFRASTRUCTURE

According to the *CEQR Technical Manual*, an analysis of an action's impact on the water supply system should be conducted only for actions that would have exceptionally large demand for water, such as power plants, very large cooling systems, or large developments. In addition, analysis should be conducted if the project is located in an area that experiences low water pressure (e.g., areas at the end of the water supply distribution system such as the Rockaway Peninsula and Coney Island). The Proposed Project does not meet any of these criteria, and therefore, as concluded in the EAS, an analysis of water supply is not warranted.

According to the guidelines of the *CEQR Technical Manual*, a preliminary analysis of wastewater and stormwater conveyance and treatment is warranted if a project is located in a combined sewer area and would have an incremental increase above the No Action condition of 1,000 residential units or 250,000 sf of commercial, public facility, and institution and/or community facility space in Manhattan. Since the Proposed Project would produce a building exceeding this threshold, with an incremental increase of 606,276 gsf of institutional floor area, an analysis of wastewater and stormwater conveyance and treatment will be performed.

TASK 10: TRANSPORTATION

Based on the *CEQR Technical Manual*, further transportation analyses may be warranted if a proposed action is anticipated to result in an incremental increase of 50 or more peak hour vehicle trips, 200 or more peak hour subway/rail trips, 50 or more bus trips on a single line in one direction, or 200 or more peak hour pedestrian trips. A screening assessment and any required analysis will be provided in the Transportation chapter of the EIS and will be subject to review and approval by the lead agency and, potentially, involved expert agencies, such as DOT or MTA. The specific transportation analysis tasks to be undertaken as part of this environmental review are outlined below.

TRAVEL DEMAND PROJECTIONS AND SCREENING ASSESSMENTS

The transportation analyses for the EIS will be included in the Transportation chapter of the EIS and will assess potential impacts associated with trip increments that could occur as a result of the Proposed Project. Travel demand projections will be prepared for the Proposed Project using information provided by the applicant and standard sources, such as the *CEQR Technical Manual*, U.S. census data, approved studies, and other references. The estimates will be used to prepare the Level 1 (trip generation) and Level 2 (trip assignment) screening assessments prescribed in the *CEQR Technical Manual*. As part of this effort, an inventory of the area's existing parking supply and utilization (within ¼-mile from the Proposed Project) will be undertaken to determine likely locations where project-generated auto trips would be accommodated. The projected trips (by auto/taxi, transit, or walk/bike, and deliveries, etc.) will be assigned to the area's transportation network to identify specific transportation elements that would be subject to further detailed analyses. The Applicant has prepared a Draft Travel Demand Factors (TDF) memorandum preliminarily assessing the above thresholds. The findings of these assessments, along with relevant documentation and graphics, will then be summarized in the Transportation chapter of the EIS for review and concurrence by the lead agency and, potentially, involved expert agencies, such as DOT or MTA.

TRAFFIC

Per the *CEQR Technical Manual*, further traffic analyses may be warranted if a proposed action is anticipated to result in an incremental increase of 50 or more peak hour vehicle trips. Further traffic analyses will be conducted in the Transportation chapter of the EIS, consistent with the guidelines presented in the *CEQR Technical Manual*, to identify the potential for any intersections to have significant adverse impacts resulting from the Proposed Project. If significant impacts are identified in the Transportation chapter, the Mitigation chapter of the EIS will identify transportation improvement measures to mitigate the significant impacts, consistent with the guidelines presented in the *CEQR Technical Manual*.

TRANSIT

As stated by the *CEQR Technical Manual*, further transit analyses may be warranted if a proposed action is anticipated to result in an incremental increase of 200 or more peak hour subway/railroad trips or 50 or more peak hour bus/Citywide Ferry Service trips. Further transit analyses will be conducted in the Transportation chapter of the EIS, consistent with the guidelines presented in the *CEQR Technical Manual,* to identify the potential for any transit elements, i.e., subway station elements, subway or ferry lines, or bus routes, to have significant adverse impacts resulting from

the Proposed Project. If significant impacts are identified in the Transportation chapter, the Mitigation chapter of the EIS will identify transportation improvement measures to mitigate the significant impacts, consistent with the guidelines presented in the *CEQR Technical Manual*.

PEDESTRIANS

Consistent with the *CEQR Technical Manual*, further pedestrian analyses may be warranted if a proposed action is anticipated to result in an incremental increase of 200 or more peak hour pedestrian trips. Further pedestrian analyses will be conducted in the Transportation chapter of the EIS, consistent with the guidelines presented in the *CEQR Technical Manual,* to identify the potential for any pedestrian elements, i.e., sidewalks, corner reservoir areas, or crosswalks, to have significant adverse impacts resulting from the Proposed Project. If significant impacts are identified in the Transportation chapter, the Mitigation chapter of the EIS will identify transportation improvement measures to mitigate the significant impacts, consistent with the guidelines presented in the *CEQR Technical Manual*.

VEHICULAR AND PEDESTRIAN SAFETY

Per the *CEQR Technical Manual*, a vehicular and pedestrian safety assessment is warranted at any intersection that also undergoes detailed traffic or pedestrian analysis and should also consider nearby Vision Zero corridors or intersections. The safety assessments will include an analysis of historic crash data for vehicle, bicycle, and pedestrian crashes, identification of any high pedestrian/bicycle crash locations, as prescribed by the *CEQR Technical Manual,* and include an inventory of existing safety treatments and identification of safety countermeasures at high crash locations. The safety assessments will identify any intersections that have the potential for significant adverse safety impacts resulting from the Proposed Project. If significant impacts are identified in the Transportation chapter, the Mitigation chapter of the EIS will identify transportation improvement measures to mitigate the significant impacts, consistent with the guidelines presented in the *CEQR Technical Manual*.

PARKING

Based on the *CEQR Technical Manual*, a parking study is warranted if detailed traffic analyses are conducted. The parking study will assess the parking demand of the Proposed Action, compare it to on-site and off-site parking resources within ¼-mile of the Proposed Project, and identify and quantify any expected parking shortfalls. Since the Proposed Project is located in Manhattan south of 110th Street, it is in an area called Parking Zone 1 according to the *CEQR Technical Manual.* In Parking Zone 1, the inability of the on-site and off-site parking resources in the surrounding area to accommodate the Proposed Project's future parking demands is considered a parking shortfall but is generally not considered a significant adverse parking impact due to the magnitude of available alternative modes of transportation.

TASK 11: AIR QUALITY

The projected number of project-generated vehicle trips is not expected to exceed the *CEQR Technical Manual* carbon monoxide (CO) or particulate matter (PM) analysis screening thresholds. Therefore, it is anticipated that the mobile source air quality analysis will include a screening analysis; if any screening thresholds are exceeded, a microscale analysis of CO and/or PM mobile source emissions would be performed using the American Meteorological Society

(AMS)/Environmental Protection Agency (EPA) Regulatory Model (AERMOD) dispersion model at the intersection with the greatest number of project-generated vehicle trips.

The Proposed Project would not increase the number of spaces in the existing below-grade parking garage on the Development Site, and potential impacts from the existing parking garage on the Proposed Project are expected to be minimal. Therefore, an air quality analysis of parking facilities is not anticipated to be required.

The *CEQR Technical Manual* recommends analysis of projects that would result in placement of air intakes generally within 200 feet of an "atypical" source of vehicle emissions, including not at-grade sources such as multi-lane highways, or bridges. No atypical roadways were identified within the study area around the Project Site. The Proposed Project may utilize natural gas powered heating and hot water systems during peak demand periods or as a backup system, while fossil fuel-fired generator would be used for emergency back-up power. Therefore, as a worst-case condition, an analysis will be performed to evaluate potential air quality impacts associated with the Proposed Project's stationary sources. A modeling analysis will be performed using the EPA screening-level AERSCREEN model. Concentrations of nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) will be determined at off-site and on-site (project) ground level and elevated receptor locations. Predicted concentrations will be compared with NAAQS and the CEQR $PM_{2.5}$ *de minimis* criteria for $PM_{2.5}$.

If the screening analysis for any site demonstrates a potential for air quality impacts, a refined modeling analysis will be performed for that development site using the AERMOD model. For this analysis, five recent years of meteorological data from LaGuardia Airport and concurrent upper air data from Brookhaven, New York will be utilized for the simulation program. Several existing large and major sources of emissions currently operate within 1,000 feet of the Development Site. Therefore, as defined in the *CEQR Technical Manual*, the analysis of potential air quality effects of such sources on the Proposed Project is required. Criteria pollutant concentrations will be predicted using the AERMOD model compared with NAAQS for NO_2, sulfur dioxide (SO_2, if fuel is used), and PM (PM_{10}, and $PM_{2.5}$).

A review of DEP and New York State Department of Environmental Conservation (NYSDEC) air permits will be performed to determine whether there are any permitted industrial sources of emissions within the 400-foot study area. If any permitted industrial sources are identified, an analysis will be performed following the procedures outlined in the *CEQR Technical Manual*.

The Proposed Project is anticipated to include laboratories with fume hoods. Therefore, an analysis will be performed to examine the expected use of potentially hazardous materials in the proposed laboratories, and the procedures and systems that would be employed in the proposed laboratories to ensure the safety of staff and the surrounding community in the event of a chemical spill in one of the proposed laboratories. Information will be reviewed on chemicals and storage quantities that would be expected at the proposed laboratory. Information on toxicity, volatility, and other relevant characteristics will be reviewed. Impacts from an accidental spill occurring in the proposed laboratory will be evaluated using the information provided and the procedures and methodologies contained in the *CEQR Technical Manual*. Maximum concentrations will be compared with the Short-Term Exposure Levels (STELs) or ceiling levels recommended by the National Institute for Safety and Health (NIOSH) and the U.S. Occupational Safety and Health Administration (OSHA) for the chemicals examined. Where necessary, recommendations will be made to reduce any potential levels of concern.

See also **Appendix A**, "Draft Air Quality Methodology Memorandum."

TASK 12: GREENHOUSE GASES AND CLIMATE CHANGE

Because the Proposed Project would exceed the 350,000-gsf threshold requiring analysis of greenhouse gas emissions, in accordance with the *CEQR Technical Manual*, greenhouse gas (GHG) emissions generated by the Proposed Project will be quantified, and an assessment of consistency with the City's established GHG reduction goal will be prepared. Emissions will be estimated for the analysis year and reported as carbon dioxide equivalent (CO_2e) metric tons per year. GHG emissions other than carbon dioxide (CO_2) will be included if they would account for a substantial portion of overall emissions, adjusted to account for the global warming potential.

In addition to GHG emissions, climate change has contributed to rising sea levels and increases in storm surge and coastal flooding. An analysis of climate change is deemed warranted for projects at sites located within the 100- or 500-year flood zone. A review of the City's flood hazard information was performed as part of the EAS. The proposed site was found to be located over 400 feet outside of the nearest potential end-of-century flood hazard zone identified by the New York City Panel on Climate Change (NPCC). Therefore, the Proposed Project is unlikely to be impacted directly by future climate conditions, and an assessment of the potential impacts of climate change on the Proposed Project (e.g., sea level rise, flooding, etc.) is not warranted.

Relevant measures to reduce energy consumption and GHG emissions that could be incorporated into the Proposed Project will be discussed, and the potential for those measures to reduce GHG emissions from the Proposed Project will be assessed to the extent practicable.

The GHG analysis will consist of the following subtasks:

- Direct Emissions—GHG emissions from on-site boilers used for steam, heat, and hot water; any natural gas; and fuel used for on-site electricity generation (if any) will be quantified. Emissions will be based on available project-specific information regarding the Proposed Project's expected fuel use to be provided by the project team.
- Indirect Emissions—GHG emissions from purchased electricity and/or steam generated off-site and consumed on-site during the Proposed Project's operation will be estimated.
- Indirect Mobile Source Emissions—GHG emissions from vehicle trips to and from the project site will be quantified using trip distances and vehicle emission factors provided in the *CEQR Technical Manual*.
- Direct Mobile Source Emissions—GHG emissions from the Proposed Project's vehicle fleet (e.g., ambulances) will be quantified using projected trip distances and vehicle emission factors provided in the *CEQR Technical Manual* or other more specific information if better data is identified.
- Emissions from project construction and emissions associated with the extraction or production of construction materials will be qualitatively discussed. Opportunities for reducing GHG emissions associated with construction will be considered. Should a quantified assessment of construction GHG emissions be required by the lead agency, an analysis will be performed.
- Design features and operational measures to reduce the Proposed Project's energy use and GHG emissions will be discussed and quantified to the extent that information is available.

- Consistency with recently passed New York City and New York State climate legislation will be assessed. New York City's Climate Mobilization Act and New York State's Climate Leadership and Community Protection Act have established additional GHG reduction goals along with required GHG reduction measures (i.e., building emission intensities, and requirements for rooftop solar photovoltaic installation where practicable) and emissions will be quantified with implementation of these measures.

TASK 13: NOISE

The noise analysis will examine impacts of existing and future noise sources (e.g., vehicular traffic from adjacent roadways and surrounding playgrounds) on the proposed noise-sensitive medical uses and the impacts of project-generated traffic on noise-sensitive land uses nearby. This will include noise monitoring to determine existing ambient noise levels. For CEQR purposes, it is assumed that a detailed analysis of the proposed development's mechanical equipment will not be required, because any heating, ventilation, and air conditioning (HVAC) equipment would be designed to meet applicable regulations. Consequently, the noise analysis will examine existing and future noise levels in the Project Area and the window/wall attenuation that would be required to provide acceptable interior noise levels at the Proposed Project. The subtasks are as follows:

- Select appropriate noise descriptors. Based upon CEQR guidance, the noise analysis will examine the 1-hour equivalent (L_{eq}) and the L_{10} noise levels.
- Perform a screening analysis to determine whether there are any locations where there is the potential for the Proposed Actions to result in significant noise impacts (e.g., doubling of existing noise PCE) due to project-generated traffic. If the existing noise passenger car equivalent (PCE) would double in the With Action condition, a detailed mobile source noise analysis would be performed.
- Select receptor locations. Receptor sites analyzed will include locations where high existing ambient noise levels could adversely affect new residential and other sensitive uses associated with the Proposed Project.
- Determine existing noise levels. Field measurements will be used to determine existing noise levels. The specific methodology and technical approach for the establishment of existing condition noise levels has been described in a memorandum submitted to the lead agency for comment and approval.
- Determine future noise levels without the Proposed Actions. At each of the receptor locations identified above, determine noise levels without the Proposed Actions using existing noise levels, acoustical fundamentals, and mathematical models.
- Determine future noise levels with the Proposed Actions. At all of the receptor locations identified above, determine noise levels with the Proposed Actions using existing noise levels, acoustical fundamentals, and mathematical models.
- Determine amount of building attenuation required. The level of building attenuation necessary to satisfy CEQR requirements is a function of the exterior noise levels and will be determined. Projected future noise levels will be compared to appropriate standards and guideline levels. As necessary, general noise attenuation measures needed for the project building to achieve compliance with standards and guideline levels will be recommended.

See also **Appendix B**, "Draft Noise Methodology Memorandum."

TASK 14: PUBLIC HEALTH

According to the *CEQR Technical Manual*, a public health analysis is warranted if a project would result in a significant unmitigated adverse impact in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. If unmitigated significant adverse impacts are identified in any of these technical areas, and the lead agency determines that a public health assessment is warranted, an analysis will be provided for the specific technical area or areas, in accordance with *CEQR Technical Manual* guidelines.

TASK 15: NEIGHBORHOOD CHARACTER

Neighborhood character is determined by a number of factors, such as land use, urban design, visual resources, historic resources, socioeconomic conditions, traffic, and noise. Methodologies outlined in the *CEQR Technical Manual* will be used to provide a preliminary assessment of neighborhood character. This assessment would involve the following tasks:

- Based on other technical analyses, describe the predominant factors that contribute to defining the character of the neighborhood surrounding the Project Area.
- Based on planned development projects, public policy initiatives, and planned public improvements, summarize changes that can be expected in the character of the area in the future without the Proposed Project.
- Evaluate whether the Proposed Project have the potential to affect these defining features. Either through the potential for a significant adverse impact or a combination of moderate effects in the relevant technical areas.

If required based on the preliminary assessment, a detailed assessment of the Proposed Project's effects on neighborhood character will be prepared.

TASK 16: CONSTRUCTION

Construction impacts, though temporary, can have a disruptive and noticeable effect on the adjacent community, as well as people passing through the area. The construction impact assessment will evaluate the duration and severity of the disruption and inconvenience to nearby areas. The construction assessment will focus on areas where construction activities may pose specific environmental problems. This assessment will describe the anticipated construction schedule and logistics, discuss on-site activities, and provide estimates of construction workers and truck deliveries.

Because the construction duration of the Proposed Project will be greater than two years, and because construction activities would occur in proximity to sensitive receptors including other MSKCC buildings and nearby residences, the Proposed Project could have substantial and extended construction effects. Large-scale projects near sensitive receptor locations with a construction duration longer than two years typically require a quantitative assessment of the potential impacts of construction activities on air quality and noise.

Technical areas to be assessed include the following:

- ***Transportation Systems.*** This assessment will consider losses in lanes, sidewalks, off-street parking, and effects on other transportation services (i.e., transit and pedestrian circulation) during the construction periods, and identify the increase in vehicle trips from construction

workers and trucks. Issues concerning construction worker parking, truck staging, and potential conflicts with school buses will also be addressed. Based on the trip projections of activities associated with peak construction for the Proposed Project, an assessment of potential transportation impacts during construction will be provided. The assessment will include Level 1 (Trip Generation) and Level 2 (Trip Assignment) analyses to determine if the *CEQR Technical Manual* quantified transportation analyses thresholds (50 or more vehicle trips and/or 200 or more transit/pedestrian trips during a given peak hour) are exceeded. A separate detailed analysis will be undertaken if this effort identifies such a need based on guidance presented in the *CEQR Technical Manual*. The Applicant has prepared a Construction Draft TDF memorandum preliminarily assessing the Level 1 and Level 2 thresholds. The findings of these assessments, along with relevant documentation and graphics, will then be summarized in the Construction chapter of the EIS.

- ***Air Quality.*** A detailed dispersion analysis of construction sources will be performed to determine the potential for air quality impacts on sensitive receptor locations. Air pollutant sources would include combustion exhaust associated with non-road construction engines (e.g., cranes, excavators) and trucks operating on-site, construction-generated traffic on local roadways, as well as onsite activities (e.g., excavation, demolition) that generate dust. The pollutants of concern include CO, PM, and NO_2. The potential for significant impacts will be determined by a comparison of the model predicted concentrations to the National Ambient Air Quality Standards (NAAQS), or by comparison of the predicted increase in concentrations to applicable New York City *de minimis* criteria. The air quality analysis will also include a discussion of the strategies to reduce project-related air pollutant emissions associated with construction activities.
- ***Noise and Vibration.*** This section will contain a quantitative (modeling) analysis of noise from the Proposed Project's construction activity. Appropriate recommendations will be made to comply with DEP Rules for Citywide Construction Noise Mitigation and the New York City Noise Control Code. The detailed analysis will estimate construction noise levels based on projected activity and equipment usage for various phases of construction on the project sites. The projected construction noise levels will be compared to existing noise levels as determined using a combination of noise level measurements and an existing conditions model validated or calibrated based on traffic counts. The noise analysis will identify potential construction noise impacts based on the intensity, duration, and location of emissions relative to nearby sensitive locations. As necessary, feasible and practicable project-specific control measures to further reduce construction noise disruption to the surrounding community will be considered.

  Construction activities have the potential to result in vibration levels that may result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. A construction vibration assessment will be performed. This assessment will determine critical distances at which various pieces of equipment may cause damage or annoyance to nearby buildings based on the type of equipment, the building construction, and applicable vibration level criteria. Should it be necessary for certain construction equipment to be located closer to a building than its critical distance, vibration mitigation options will be proposed.
- ***Community Facilities.*** As appropriate, discuss the distribution of MSKCC functions to other locations during construction.

- ***Other Technical Areas.*** As appropriate, discuss other areas of environmental assessment for potential construction-related impacts, including but not limited to: historic and cultural resources, hazardous materials, open space, socioeconomic conditions, community facilities, and land use and neighborhood character.

TASK 17: ALTERNATIVES

The purpose of an Alternatives analysis in an EIS is to examine reasonable and feasible options that avoid or reduce project-related significant adverse impacts, while achieving the goals and objectives of the Proposed Project. The alternatives are usually defined once the full extent of the Proposed Project's impacts have been identified. However, the alternatives analyzed must include a No Action Alternative, as required by CEQR. The chapter may also include an alternative(s) that reduces any significant adverse impacts identified in the EIS analyses. If the Proposed Project results in unmitigated significant adverse impacts, the EIS would also include a No Unmitigated Impacts Alternative. The alternatives analyses will be qualitative, except where significant adverse impacts of the Proposed Project have been identified, or if an alternative with fewer overall impacts would nevertheless have new significant adverse impacts.

TASK 18: MITIGATION

Where significant impacts have been identified in the analyses discussed above, measures will be described to mitigate those impacts. This chapter will describe the practicable measures that could mitigate those impacts. These measures will be developed and coordinated with the responsible City and/or State agencies, as necessary. Where impacts cannot be fully mitigated, they will be disclosed as unavoidable adverse impacts.

TASK 19: EIS SUMMARY CHAPTERS

In accordance with the *CEQR Technical Manual*, the EIS would include the following summary chapters, where appropriate to the Proposed Project:

Unavoidable Adverse Impacts, which summarizes any significant adverse impacts that are unavoidable if a proposed action is implemented regardless of the mitigation employed (or if mitigation is impossible).

Growth-Inducing Aspects of the Proposed Project, which generally refer to "secondary" impacts of a proposed action that trigger further development.

Irreversible and Irretrievable Commitments of Resources, which summarizes a proposed action and its impacts in terms of the loss of environmental resources (loss of vegetation, use of fossil fuels and materials for construction, etc.) both in the immediate future and long term.

Any significant impacts for which no mitigation can be implemented will be presented as Unavoidable Adverse Impacts. In addition to discussions of Growth-Inducing Aspects of the Proposed Project and Irreversible and Irretrievable Commitment of Resources.

TASK 20: EXECUTIVE SUMMARY

The EIS will include an Executive Summary, which will summarize relevant material from the body of the EIS to describe the Proposed Project, its environmental impacts, measures to mitigate those impacts, and alternatives to the Proposed Project. ✷

Appendix A
Draft Air Quality Methodology Memorandum

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Memorandum

To:	New York City Department of City Planning
From:	Henry Kearney, Nermeen Khan/AKRF, Inc.
Date:	Revised March 2, 2023
Re:	MSK Pavilion — Draft Air Quality Methodology
cc:	File

The purpose of this memorandum is to describe the air quality analysis approach for the Memorial Sloan Kettering (MSK) Pavilion Environmental Impact Statement (EIS). Memorial Sloan Kettering Cancer Center (MSKCC) (the Applicant) is requesting a rezoning and other discretionary actions (the "Proposed Actions") to facilitate the construction of the Proposed Project, an approximately 901,193 gross-square-foot (gsf) building on the block bounded by York and First Avenues and East 66th and East 67th Streets, Block 1461 Lot 21 (the "Development Site"). The Development Site is located on the Upper East Side in Manhattan Community District 8. The Proposed Project, also referred to as the "MSK Pavilion", would be devoted entirely to patient care for those whose cancer treatments cannot be addressed through MSKCC's extensive network of ambulatory services on the Main Campus and neighboring and regional facilities.

The projected number of project-generated vehicle trips is not expected to exceed the 2021 *CEQR Technical Manual* carbon monoxide (CO) analysis screening threshold of 170 trips at an intersection. Therefore, no analysis of CO emissions at any intersection will be required. For particulate matter, the screening approach uses vehicle classification, and assigns these classifications to vehicle categories using a table referenced in the *CEQR Technical Manual*[1]. Based on the roadway classifications around the project site, no intersections with a project-generated increment of 50 or less vehicles would exceed the HDDV equivalents referenced in the *CEQR Technical Manual* worksheet.

Therefore, the screening procedure outlined in the *CEQR Technical Manual* will be performed at any intersection where the traffic analysis performed a Level 2 screening assessment. The PM screening is based on determining whether the projected number of vehicle trips at an intersection exceeds thresholds based on heavy-duty diesel vehicle (HDDV) equivalents. If any screening thresholds are exceeded, a microscale analysis of PM mobile source emissions would be performed at the intersection with the greatest number of project-generated vehicle trips.

[1] MOBILE6 Input Data Format Reference Tables, August 14, 2003.

The Proposed Project would not increase the number of spaces in the existing below-grade parking garage on the Development Site and under Rockefeller Research Laboratory (RRL). However, the Proposed Project would require modifications to the ground floor of RRL and the garage to create the new exit ramp to East 67th Street.

Potential air quality impacts from the garage in the Proposed Project are expected to be minimal. The Proposed Project would not require any modifications to the mechanical ventilation system, and air from the below-grade garage would continue to exhaust towards East 66th Street at the 2nd floor level. Air intakes for the MSK Pavilion would be on the mechanical levels of the proposed building, and would be located facing York Avenue, above street level. The nearest distance between the exhaust from the existing below-grade garage and air intakes at the Proposed Project would be approximately 175 feet. At this distance, any potential effects from the existing garage would be negligible. Therefore, an air quality analysis of the existing parking garage on off-site locations is not considered to be required.

The *CEQR Technical Manual* recommends analysis of projects that would result in placement of air intakes generally within 200 feet of an "atypical" source of vehicle emissions, including not at-grade sources such as multi-lane highways, or bridges. No atypical roadways were identified within the study area around the Project Site.

Accordingly, this memorandum presents a summary of the methodology and assumptions to be used for the stationary source air quality analyses of the Proposed Actions.

STATIONARY SOURCES

HEAT AND HOT WATER SYSTEMS

The Proposed Project is anticipated to include natural gas-fired boilers and hot water heaters that would be designed to be used during peak demand periods to supplement electric-based equipment. In addition, one or more oil-fired generators would be installed to provide power in the event of a loss of utility electric power. Since the generators would only be used for very limited periods of time for testing outside of an actual emergency, no analysis of this equipment is considered to be necessary. Therefore, the stationary analysis will be performed to evaluate potential air quality associated with the Proposed Project's supplemental heating and hot water systems only.

Dispersion Model

The analysis will be performed using the latest version of EPA's AERSCREEN model (Version 21112). The AERSCREEN model projects worst-case 1-hour average concentrations downwind from a point, area, or volume source; longer-period averages are estimated by multiplying the 1-hour results by persistence factors established by EPA or provided in the *CEQR Technical Manual*. AERSCREEN generates application-specific worst-case meteorology using representative minimum and maximum ambient air temperatures, and site-specific surface characteristics such as albedo, Bowen ratio, and surface roughness length.[2] The AERSCREEN model will be used to calculate worst-case ambient concentrations of NO_2 and $PM_{2.5}$ from the Proposed Development downwind of the stack.

The model incorporates the Plume Rise Model Enhancements (PRIME) downwash algorithm, which is designed to predict concentrations in the "cavity region" (i.e., the area around a structure which under certain conditions may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). AERSCREEN uses the Building Profile Input Program for PRIME (BPIPPRM) to provide a detailed analysis of downwash influences on a direction-specific basis. AERSCREEN also

2. Albedo is the fraction of the total incident solar radiation reflected by the ground surface. The Bowen ratio is the ratio of the sensible heat flux to the latent (evaporative) heat flux. The surface roughness length is related to the height of obstacles to the wind flow and represents the height at which the mean horizontal wind speed is zero based on a logarithmic profile.

incorporates AERMOD's complex terrain algorithms and utilizes the AERMAP terrain processor to account for the actual terrain in the vicinity of the source on a direction-specific basis.

The AERSCREEN model will be run both with and without the influence of building downwash, using urban diffusion coefficients that are based on a review of land-use maps of the area. Other model options will be selected based on EPA guidance.

Maximum 1-hour average NO_2 concentrations will be estimated using an NO_2 to NO_x ratio of 0.8—the recommended default ambient ratio per EPA guidance.[3]

Emission Estimates and Stack Parameters

The air quality analysis of supplemental heating and hot water systems will be based on the available design information. If design information is not available, the following assumptions will be utilized, as appropriate:

Emission Factors
Emissions factors would be obtained from the EPA *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources*. $PM_{2.5}$ emissions would include both the filterable and condensable fractions.

Fuel Usage
Short-term emissions would be based on equipment design capacities, to be conservative. The analysis will be performed assuming the equipment operates during the winter months only (January, February and December) since the gas-fired equipment would only be needed during peak demand periods, or in the event of a loss of utility electric power. Annual emissions would be prorated over the 12-month year.

Stack Parameters
If design information on the supplemental heat and hot water systems' design is not available, it would be assumed that exhaust stacks would be located three feet above roof height (as per the *CEQR Technical Manual*). The exhaust velocity would be calculated based on the exhaust flowrate for the estimated boiler capacity, using the energy use of the proposed building and EPA's fuel factors. Assumptions for stack diameter and exhaust temperature for the proposed systems will be obtained from a survey of boiler exhaust data undertaken and provided by the New York City Department of Environmental Protection (DEP).

The exhaust stacks for the heat and hot water systems will be assumed to be located at the edge of the Proposed Project closest to the receptor of a similar or greater.

Receptor Placement

Receptors (locations at which concentrations are projected) generally will include operable windows in residential or other buildings, air intakes, and publicly accessible open space locations, as applicable. The nearest building of similar or greater height will be modeled, as well as more distant receptors. Closer receptors at lower heights will be modeled as well. The worst-case ground level concentration will also be evaluated.

Background Concentrations

To estimate the maximum expected pollutant concentration at a given location (receptor), the predicted impacts must be added to a background value that accounts for existing pollutant concentrations from other sources that are not directly accounted for in the model (see **Table 1**). To develop background levels, concentrations measured at the most representative ambient monitoring station operated by the New York State Department of Environmental Conservation (NYSDEC) over a three-year period (2017–2019) will

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

be used (consistent with NYSDEC guidance). The 2020 and 2021 data will not be used due to uncertainties in the representativeness of background concentrations for these years due to effects of COVID-19.

Table 1
Background Pollutant Concentrations for Stationary Souce Analysis

Pollutant	Average Period	Location	Concentration (µg/m^3)	NAAQS (µg/m^3)
NO_2	Annual[1]	IS 52	32.8	100
	1-hour[2]		110.6	188
SO_2	1-hour[3]	IS 52	14.6	196
$PM_{2.5}$	24-hour	JHS 45, Brooklyn	18.3	35
	Annual		7.6	12

Notes:
[1] Annual average NO_2 background concentration is based on the three-year highest value from 2017–2019.
[2] The one-hour NO_2 background concentration is based on the maximum 98th percentile one-hour NO_2 concentration averaged over three years of data, from 2017–2019.
[3] The one-hour SO_2 background concentration is based on the maximum 99th percentile concentration averaged over three years of data, from 2017–2019.
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2017–2019.

The $PM_{2.5}$ 24-hour average background concentration of 18.3 µg/m^3 (based on the 2017 to 2019 average of 98th percentile concentrations measured at the JHS 45 monitoring station) will be used to establish the *de minimis* value for the 24-hour increment, consistent with the guidance provided in the *CEQR Technical Manual.*

Determining the Significance of Air Quality Impacts

Predicted values will be compared with National Ambient Air Quality Standards (NAAQS) for NO_2, and SO_2, and the City's CEQR *de minimis* criteria for $PM_{2.5}$. In the event that violations of standards or criteria are predicted, a refined analysis would be performed using the EPA AERMOD dispersion model.[4] For this analysis, five recent years of meteorological data from LaGuardia Airport and concurrent upper air data from Brookhaven, New York will be utilized for the simulation program.

An air quality E-designation will also be proposed for the site, describing the fuel and/or heat and hot water system exhaust stack restrictions that would be required to avoid a significant adverse air quality impact.

LARGE OR MAJOR SOURCES

A review of NYSDEC Title V and State Facility Air permits as well as EPA's Envirofacts database was performed to identify any federal or state-permitted facilities. Existing large and major sources of emissions (i.e., sources having a Title V or State Facility Air Permit) within 1,000 feet of the development sites were surveyed. One facility with a Title V permit (Rockefeller University) and two facilities with State Facility Air Permits were identified (Memorial Sloan-Kettering Cancer Center and Weill Cornell Medical College). Therefore, an analysis of these sources will be performed to assess the potential effects of this source on the Proposed Project.

The analysis will be performed using the American Meteorological Society (AMS)/Environmental Protection Agency (EPA) Regulatory Model (AERMOD) dispersion model.[5] The AERMOD analysis of potential impacts from exhaust stacks will be performed assuming stack tip downwash, urban dispersion and

[4] EPA. AERMOD Implementation Guide. 454/B-16-013. December 2016.
EPA. AERMOD Model Formulation and Evaluation. 454/R-17-001. May 2017.
EPA. User's Guide for the AMS/EPA Regulatory Model (AERMOD). 454/B-16-011. December 2016.

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) will be 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.

Methodology for Estimating NO_2 Concentrations

The 1-hour average NO_2 concentration increments from the identified large and major sources will be estimated using the 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 will be taken from the NYSDEC IS 52 monitoring station that is the nearest ozone monitoring station and has complete five years of hourly data available. An initial NO_2 to NO_x ratio of 10 percent at the source exhaust stack will be assumed, which is considered representative for boilers.

Meteorological Data

NYSDEC-supplied meteorological data processed with the AERMET Version 22112 processor will be used for the modeling analysis. The meteorological data set will consist of five consecutive years of meteorological data: surface data collected at LaGuardia Airport (2015–2019), 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.

Receptor Placement

Discrete receptors (i.e., locations at which concentrations are calculated) will be modeled along the façades of the proposed MSK Pavilion to represent potentially sensitive locations such as intake vents and outdoor accessible spaces. Rows of receptors at spaced intervals will be analyzed at multiple elevations. Generally, receptors would be spaced at a three-meter interval vertically, while horizontally, receptor spacing would be a minimum of three meters and a maximum of five meters. Receptors will also be placed at publicly accessible ground-level locations on the Project Site (e.g., along the through-block driveway).

Determining the Significance of Air Quality Impacts

Predicted criteria pollutant concentrations will be predicted using the AERMOD model compared with NAAQS. In the event that an exceedance of a standard is predicted, potential measures to avoid air quality impacts will be investigated, and if required, an E-designation will be proposed to restrict potential receptor locations to avoid a significant adverse air quality impact.

INDUSTRIAL SOURCES

The Project Area is zoned for residential. Based on the zoning and land use characteristics of the study area, it is unlikely that any industrial sources of emissions exist that would require analysis. However, a review of DEP and NYSDEC air permits will be performed to determine whether there are any permitted industrial sources of emissions within the 400-foot study area. If any permitted industrial sources are identified, an analysis would be performed following the procedures outlined in the *CEQR Technical Manual*. The EPA's AERMOD refined dispersion model would be used to estimate the short-term and annual concentrations of critical pollutants at sensitive receptor locations. Predicted values would be compared with the short-term guideline concentrations (SGC) and annual guideline concentrations (AGC) reported in DEC's DAR-1 AGC/SGC Tables guidance document to determine the potential for significant impacts. Potential cumulative effects of air toxic compounds would be evaluated, if required.

CHEMICAL SPILL ANALYSIS

The Proposed Project is anticipated to include wet laboratories equipped with fume hoods. Fume hoods are enclosures maintained under negative pressure and continuously vented to the outside. Their function is to

protect laboratory staff from potentially harmful fumes. By providing a continuous exhaust from laboratory rooms, they also prevent any fumes released within the laboratory from escaping into other areas of the building, or through windows to the outside.

A quantitative analysis employing mathematical modeling will be performed to assess the potential effects of an accidental chemical spill in any one of the proposed laboratory fume hoods. The chemical spill analysis will follow the procedures and methodologies contained in the *CEQR Technical Manual* and examined the potential impacts on nearby buildings and places of public access, as well as potential impacts due to recirculation into air intake systems or windows of the proposed building. Maximum predicted concentrations will be compared to the short-term exposure levels (STELs) or ceiling levels recommended by the U.S. Occupational Safety and Health Administration (OSHA) for the chemicals examined.

Detailed design information for the proposed laboratory ventilation systems will be used to develop assumptions for the analysis of the potential for impacts from a chemical spill in one of the proposed laboratories.

Chemicals for Analysis

An inventory of the types and quantities of chemicals that are likely to be used in the proposed laboratories will be developed for the Proposed Project. Common buffers, salts, enzymes, nucleotides, peptides, and other biochemicals will not be considered in the analysis since they are not typically categorized as air pollutants. Chemicals will be identified for further examination based on their toxicity and vapor pressure. Vapor pressure is a measure of the material's volatility—its tendency to evaporate, or to form vapors, which is a critical parameter in determining potential impacts from chemical spills. Nonvolatile chemicals, defined as chemicals with a vapor pressure of less than 10 mm mercury (Hg), will be excluded. Exposure standards are safety- and health-based standards indicative of the chemical's toxicity—substances with higher toxicity have lower exposure standards. These include OSHA permissible exposure limit (PEL), National Institute for Occupational Safety and Health (NIOSH), immediately dangerous to life or health (IDLH), and OSHA and/or NIOSH STEL and ceiling values.

The worst-case chemical spill analysis will be performed for the chemicals with the greatest potential hazard which will be selected from the full chemical inventory based on relative exposure thresholds and vapor pressures. Chemicals with high vapor pressures are most likely to have high evaporation rates. Since the chemicals selected for detailed analysis are most likely to have the highest emissions rates and the lowest exposure standards, if the analysis of these chemicals results in no significant impacts, it would indicate that the other chemicals in the inventory would also not present a potential for significant impacts.

Estimates of Worst-Case Emission Rates

The dispersion of chemicals from a spill within the proposed laboratories will be analyzed to assess the potential for exposure of the general public and of staff within the proposed laboratory building to hazardous fumes in the event of an accidental release. Evaporation rates for volatile chemicals expected to be used in the proposed laboratories will be estimated using the model developed by the Shell Development Company.[6]

The Shell model, which was developed specifically to assess air quality impacts from chemical spills, calculates evaporation rates based on physical properties of the chemical, temperature, and rate of air flow over the spill surface. Room temperature conditions (20° C) and an air flow rate of 0.5 meters/second will be assumed for calculating evaporation rates.

The analysis will assume that a chemical spill in a fume hood would extend to an area of 12 square feet (approximately 1.11 square meters) unless specific design information is available. The emission rates will be determined using the evaporation rates and assuming this maximum spill area.

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

Dispersion Modeling

Recirculation in MSK Pavilion Intakes

The potential for recirculation of the fume hood emissions back into the proposed building air intakes will be assessed using the Wilson method.[7] This empirical procedure, which has been verified by both wind-tunnel and full-scale testing, is a refinement of the 1981 ASHRAE Handbook procedure, and takes into account such factors as plume momentum, stack-tip downwash, and cavity recirculation effects. The procedure determines the worst-case, absolute minimum dilution between exhaust vent and air intake. Three separate effects determine the eventual dilution: internal system dilution, obtained by combining exhaust streams (i.e., mixing in plenum chambers of multiple exhaust streams, and introducing fresh air supplied from roof intakes); wind dilution, dependent on the distance from vent to intake and the exit velocity; and dilution from the stack, caused by stack height and plume rise from vertical exhaust velocity. The critical wind speed for worst-case dilution is dependent on the exit velocity, the distance from vent to intake, and the cross-sectional area of the exhaust stack.

Dispersion in the Surrounding Area

Dispersion modeling in the surrounding area will be modeled using the AERMOD methodology described above. Discrete receptors (i.e., locations at which concentrations are calculated) will be placed on nearby buildings. The model receptor network will consist of locations along the facades and roof of the buildings, at operable windows, intake vents, and otherwise accessible locations.

The power law relationship will be used to convert the calculated 1-hour average maximum concentrations to short-term 15-minute averages.

Determining the Significance of Air Quality Impacts

The 15-minute average concentrations will be compared to the STELs for the chemicals examined or, if the STEL is not established for the chemical, to the OSHA ceiling level. In the event that an exceedance of a standard is predicted, potential measures to avoid air quality impacts will be investigated, and if required, an E-designation will be proposed to restrict potential receptor locations to avoid a significant adverse air quality impact.

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

Appendix B
Draft Noise Methodology Memorandum

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Memorandum

To:	New York City Department of City Planning
From:	AKRF, Inc.
Date:	Revised March 15, 2023
Re:	MSK Pavilion Draft Noise Methodology Approach
cc:	Project Team

This memorandum presents a summary of the methodology and assumptions to be used for the operational noise analysis for the proposed Memorial Sloan Kettering (MSK) Pavilion project (the Proposed Project) located on 1233 York Avenue in Manhattan (Block 1461, Lot 21, the Development Site).

PROJECT DESCRIPTION

The Development Site is occupied by two adjoining buildings that occupy the entire frontage of the east side of York Avenue between East 66th and East 67th Streets. Both buildings are owned and occupied by Memorial Sloan Kettering Cancer Center (MSKCC) (the Applicant) and provide contract housing to its professional staff and students along with administrative space on lower floors.

In the future with the Proposed Actions (With Action condition), the Proposed Project would replace the existing Scholars and Sloan Residences buildings on Lot 21 with a new 31-story, approximately 901,193-gsf primarily inpatient hospital building for MSKCC's exclusive use.

A 263-space below-grade parking garage connects the Scholars and Sloan buildings to the adjacent Rockefeller Research Labs (RRL, Lot 13), also owned by the Applicant but not part of the Development Site. RRL would remain on the adjacent Lot 13 and a small portion of Lot 21 and there would be no redevelopment on that site other than modifications to the ground floor and below-grade garage, which would also provide a new connection to the MSK Pavilion and an exit onto East 67th Street.

The analysis year is 2030.

GENERAL NOISE ANALYSIS METHODOLOGY

This memorandum presents a summary of the proposed approach to the noise analysis for the Proposed Actions. Specifically, the proposed methodology includes the following:

- Selection of noise receptor locations;
- Establishment of existing ambient noise levels and traffic volumes and vehicle classifications;

- Determination of noise levels in the future with the Proposed Actions based on expected future changes in vehicular traffic volumes;
- Determination of whether there are any locations where there is the potential for the Proposed Actions to result in significant adverse noise impacts (i.e., doubling Noise Passenger Car Equivalents [PCEs]);
- Calculation of total future noise levels; and
- Determination of minimum necessary levels of building attenuation to provide acceptable interior noise levels at the development sites under guidelines contained in the 2021 *New York City Environmental Quality Review* (*CEQR) Technical Manual*.

SELECTION OF NOISE RECEPTOR LOCATIONS

As the first step in this process, a field visit was performed to identify potential noise receptor locations. According to AKRF's field observations, vehicular traffic, including buses, is the dominant noise source throughout the study area, although stationary sources (e.g., building HVAC equipment) contribute to existing noise levels.

A total of three receptor sites were selected for the noise analysis in the Project Area. The proposed noise receptor locations were selected based on the location of the project site and existing neighborhood characteristics (e.g., along major road corridors, bus routes, etc.).

NOISE MONITORING

AKRF plans to conduct a noise survey to measure existing noise levels at three locations in the project area. Traffic counts will be conducted for the roadway immediately adjacent to each receptor site during each noise level measurement. The noise receptor sites are shown in **Figure 1** and described in **Table 1**.

Table 1
Proposed Noise Measurement Locations

Site	Location
1	East 67th Street between York Avenue and First Avenue
2	York Avenue between East 66th and East 67th Streets
3	East 66th Street between York Avenue and First Avenue

At all receptor sites, 20-minute spot noise measurements will be conducted during the typical weekday AM (7:00 AM–9:00 AM), midday (12:00 PM–2:00 PM), pre-PM (2:30 PM – 4:00 PM), and PM (4:00 PM–6:00 PM) peak periods, approximately 5 feet above grade. Measurements will be performed according to noise measurement guidance contained in the *CEQR Technical Manual*. Weekday noise level measurements will only be collected between Tuesday and Thursday.

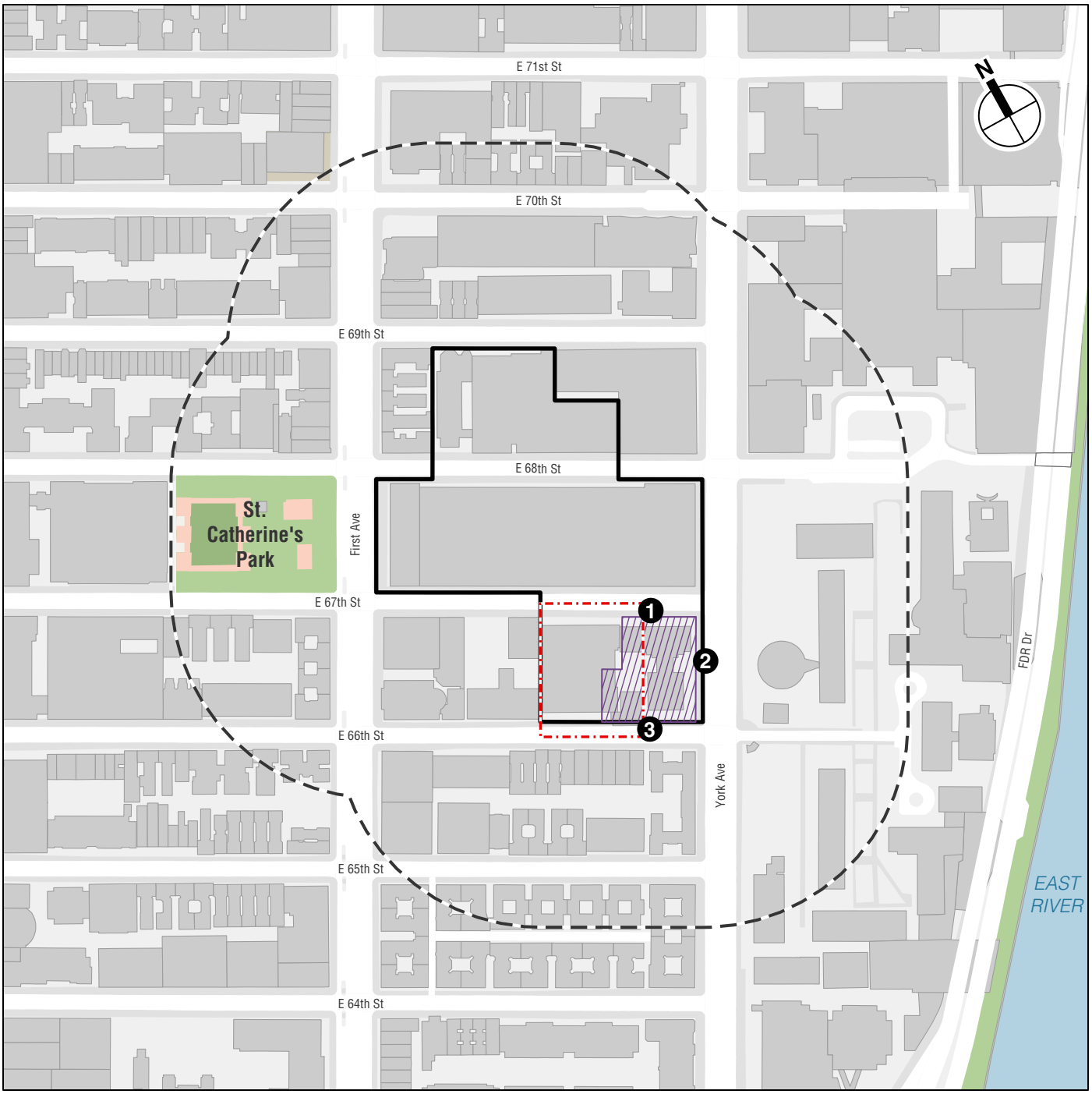
Measurements will be performed using Class 1 Sound Level Meter (SLM) instruments according to ANSI Standard S1.4-2014. The SLMs will have laboratory calibration dates within one year of the date of the measurements. All measurement procedures will be based on the guidelines outlined in ANSI Standard S1.13-2005.

As the project site is not within an existing 65 dBA DNL contour of an airport, it is not expected that aircraft noise will contribute substantially to the existing noise levels, and no adjustments to measured nose levels will be made to account for aircraft contributions.

NOISE PREDICTION METHODOLOGY

Future noise levels (including in the future without the Proposed Actions and the future with the Proposed Actions) will be estimated using a proportional modeling technique. The proportional modeling technique is an analysis methodology recommended in the *CEQR Technical Manual*. The selected time periods are when the Proposed Actions would be expected to result in the maximum traffic generation, and therefore result in the maximum potential for noise level increases.

12.15.22



Development Site

Proposed Rezoning Area

Project Area (LSCFD Boundary)

400-foot perimeter

1 *Noise Receptor*

0 200 FEET

Noise Receptor Locations

MSK PAVILION

Figure 1

PROPORTIONAL MODELING

Using the proportional modeling technique, the prediction of future noise levels where traffic is the dominant noise source is based on a calculation using existing noise levels and predicted changes in traffic volumes to determine No Action condition and With Action condition noise levels. Vehicular traffic volumes are converted into Noise Passenger Car Equivalent (Noise PCE) values, for which one medium-duty truck (having a gross weight between 9,900 and 26,400 pounds) is assumed to generate the noise equivalent of 13 cars, and one heavy-duty truck (having a gross weight of more than 26,400 pounds) is assumed to generate the noise equivalent of 47 cars, and one bus (vehicles designed to carry more than nine passengers) is assumed to generate the noise equivalent of 18 cars. Future noise levels are calculated using the following equation:

$F\ NL - E\ NL = 10 * \log_{10} (F\ PCE / E\ PCE)$

where:

F NL = Future Noise Level

E NL = Existing Noise Level

F PCE = Future Noise PCEs

E PCE = Existing Noise PCEs

Sound levels are measured in decibels and therefore increase logarithmically with sound source strength. In this case, the sound source is traffic volumes measured in Noise PCEs. For example, assume that traffic is the dominant noise source at a particular location. If the existing traffic volume on a street is 100 PCE and if the future traffic volume were increased by 50 PCE to a total of 150 PCE, the noise level would increase by 1.8 dBA. Similarly, if the future traffic were increased by 100 PCE, or doubled to a total of 200 PCE, the noise level would increase by 3.0 dBA.

FAÇADE NOISE ATTENUATION REQUIREMENTS

As shown in **Table 2**, the *CEQR Technical Manual* has set noise attenuation quantities for buildings based on exterior $L_{10(1)}$, L_{dn}, and DNL noise levels to maintain acceptable interior noise levels. Since vehicular traffic is the dominant source of noise at the project site, the acceptable interior noise level thresholds for the EIS noise analysis will be 45 dBA or lower for community facility areas, and 50 dBA for commercial office uses.

Table 2
Required Attenuation Values to Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Vehicular Traffic	$70 < L_{10} \leq 73$	$73 < L_{10} \leq 76$	$76 < L_{10} \leq 78$	$78 < L_{10} \leq 80$	$80 < L_{10}$
Aircraft[A]	$65 < DNL \leq 68$	$68 < DNL \leq 71$	$71 < DNL \leq 73$	$73 < DNL \leq 75$	$75 < DNL$
Train	$65 < L_{dn} \leq 68$	$68 < L_{dn} \leq 71$	$71 < L_{dn} \leq 73$	$73 < L_{dn} \leq 75$	$75 < L_{dn}$
Attenuation[B]	(I) 28 dBA	(II) 31 dBA	(III) 33 dBA	(IV) 35 dBA	See note [C]

Notes:
[A] DNL descriptor based on average values of L_{dn} over a year period.
[B] The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dBA less in each category. All the above categories require a closed window situation and hence an alternate means of ventilation.
[C] The required attenuation value is the difference between L_{build} and $L_{interior}$, using the appropriate noise descriptor
Where:
L_{build} is the projected noise level under the build condition rounded up to the whole number
$L_{interior}$ is the designed interior noise level (45 dBA for vehicular noise, 40 dBA for aircraft and train noise)
Source: New York City Department of Environmental Protection.

Minimum façade noise attenuation ratings required to maintain acceptable interior noise levels will be established based on projected noise levels in the future with the Proposed Actions as described above and shown in **Table 2**. Specifically, the future $L_{10(1)}$ noise levels will be used to determine minimum building façade attenuation required to maintain interior noise levels of 45 dBA or lower for community facility areas, and 50 dBA for commercial office uses at the project site.