15 Penn Plaza
Final Scope of Work for an Environmental Impact Statement

This document is the Final Scope of Work ("Final Scope") for the proposed 15 Penn Plaza Draft Environmental Impact Statement (DEIS). This Final Scope has been prepared to describe the proposed project, present the proposed framework for the EIS analysis, and discuss the procedures to be followed in the preparation of the DEIS. In accordance with the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR) procedures, a Draft Scope of Work ("Draft Scope") was prepared in accordance with those laws and regulations and the *CEQR Technical Manual* and distributed for public review. A public meeting was held on January 27, 2009 at Spector Hall, New York City Department of City Planning, 22 Reade Street, New York, NY 10007. Written comments were accepted from issuance of the Draft Scope through the public comment period, which ended February 11, 2009.

This Final Scope incorporates relevant comments made on the Draft Scope of Work and project updates that were made subsequent to publication of the Draft Scope, as well as additional analyses requested by the lead agency. Changes to the proposed project and impact assessment methodologies since the Draft Scope were issued are as follows:

- Programmatic and design changes as a result of ongoing consultation with the New York City Department of City Planning (DCP).
- In order to implement the proposed project's transit improvements, an additional discretionary action would be required. Easements would be required in order to facilitate the widening of the passageway under the south side of West 33rd Street.
- At the request of the lead agency, the scope of work has been expanded to include new analyses in the areas of greenhouse gas emissions, pedestrian wind, and the feasibility of distributed power systems integrated as part of the proposed project.

Deletions are not shown in this document. However, where relevant and appropriate, new text and editorial changes to the Draft Scope have been incorporated into the Final Scope and are indicated by double-underlining.

A. INTRODUCTION

The applicants, 401 Commercial LP and 401 Hotel REIT LLC, propose to redevelop the current site of the Hotel Pennsylvania (Block 808, Lots 1001 and 1002, or the "development site") on Seventh Avenue between West 32nd and West 33rd Streets adjacent to Penn Station in Manhattan with a new commercial office building—a redevelopment project known as 15 Penn Plaza. To provide the applicants with the flexibility to respond to market conditions, two options are proposed—a Single-Tenant Office Scenario and a Multi-Tenant Office Scenario. Both scenarios would consist of a new commercial office tower located above a podium base suitable for trading uses and new below-grade mass transit improvements. The Multi-Tenant Office Scenario would also accommodate retail uses in the podium base.

In order to develop this proposed project (either scenario), certain discretionary approvals are required from the New York City Planning Commission (CPC). Thus, the proposed project is subject to environmental review under SEQR and CEQR regulations and guidelines. DCP will act as the CEQR lead agency for this proposal. Approvals from the Metropolitan Transportation Authority (MTA)/New York City Transit (NYCT), Port Authority of New York and New Jersey (PANYNJ), and Amtrak are required for the design and maintenance of the below-grade mass transit improvements. In addition, subsurface easements may be requested from Amtrak for building support columns. Approvals from NYCT, PANYNJ, and Amtrak would be ministerial and would not be subject to any additional environmental review.

Development of the proposed project may potentially result in significant adverse environmental impacts, requiring that an Environmental Impact Statement (EIS) be prepared. Scoping is the first step in the EIS preparation and 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 final EIS scope has been prepared to describe the two proposed scenarios, present the proposed framework for the EIS analysis, and discuss the procedures to be followed in the preparation of the Draft EIS (DEIS). The *City Environmental Quality Review (CEQR) Technical Manual* will serve as a general guide on the methodologies and impact criteria for evaluating both scenarios' potential effects on the various environmental areas of analysis.

B. PROJECT DESCRIPTION AND PURPOSE AND NEED

DEVELOPMENT AND PROJECT SITES

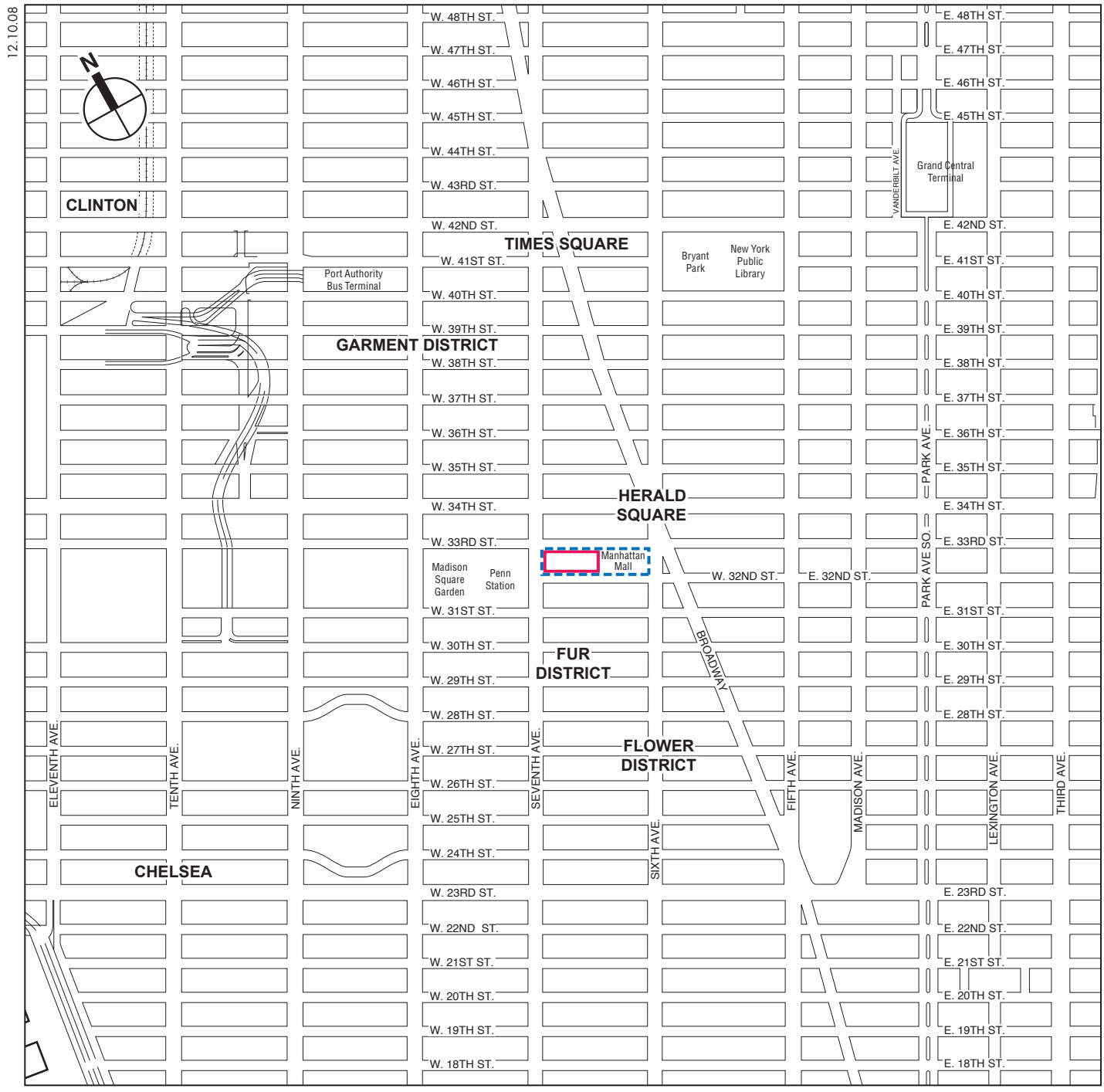
The development site consists of the western half of the block (Block 808, Lots 1001 and 1002) bounded by Seventh Avenue on the west, West 33rd Street on the north, Sixth Avenue on the east, and West 32nd Street on the south (see **Figure 1**). The 1,700-room Hotel Pennsylvania currently occupies the development site. In addition to the hotel uses within the Hotel Pennsylvania, the development site contains additional commercial uses, including approximately 46,400 gross square feet (gsf) of ground-floor retail space with frontage on Seventh Avenue and on West 32nd and West 33rd Streets.[1]

The development site is located partly within a C6-6 zoning district and partly within a C6-4.5 zoning district (see **Figure 2**), and is also partially located within the Penn Center Subdistrict of the Special Midtown District (see **Figure 3**).

The remainder of the block (the eastern half, or Lot 40 of Block 808) is occupied by the Manhattan Mall. The development site and the Manhattan Mall site will be merged into a single zoning lot under both development scenarios (the project site). The development site is owned by 401 Commercial LP and 401 Hotel REIT LLC. The Manhattan Mall site is owned by VNO 100 West 33rd Street LLC. These entities are controlled by Vornado Realty Trust.

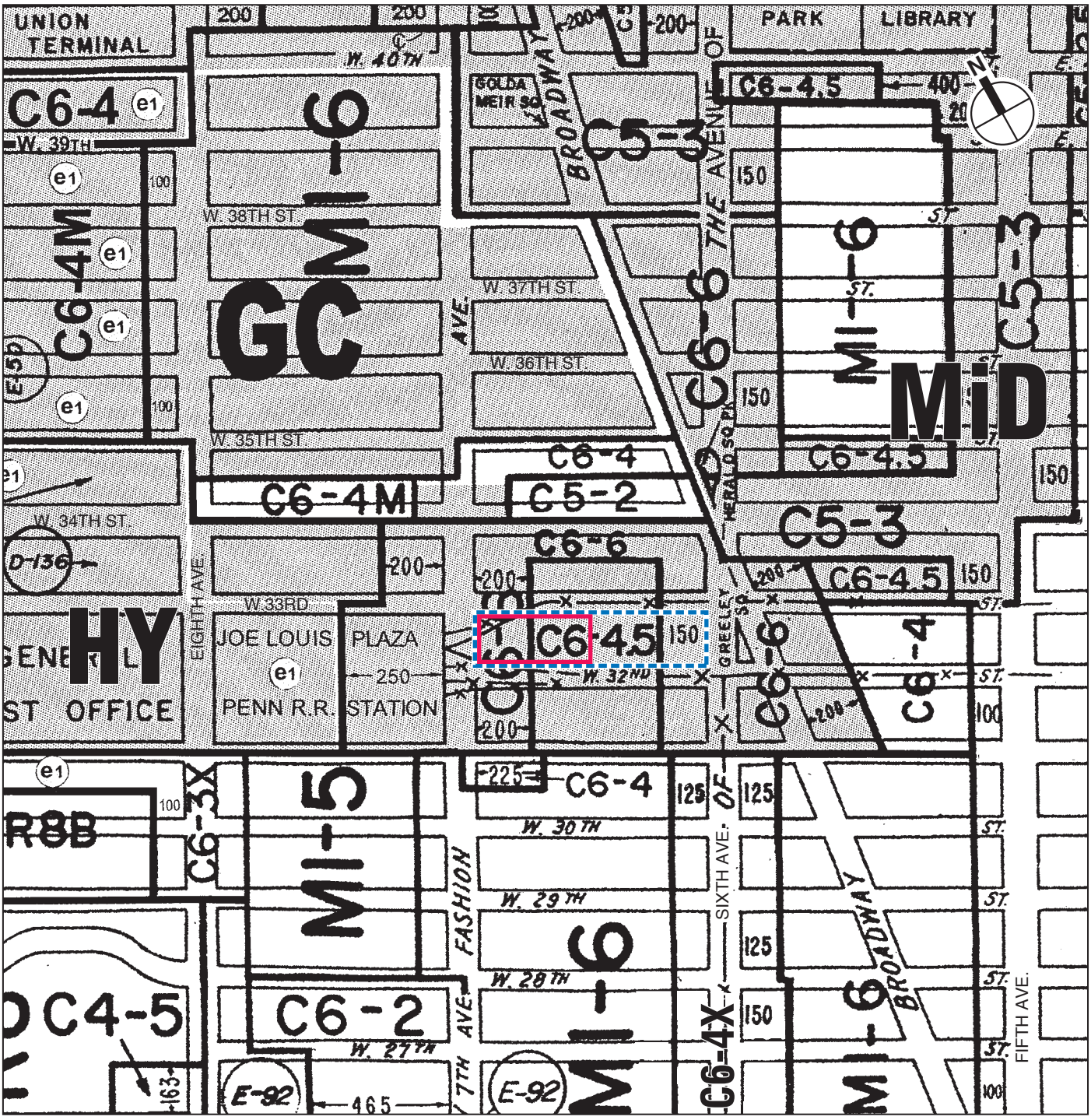
As discussed below (see "Analysis Framework"), underlying zoning would support an as-of-right building (or "No Action building") of approximately 1.15 million zoning square feet (zsf) on the development site. Absent the proposed actions, the applicants will redevelop the development site with a retail/commercial No Action building.

[1] As part of ongoing operations associated with the hotel, some or all of the ground-floor retail space may be renovated and tenanted; these as-of-right renovations may include alterations to the building's façade at the hotel's entry and along the ground-floor retail frontages. No increase in the total square footage will occur.



Project Location
Figure 1

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Development Site

Project Site Boundary

Zoning District Boundary

Special Purpose District

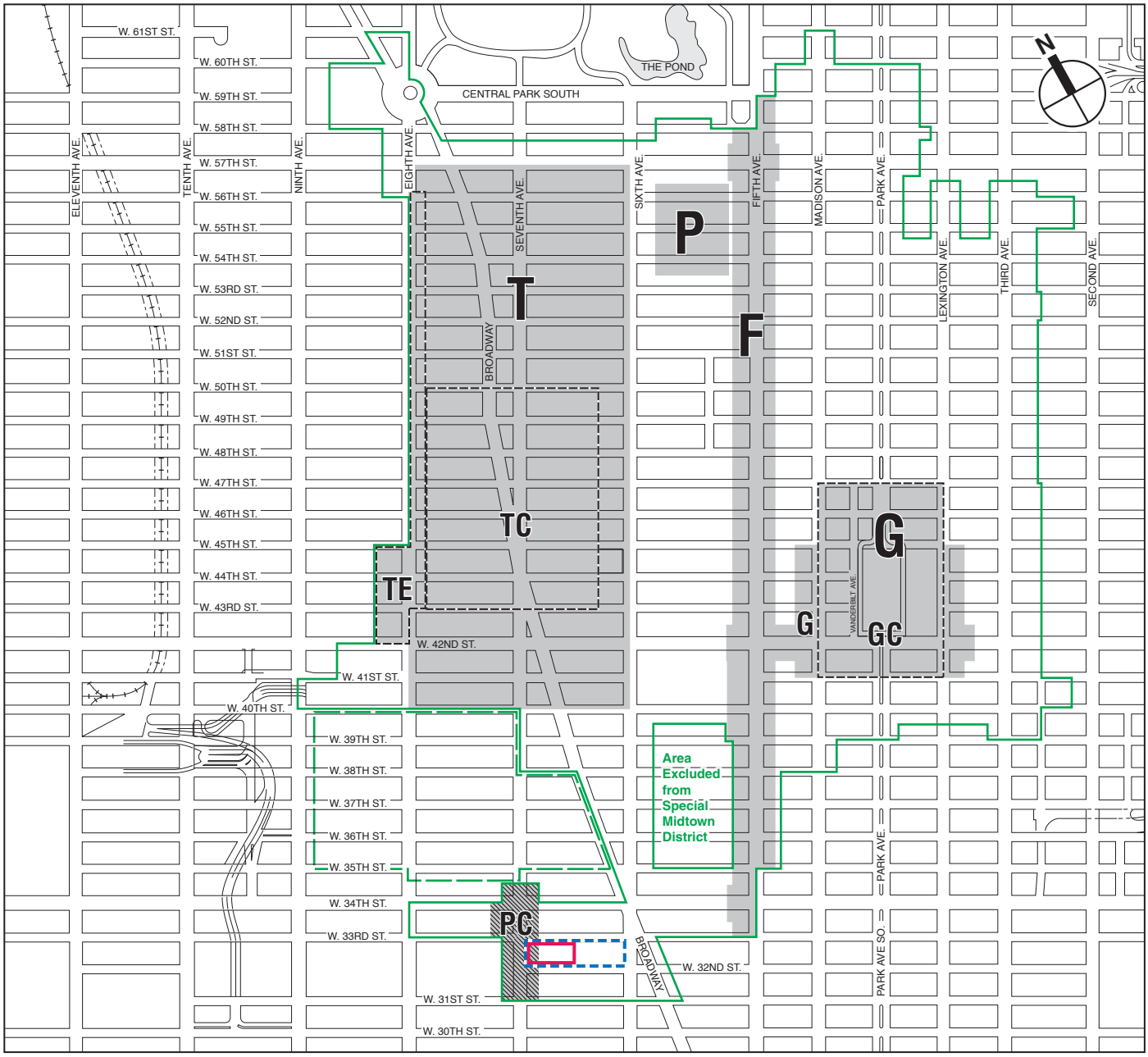
MiD *Special Midtown District*

HY *Special Hudson Yards District*

GC *Special Garment Center District*

Existing Zoning
Figure 2

12.10.08



- Development Site
- Project Site Boundary
- Special Garment Center District Boundary
- Special Midtown District Boundary
- PC — Penn Center Subdistrict
- F — Fifth Avenue Subdistrict
- G — Grand Central Subdistrict
- P — Preservation Subdistrict
- T — Theater Subdistrict
- GC — Grand Central Subdistrict Core
- TC — Theater Subdistrict Core
- TE — Theater Subdistrict Eighth Avenue Corridor

Special Midtown District
Figure 3

PROPOSED PROJECT/REASONABLE WORST-CASE DEVELOPMENT SCENARIO

To provide the applicants with the flexibility to respond to market conditions, two options are proposed to be analyzed in the EIS—a Single-Tenant Office Scenario and a Multi-Tenant Office Scenario. Both scenarios would consist of new commercial office space located above a podium base, and both scenarios would include new below-grade mass transit improvements. Each scenario would result in a different building on the development site.

Table 1 provides a summary of both the Single-Tenant Office and Multi-Tenant Office Scenarios. Both scenarios are discussed in more detail in the following sections.

Table 1
Proposed Building Program:
Single-Tenant Office Scenario and Multi-Tenant Office Scenario

Project Components	Single-Tenant Office Scenario		Multi-Tenant Office Scenario	
	zsf	gsf	zsf	gsf
Commercial Office	1,396,481	1,534,594	1,723,371	1,893,814
Trading Floor Use	310,180	340,857	--	--
Retail	11,126	18,266	296,392	361,711[1]
Mechanical Space	--	418,395	--	307,180
Lobby Area, Amenity Space, Service, and Loading Areas	334,880	509,071	32,904	97,131
Total Building Square Footage	2,052,667	2,821,183	2,052,667	2,659,836

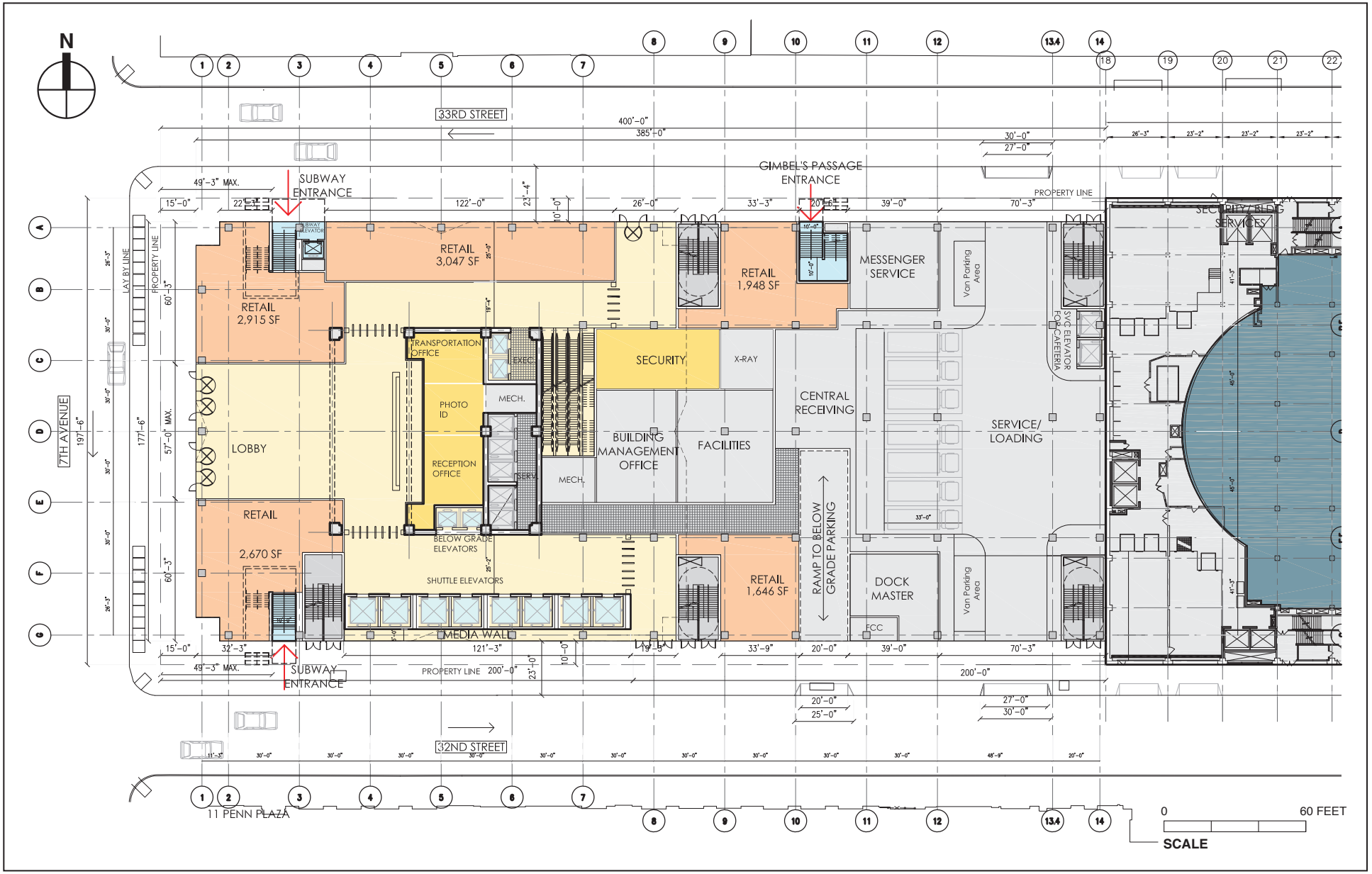
Note: Both scenarios would include up to 100 accessory parking spaces in place of a portion of the below-grade service area.
zsf = zoning square feet; gsf = gross square feet
1. In the Multi-Tenant Office Scenario, up to 194,442 zsf (or 211,941 gsf) of this retail space could be utilized for trading uses.
Source: Pelli Clarke Pelli Architects.

SINGLE-TENANT OFFICE SCENARIO

The Single-Tenant Office Scenario would consist of a commercial office building of approximately 2.8 million gross square feet (gsf) (2.05 million zsf), with floorplates in the podium of a sufficient size to accommodate trading operations. When complete, the Single-Tenant Office Scenario would include approximately 1.53 million gsf of office space and five floors within the building's podium base that would accommodate trading floor use totaling 340,857 gsf; 18,266 gsf of retail use fronting on Seventh Avenue and on West 32nd and 33rd Streets; 509,071 gsf of building amenity, lobby, service and loading area space; and approximately 418,395 gsf of mechanical space. A portion of the below grade service area would potentially include 100 below-grade accessory parking spaces.

The main entrances to the office and trading floor use would be on Seventh Avenue, with secondary entrances on both West 32nd and West 33rd Streets (see **Figure 4**). The first 10 floors of the proposed building, including the mezzanine floor, would occupy the entire project site and rise to a maximum height of approximately 218 feet. Above this, the tower portion of the building would be set back before rising to a total height of approximately 1,191 feet to the top of the screen proposed to screen the building's rooftop mechanical uses (see **Figure 5**).

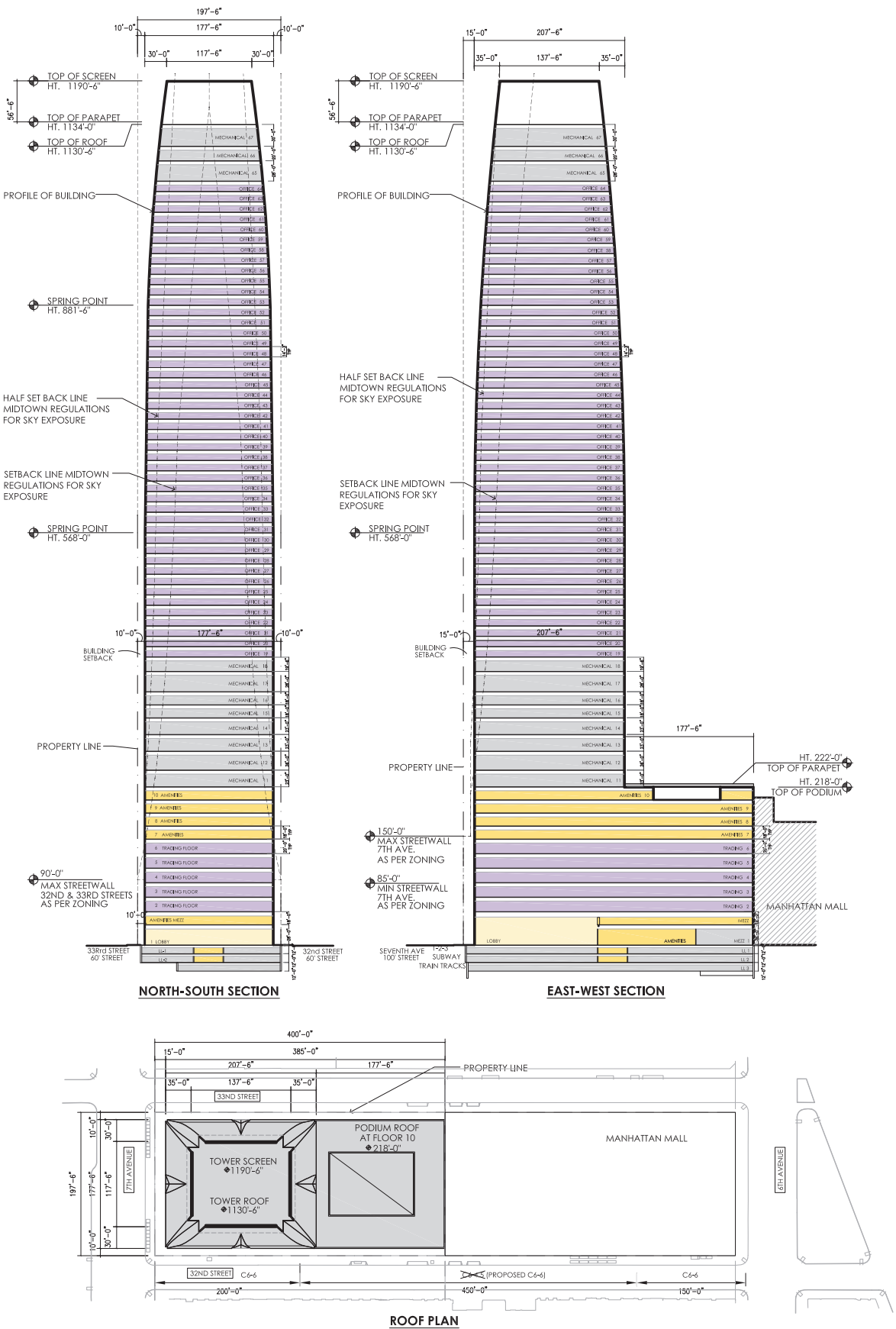
The Single-Tenant Office Scenario would have higher mechanical space requirements than found in a typical office use because it would contain office space suitable for trading floor use. Trading activities rely heavily on computers and other information technology, which requires a significant allocation of space for high-technology equipment and redundant backup systems. Trading activities also require substantially enhanced electrical power (up to four times that



Source: Pelli Clarke Pelli Architects

NOTE: The interior retail uses as dimensioned, the pedestrian circulation spaces and the subway entrances are part of the approvals; other interior spaces are shown for illustrative purposes only

Single-Tenant Office Scenario
Ground Floor Plan
Figure 4



Single-Tenant Office Scenario
Illustrative Building Section
Figure 5

required for typical office use, which must be 100 percent uninterrupted and 100 percent redundant [emergency back-up] 24 hours a day, 7 days a week, 365 days a year), 100 percent redundant mechanical and telecommunications systems, and 24-hour air conditioning. To permit installation and servicing of the necessary equipment and to allow for flexibility to reconfigure the equipment needs, the layout must provide the necessary separation of the technical support equipment and the trading floor operations. Overall, this requirement results in a much larger allocation of mechanical space than found in a typical office use.

The service and loading area for the Single-Tenant Office Scenario would be located at the eastern portion of the development site and would consist of a through-block area extending from West 32nd to West 33rd Street.

MULTI-TENANT OFFICE SCENARIO

The Multi-Tenant Office Scenario would consist of an approximately 2.66 million gsf (2.05 million zsf) commercial office building with a base consisting of retail or a combination of retail and trading floor uses. When complete, the Multi-Tenant Office Scenario would include approximately 1.89 million gsf of commercial office use, 361,711 gsf of retail use in the building's podium (of which up to 211,941 gsf on three floors alternatively could be used for trading uses), 307,180 gsf of mechanical space, and 97,131 gsf of building amenity, lobby, and service and loading area space. Like the Single-Tenant Office Scenario, a portion of the below-grade service area would potentially include 100 below-grade accessory parking spaces.

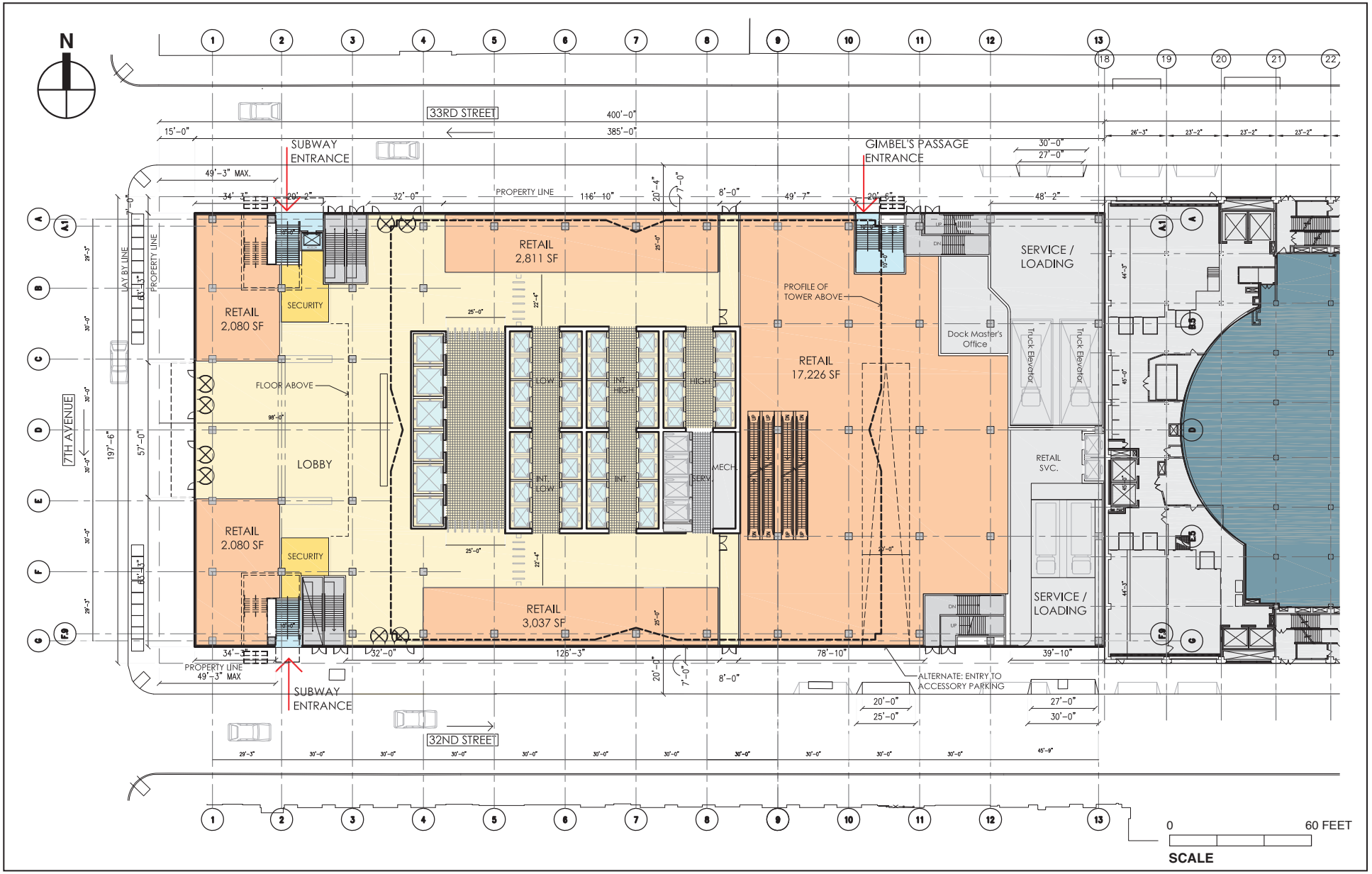
The main entrance to the office use would be on Seventh Avenue, with additional entrances on West 32nd and West 33rd Streets (see **Figure 6**). Retail uses would be located on the ground floor, one below-grade floor, and an additional two floors above the ground floor, for a total of four retail floors (see **Figure** 7). The building's podium would also contain an additional three floors that could be used for either additional retail space or for trading uses; the podium would rise to a height of approximately 130 feet. The office tower would be set back above the podium and would rise to a total height of approximately 1,216 feet, including mechanical area and a screen to hide the mechanical uses.

The Multi-Tenant Office Scenario would have substantial mechanical space requirements to provide space for high-technology equipment and redundant backup systems for the potential trading floor use (although the requirements would be less than with the Single-Tenant Office Scenario since less area suitable for trading floor use would be provided). As detailed above, trading activities require substantially enhanced electrical power, 100 percent redundant mechanical and telecommunications systems, and 24-hour air conditioning.

The service and loading area for the Multi-Tenant Office Scenario would be divided into two separate areas. The service and loading area for the retail uses would be located on West 32nd Street at the eastern edge of the development site. The service and loading area for the commercial office use would be located on West 33rd Street and would consist of truck elevators that would bring trucks to a below-grade service area.

MASS TRANSIT IMPROVEMENTS

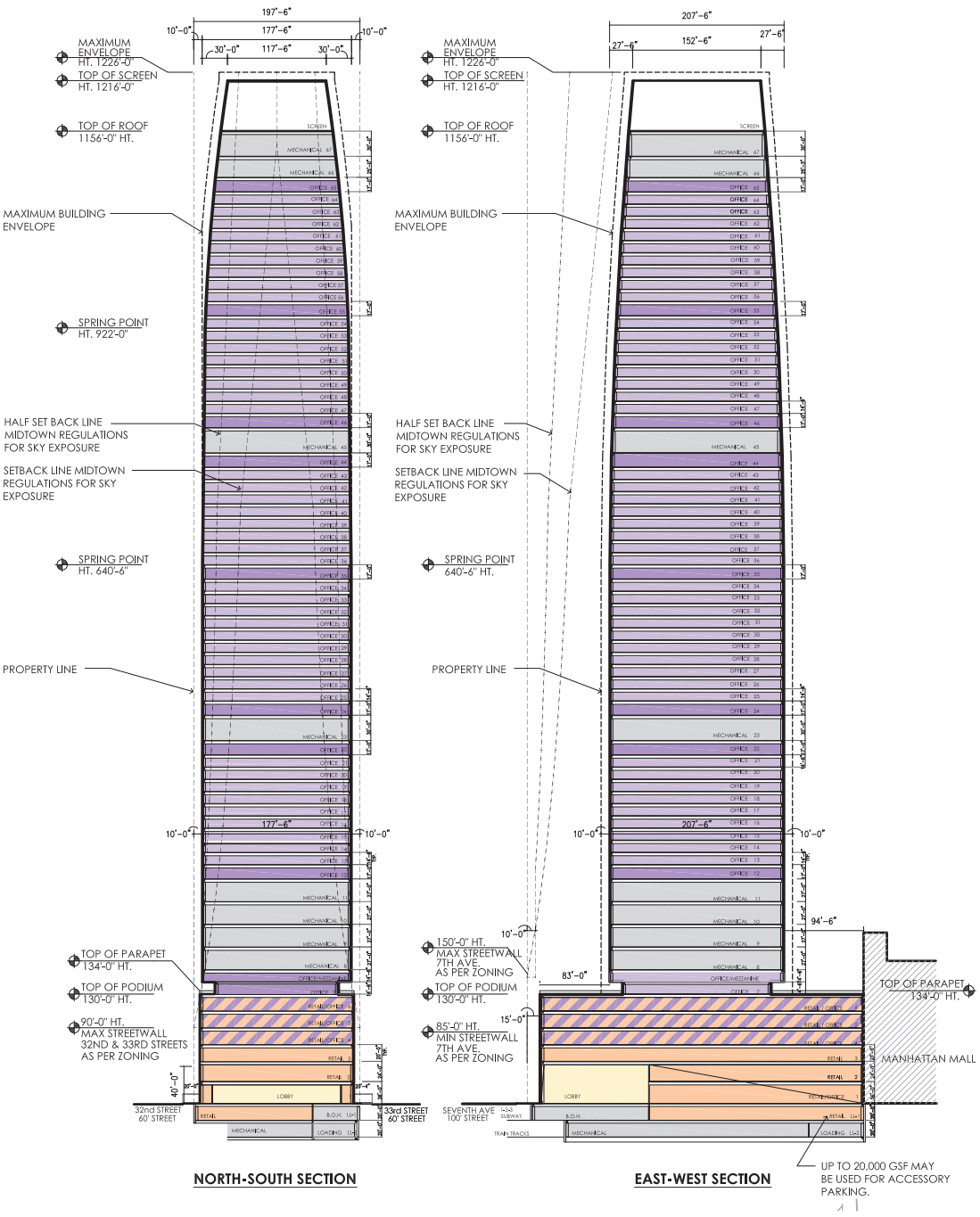
Both scenarios would relocate and significantly upgrade the existing subway entrances on West 32nd and West 33rd Streets and would undertake significant mass transit improvements, including the re-opening and renovating of the passageway under the south side of West 33rd



Source: Pelli Clarke Pelli Architects

NOTE: The interior retail uses as dimensioned, the pedestrian circulation spaces and the subway entrances are part of the approvals; other interior spaces are shown for illustrative purposes only

Multi-Tenant Office Scenario
Ground-Floor Plan
Figure 6



Source: Pelli Clarke Pelli Architects

Multi-Tenant Office Scenario
Illustrative Building Section
Figure 7

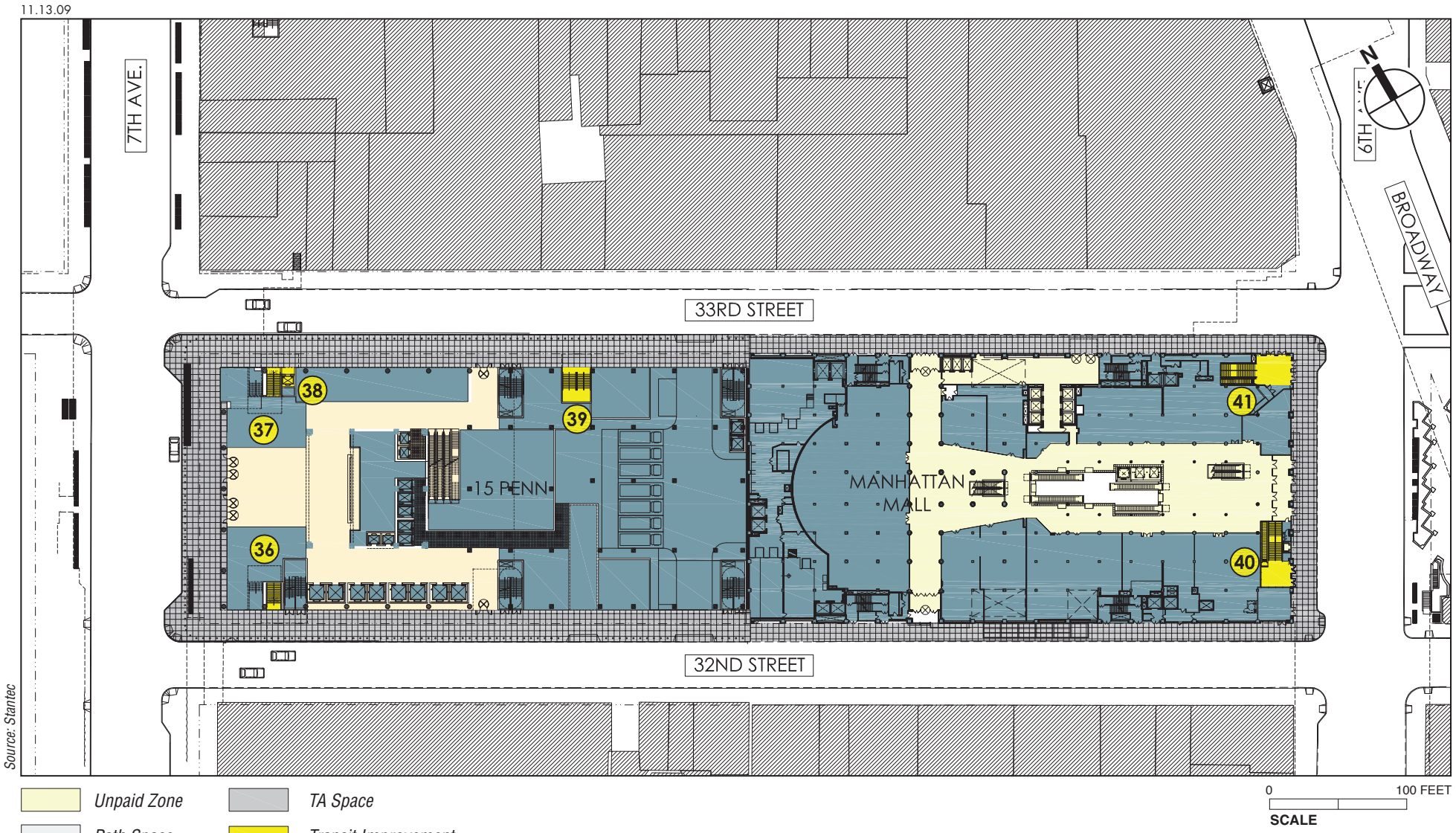
Street (39)[1] (see **Figures 8, 9, and 10**). The renovated passageway would be widened to accommodate pedestrian flows between Penn Station/the Seventh Avenue subway lines (1, 2, and 3) and the Sixth Avenue subway lines (B, D, F, N, Q, R, V, and W) and the Port Authority Trans Hudson (PATH) station, improving pedestrian circulation on the street-level sidewalks. The passageway would provide an alternative to pedestrians traveling along the 33rd Street corridor. In addition, both scenarios would improve several subway stairways and control areas serving the Seventh Avenue line, the Sixth Avenue line, the Broadway line, and PATH. Specifically, these transit improvements would include:

- Widening the stair from the Seventh Avenue southbound local platform to the 32nd Street underpass (21);
- Building a new stairway to the center platform from the 32nd Street/Seventh Avenue underpass (25);
- Widening the Seventh Avenue northbound local platform between West 32nd and West 33rd Streets by six feet (26);
- Building new subway entrances at Seventh Avenue and West 32nd Street and Seventh Avenue and West 33rd Street, each of which would include a 10-foot-wide set of stairs through the proposed building (36 and 37);
- Constructing a new street elevator at the Seventh Avenue and West 33rd Street entrance (38);
- Widening the Sixth Avenue and West 32nd Street PATH entrance stairs by 10 feet, and adding one escalator (40);
- Constructing one escalator at the Sixth Avenue and West 33rd Street subway entrance (41);
- Constructing a 10-foot staircase from the PATH to the B, D, F, and V platform near West 32nd Street (44);
- Constructing a 15-foot staircase from the PATH to the B, D, F, and V platform near West 33rd Street (45); and
- Reconfigure fare control area to accommodate new stairs (44 and 45) from the PATH to B, D, F, and V platforms (51a).

SUSTAINABLE DESIGN

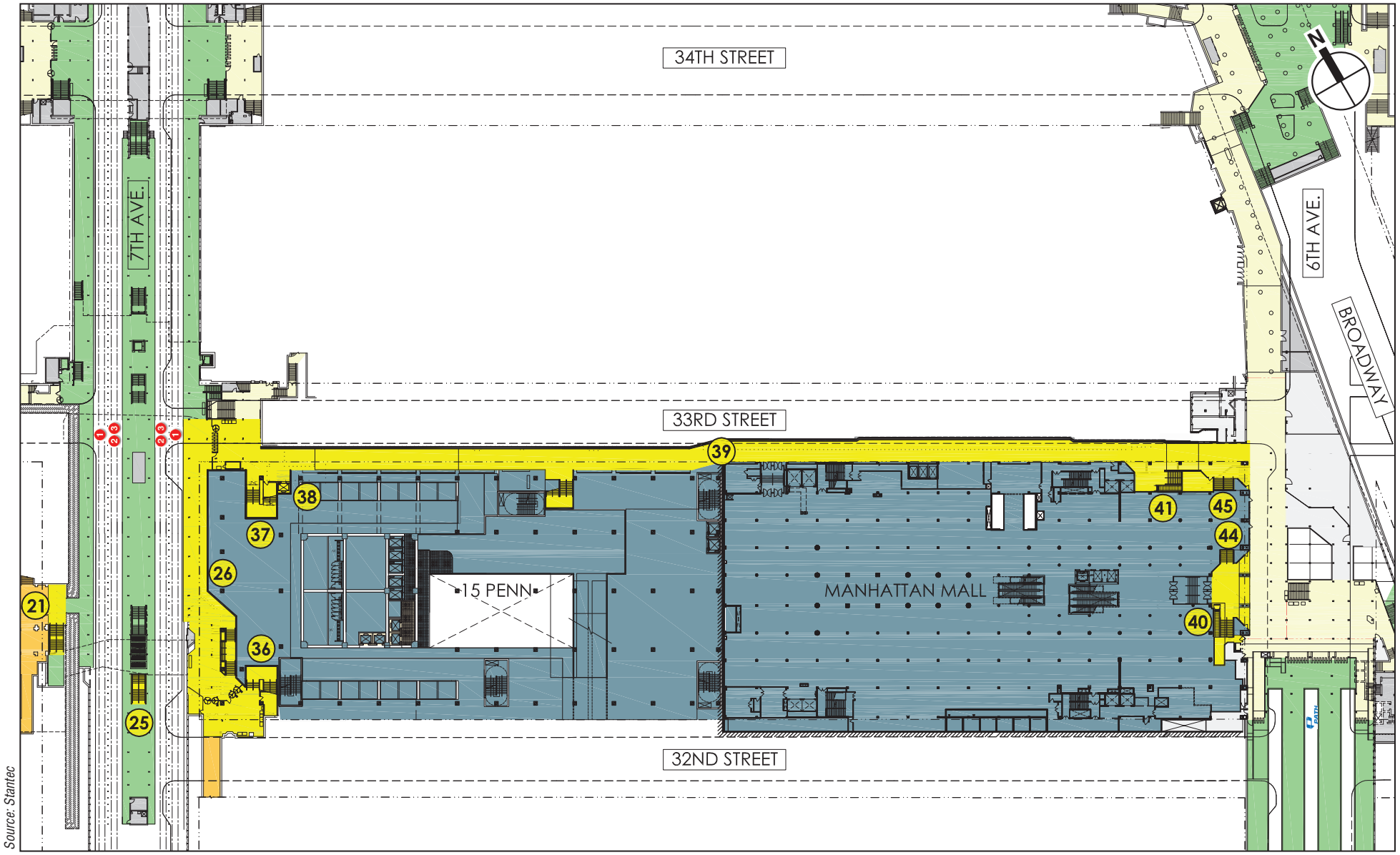
Both scenarios are currently being designed to incorporate "green" building elements that would achieve, if not exceed, the guidelines outlined by the Leadership in Energy and Environmental Design (LEED) Certification by the United States Green Building Council (USGBC). While a LEED rating is only obtained after a building is completed, the project would be filed with the USGBC during the design phase to obtain a LEED rating. The possible levels of scoring are Certification, Silver, Gold, and Platinum. The scoring is based on achieving points in six categories: sustainable sites, water efficiency, energy and atmosphere, indoor environmental quality, materials and resources, and innovation. It is currently estimated that the proposed building (either scenario) would achieve the LEED Silver rating.

[1] The numbers in parentheses in this section correspond to Figures 9a, 9b, and 9c.



Proposed Mass Transit Improvements
Street Level
Figure 8

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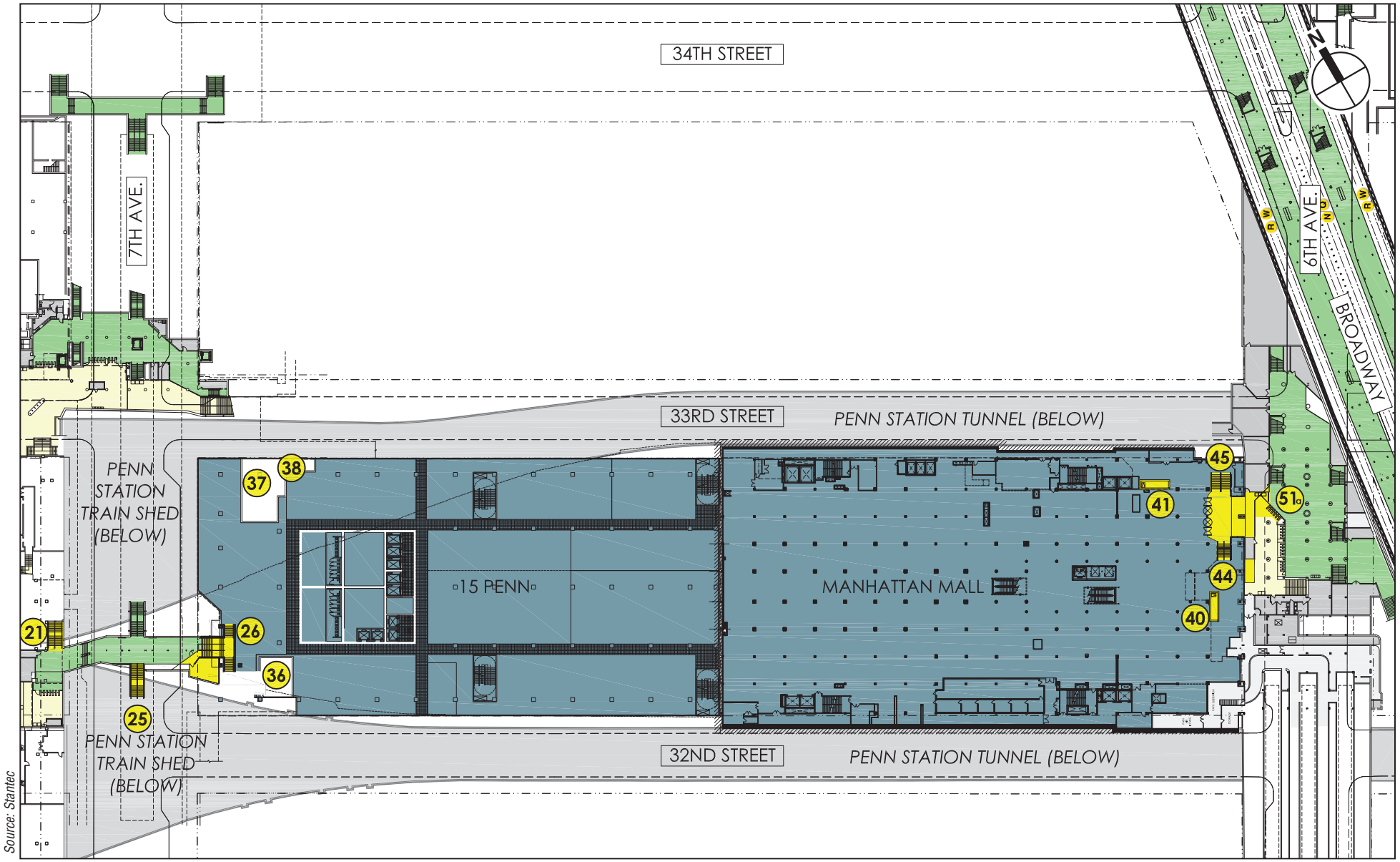
Source: Stantec

0 100 FEET
SCALE

Unpaid Zone
Path Space
Paid Zone
Building Space
TA Space
Transit Improvement Area of Work
Transit Improvement Scope Item Number

Proposed Mass Transit Improvements
Lower Level 1
Figure 9

11.13.09



Source: Stantec

Unpaid Zone
Path Space
Paid Zone
Building Space
TA Space
Transit Improvement Area of Work
Transit Improvement Scope Item Number

0 100 FEET
SCALE

Proposed Mass Transit Improvements
Lower Level 2
Figure 10

PROJECT PURPOSE AND NEED

The development of either scenario would provide modern Class A commercial office space to accommodate Manhattan's long-term growth. Both scenarios would have large floorplates in the podium portion of the building to accommodate trading uses and in the office tower portion to attract a major corporate tenant or multiple commercial office tenants. The availability of such space in a central Manhattan location well served by existing transit services would enhance significantly the likelihood of corporate office tenants remaining in or relocating to, and expanding in, New York City.

Development of the project (either scenario) would result in increased employment opportunities across all economic levels and increased tax revenues for the City and State. In addition to the economic growth associated with the commercial uses proposed for the development site, both scenarios would result in substantial benefits for the public by providing new mass transit improvements, specifically, improved access to and circulation within the Seventh Avenue, Sixth Avenue, and PATH complexes, and a renovated passageway that would be reopened to the public. The passageway, located underneath the south sidewalk of West 33rd Street, would connect Penn Station to the Herald Square subway complex, allowing below-grade pedestrian circulation to and from Penn Station and the east.

C. REQUIRED ACTIONS AND ENVIRONMENTAL REVIEW

PROPOSED ACTIONS

The actions necessary to facilitate development of the proposed project (either scenario) are as follows:

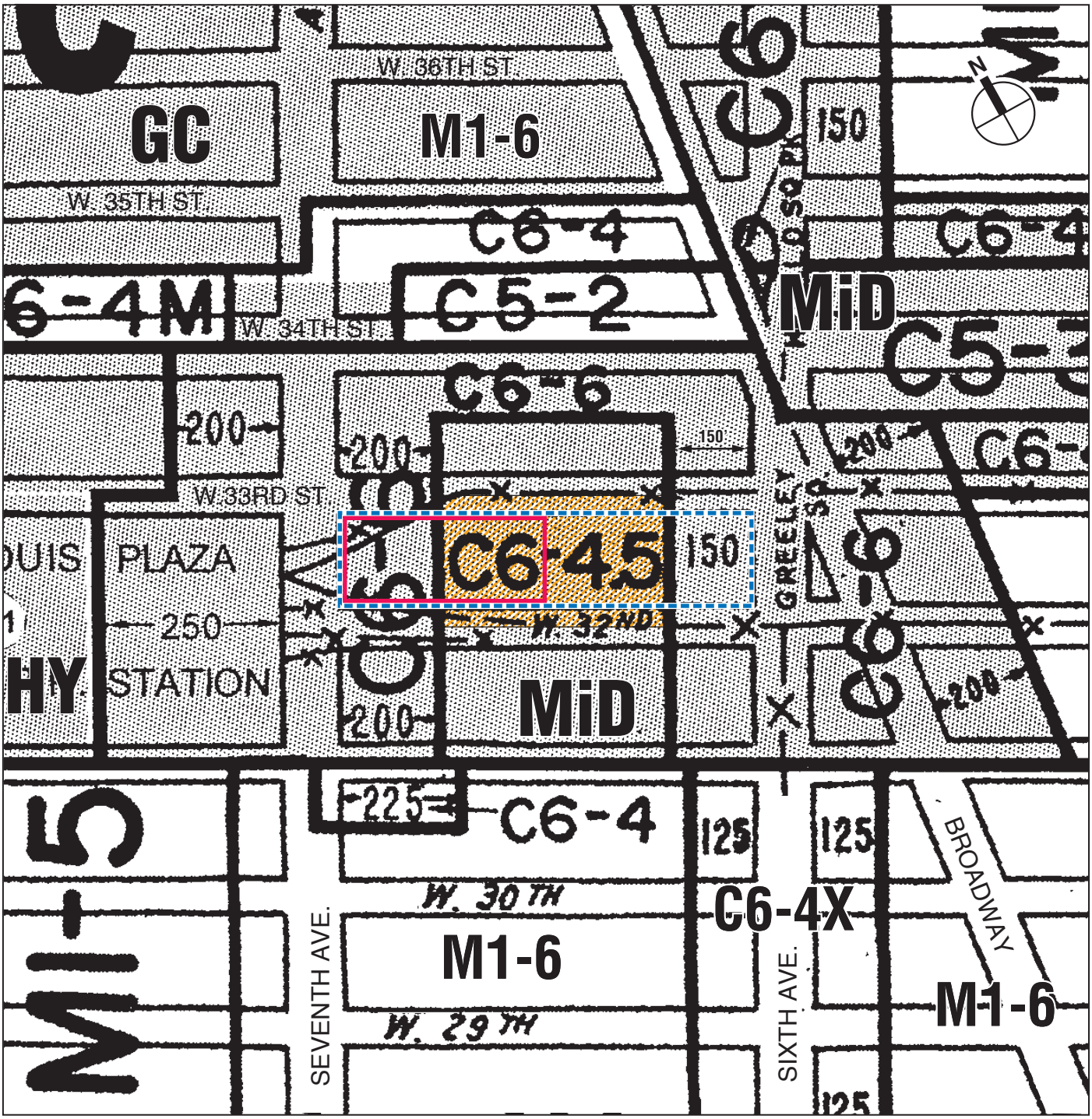
ZONING MAP AMENDMENT

- Zoning map amendment to rezone a C6-4.5 (MiD) zoning district to a C6-6 (MiD) zoning district (see **Figures 11** and **12**). As shown in **Figure 11**, the rezoning area consists of the midblock area of the project site and would apply to the eastern half of the development site and the western portion of the Manhattan Mall site. Specifically, the rezoning area would cover the portion of the project site 200 feet east of Seventh Avenue to 150 feet west of Sixth Avenue. **Figure 12** shows the proposed zoning.

  C6 commercial districts permit a wide range of high-density commercial uses requiring a central location, such as corporate headquarters, large hotels, entertainment facilities, retail stores, and high-rise residences.

  The C6-4.5 district is mapped only within the Special Midtown District. Commercial and community facility development is permitted to a maximum floor area ratio (FAR) of 12.0 (14.4 with bonus), and residential development is permitted to 12.0 FAR. Within C6-6 commercial districts, commercial and community facility development is permitted to 15.0 FAR (18.0 with inclusion of an urban plaza), and residential development is permitted to a maximum FAR of 12.0.

  While the proposed rezoning would apply to portions of both the development site and the Manhattan Mall site, the additional floor area generated by the rezoning (270,000 zsf) would be used in the development of the proposed project (either the Single-Tenant Office Scenario or the Multi-Tenant Office Scenario) on the development site. No changes to the Manhattan Mall would occur, and no redevelopment of the Manhattan Mall site is proposed.



Development Site

Project Site Boundary

Area to be Rezoned from C6-4.5 to C6-6

Zoning District Boundary

Special Purpose District

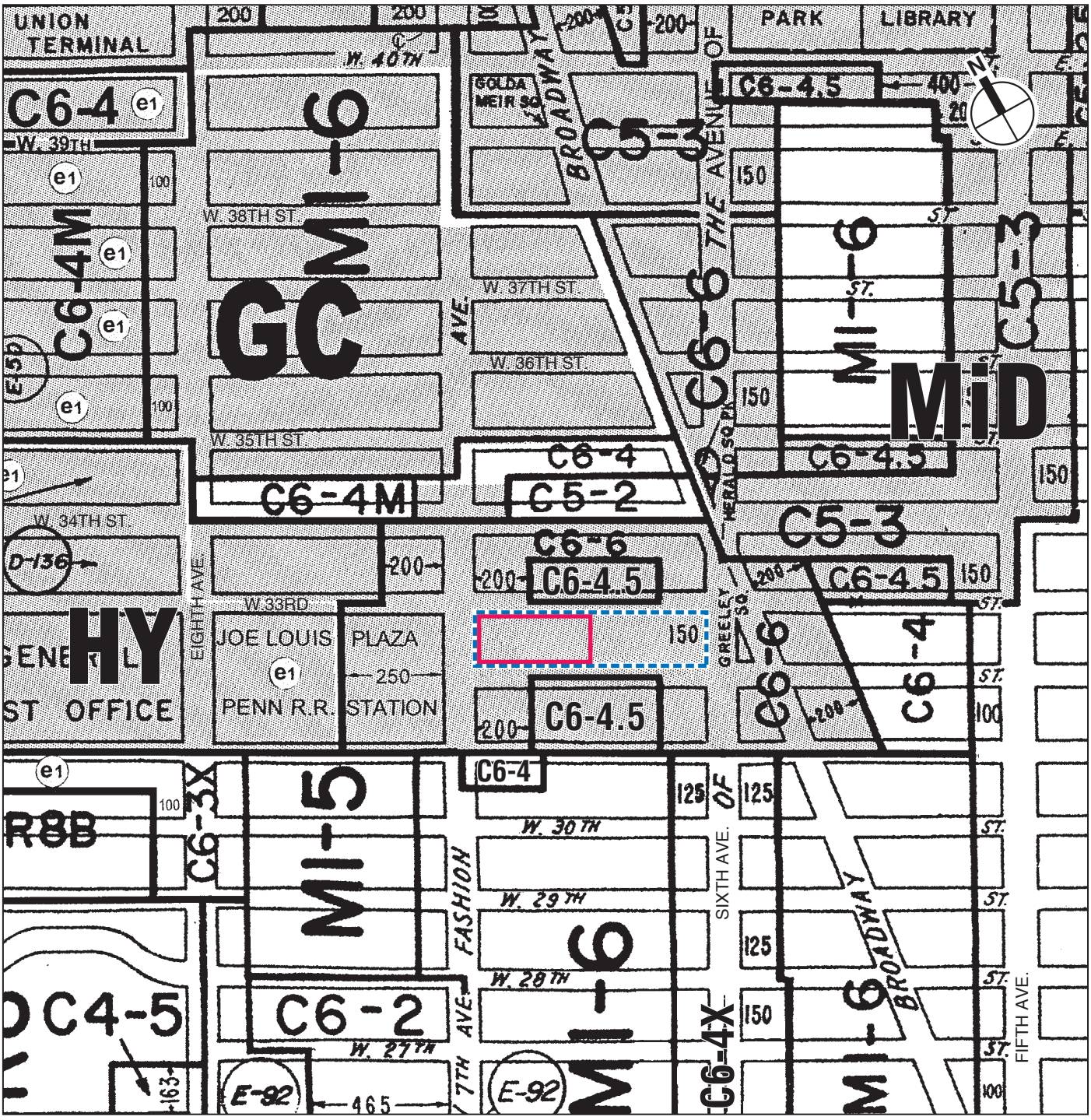
MiD *Special Midtown District*

HY *Special Hudson Yards District*

GC *Special Garment Center District*

Rezoning Area
Figure 11

11.13.09



Development Site

Project Site Boundary

Zoning District Boundary

Special Purpose District

MiD *Special Midtown District*

HY *Special Hudson Yards District*

GC *Special Garment Center District*

Proposed Zoning
Figure 12

The proposed uses for the project (both scenarios) are permitted under existing zoning; there would be no change in permitted use with the proposed rezoning.

ZONING TEXT AMENDMENTS

- Zoning text amendment to modify or create a special permit within the Special Midtown District that would allow the modification of height and setback regulations, pedestrian circulation space, and certain of the Mandatory District Plan elements of the district. It is anticipated that the area affected by the text amendment would be limited to zoning lots partially or fully within the Penn Center Subdistrict of the Special Midtown District.

  As shown in **Figure 3**, the Penn Center Subdistrict generally extends to a depth of 100 feet along both sides of the Seventh Avenue frontage between West 31st Street and midblock between West 34th Streets and West 35th Streets, except for the block between West 33rd and West 34th Streets, where the subdistrict extends 200 feet to the west of Seventh Avenue. The Penn Center Subdistrict was established in October 2001. Special provisions were created for signs, retail frontage, and street walls as a means of establishing the subdistrict as a destination; enhancing its retail, entertainment, and commercial character; and expanding accessibility to its transportation network.
- Zoning text amendment to revise the administrative process for obtaining approvals from the multiple transit operating entities involved in rail mass transit facility improvements in the Penn Center Subdistrict.
- A zoning text amendment to provide that any bonus floor area for completed mass transit improvements that is not utilized in the new office tower would be vested and available for use elsewhere on the zoning lot subject to any applicable review and approval process for such development or enlargement.

The zoning text amendments would generally apply to sites located wholly or partially within the Penn Center Subdistrict, and certain of the amendments could therefore affect more than just the development site. Therefore, a conceptual analysis will be undertaken to identify such sites and to assess the potential effects of the amendments (see Task 25, "Conceptual Analysis").

SPECIAL PERMITS

- Special permit to modify bulk regulations and Mandatory District Plan Elements (e.g., pedestrian circulation space, retail continuity, and location of streetwall) pursuant to the proposed zoning text amendment described above.
- Special permit pursuant to Sections 81-541 and 74-634 of the Zoning Resolution for a floor area bonus of up to 20 percent of the basic maximum floor area ratio permitted on the project site in exchange for a Subway Station and Rail Mass Transit Facility Improvement.

  This 20 percent bonus for mass transit improvements would permit an additional 474,000 zsf of floor area to be developed on the development site. For a description of the proposed mass transit improvements, see "Mass Transit Improvements," above.

EASEMENTS

- The City of New York (acting through the New York City Department of Citywide Administrative Services [DCAS]) would need to acquire easements underneath the development and Manhattan Mall sites in order to widen the passageway under the south side of West 33rd Street to accommodate pedestrian flows between Penn Station, the Sixth

and Seventh Avenue subway lines, and the Port Authority Trans Hudson (PATH) station. DCAS would be the applicant for the easement acquisitions.

OTHER APPROVALS

Approvals from NYCT, PANYNJ, and Amtrak would also be required for the design and maintenance of the below-grade mass transit improvements. In addition, subsurface easements may be requested from Amtrak for building support columns. Approvals from NYCT, PANYNJ, and Amtrak would be ministerial and would not be subject to any additional environmental review.

ANALYSIS FRAMEWORK FOR ENVIRONMENTAL REVIEW

In disclosing impacts, the EIS considers a proposed project's potential adverse impacts on the environmental setting. Because the proposed project (either scenario) would be operational in 2014, its environmental setting is not the current environment, but the future environment. Therefore, the technical analyses and consideration of alternatives assess current conditions and forecast these conditions to 2014 for the purposes of determining potential impacts. The DEIS will provide a description of "Existing Conditions" for the 2008 analysis year and assessments of future conditions without the proposed project in 2014 (the "No Action" condition) and the future with the proposed project.

FUTURE WITHOUT THE PROPOSED PROJECT

Development Site

The future baseline in all technical chapters—the No Action condition—will assume that none of the discretionary approvals proposed as part of the 15 Penn Plaza project are adopted. It is expected that if the proposed actions are not approved, the project sponsor will develop the 15 Penn Plaza site under existing C6-6 and C6-4.5 zoning with an as-of-right, or "No Action," building.

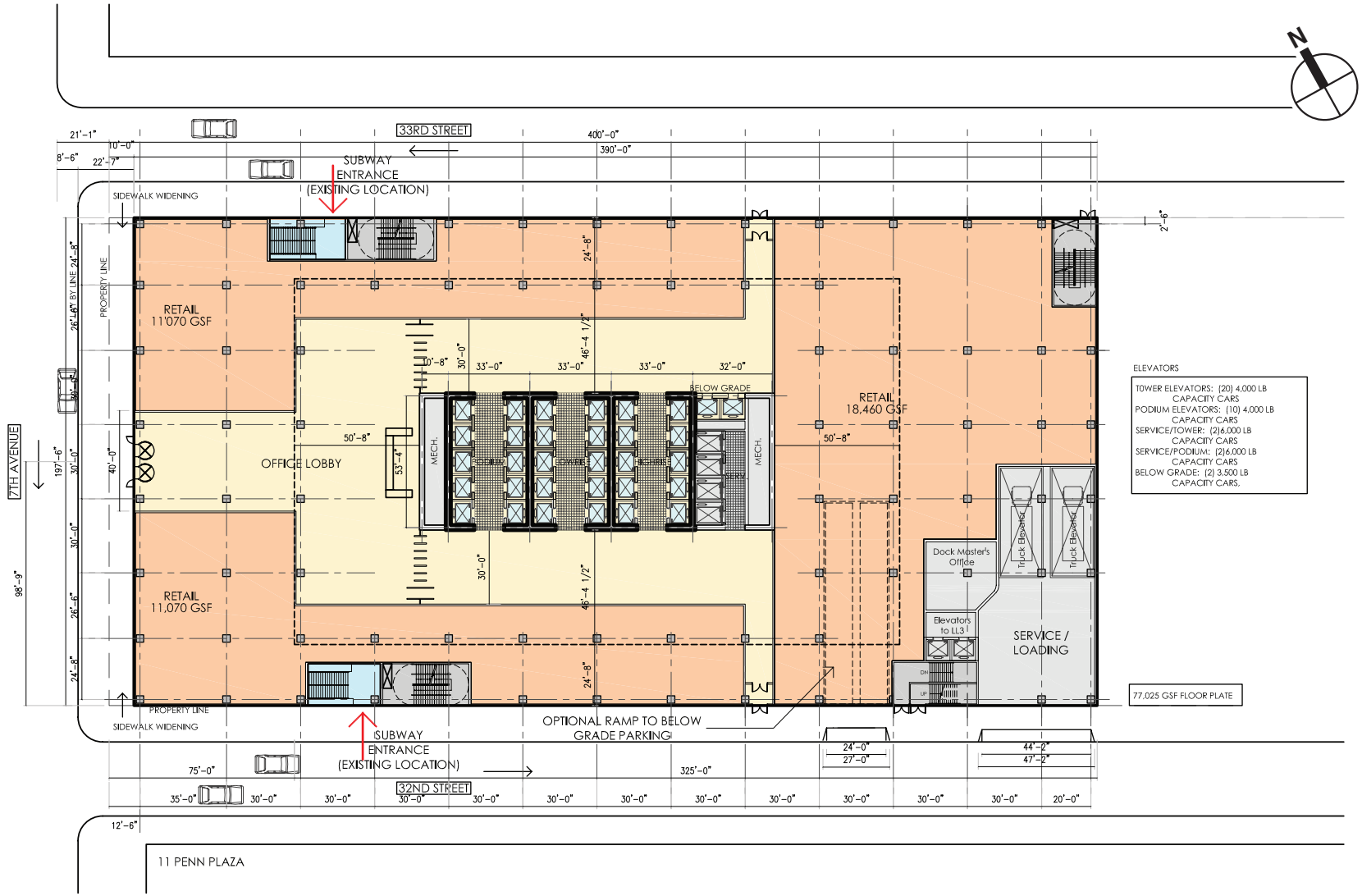
This No Action building will consist of approximately 1.6 million gsf (1.15 million zsf) of which approximately 1.3 million gsf will be office use, 40,600 gsf will be retail use, 202,000 gsf will be mechanical space, and 35,438 gsf will be lobby area and amenity space (see **Table 2**). Accessory parking for 100 vehicles would be located below-grade.

Table 2
No Action Building Program

Project Components	No Action Zoning	
	zsf	gsf
Commercial Office	1,078,867	1,319,914
Retail	37,587	40,600
Mechanical Space		202,000
Lobby Area, Amenity Space, Service and Loading Areas	32,546	35,438
Total Building Square Footage	1,149,000	1,597,952

Note: The No Action building program would include up to 100 accessory parking spaces in place of a portion of the below-grade service area.
Source: Pelli Clarke Pelli Architects.

In the No Action building, the main entrance to the office use will be located on Seventh Avenue, and there will be ground-floor retail use on the West 32nd Street, Seventh Avenue, and West 33rd Street frontages (see **Figure 13**). Loading areas will be located on West 32nd Street. The building



NOTE: INTERIOR DELINEATIONS ARE FOR ILLUSTRATIVE PURPOSES ONLY

0 80 FEET

SCALE

No Action Scenario
Ground-Floor Plan
Figure 13

will have a full block base and three floors of office use above, rising to a height of 85 feet (see **Figure 14**). The office tower will be set back above the podium and will rise to a total roof height of 581 feet, including mechanical space.

The No Action building will not contain trading floor uses in its podium because the overall floor area of the office use is not sufficient to support such use. The loading areas for the No Action building will be smaller than with either the Single-Tenant Office Scenario or the Multi-Tenant Office Scenario because less area will be needed to support the smaller office tower. In addition, with less floor area in the No Action building, the project sponsor will seek to maximize the revenue-generating ground-floor retail use, thereby reducing the total area devoted to loading and service.

Study Area and Nearby Known Developments

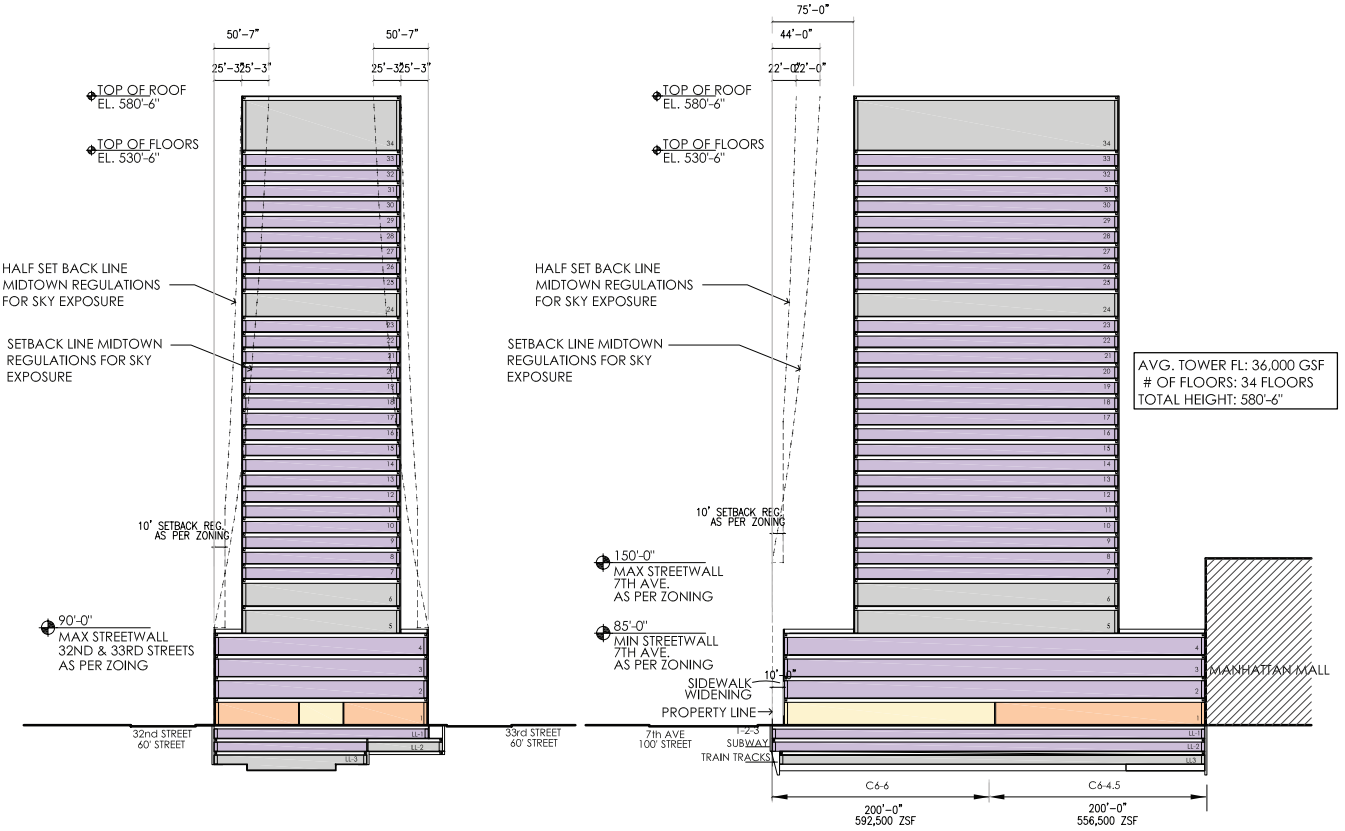
The DEIS will analyze the cumulative impacts of other projects expected to be complete by 2014 that will affect conditions in any of the relevant study areas. Refer to each individual task in Section D, below, for the size of the study areas, which range from between a 400-foot to a ½-mile radius (or larger as for the traffic analysis) from the project site, depending on the specific task. Projects expected to be completed by 2014 are detailed in **Attachment A**, "Transportation Planning Assumptions."

FUTURE WITH THE PROPOSED PROJECT (REASONABLE WORST-CASE DEVELOPMENT SCENARIO)

In considering the potential environmental impacts of the proposed actions, it is necessary to examine likely development scenarios reflecting development under those actions. For analysis purposes, the likely reasonable development scenario that could result from the proposed land use control changes would consist of the maximum commercial office development on the development site. The applicants would improve the development site pursuant to the terms and conditions of a Restrictive Declaration that would limit development pursuant to the proposed actions and intended use. The site's proximity to Penn Station, with its extensive transportation network, and the predominance of office uses in the surrounding area (Penn Plaza), make the development site a key location for commercial office development. In addition, the development site's footprint is of a sufficient size to allow the possibility of including trading floor uses within a podium base.

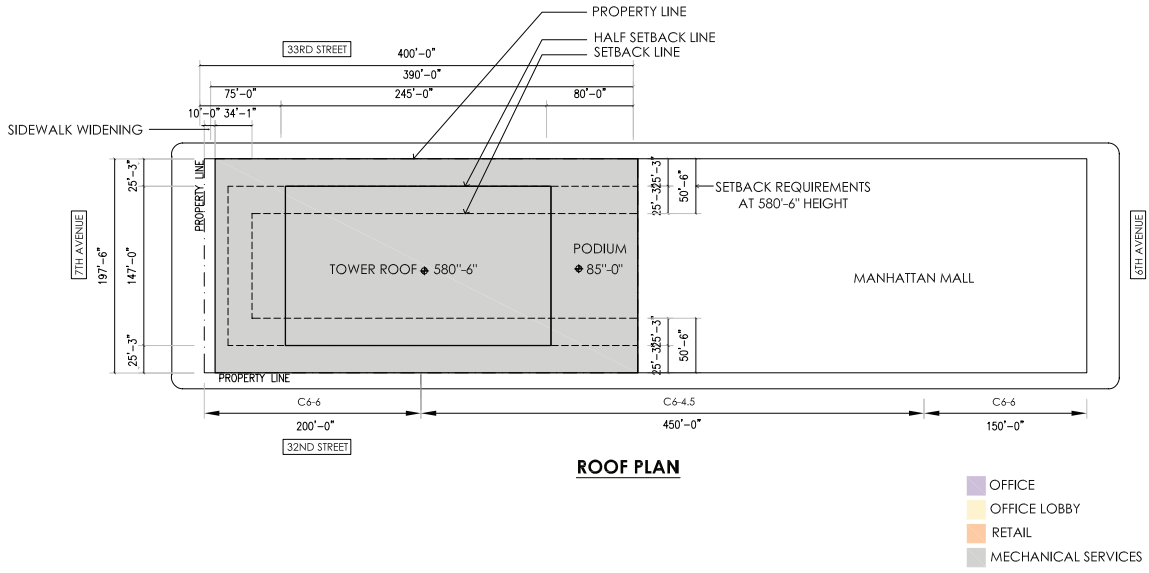
For these reasons, the two scenarios identified above—the Single-Tenant Office Scenario and the Multi-Tenant Office Scenario—represent the reasonable worst-case development scenario for analysis in the EIS. Both scenarios maximize the potential development that could occur on the development site, and both would contain a combination of the uses most likely to be developed on the development site.

Both scenarios are proposed to be analyzed because they would differ in terms of their building massing and trip generation characteristics. The Single-Tenant Office Scenario would be a building suitable to a single institutional tenant. As such, the building program would maximize the trading floor area and the office tower floorplate size. For purposes of maximizing the amount of contiguous space to optimize trading functions, the building's elevators would be located along the south side of the building; therefore, the office tower would be located on the western portion of the block along Seventh Avenue. The Multi-Tenant Office Scenario would be a building suitable to multiple commercial office tenants and would have a more traditional core placement. As such, the office tower in this scenario would be set back from Seventh Avenue.



NORTH-SOUTH SECTION

EAST-WEST SECTION



ROOF PLAN

No Action Scenario
Illustrative Building Section
Figure 14

Because of the differences in building massing and in the trip generation characteristics, both scenarios are proposed to be analyzed in the EIS.

For the future with the proposed project, the scenario with the worst environmental effect will be chosen for each technical impact analysis. For example, the scenario that would result in the highest employment will be analyzed for its effect on open space ratios. Where appropriate (e.g., shadows), the EIS will assess the potential for impacts associated with each scenario.

D. PROPOSED SCOPE OF THE ENVIRONMENTAL IMPACT STATEMENT

The EIS will contain:

A. A description of the proposed project and its environmental setting;
B. A statement of the environmental impacts of the proposed project, including its short- and long-term effects and typical associated environmental effects;
C. An identification of any adverse environmental effects that cannot be avoided if the project is implemented;
D. A discussion of reasonable alternatives to the proposed project;
E. An identification of irreversible and irretrievable commitments of resources that would be involved if the proposed project is built; and
F. A description of mitigation proposed to minimize any significant adverse environmental impacts.

Based on the preliminary screening assessments undertaken in the Environmental Assessment Statement and following the guidelines outlined in the *CEQR Technical Manual*, the following environmental area will not require detailed analysis in the EIS:

· Waterfront Revitalization Program. The development site is not within the boundaries of the City's Coastal Zone. Therefore, no detailed assessment of the proposed project's conformance with the City's Waterfront Revitalization Program is necessary.

The specific areas to be included in the EIS, as well as their respective tasks, are described below.

TASK 1. PROJECT DESCRIPTION

This opening chapter of the EIS introduces the reader to the proposed project and sets the context in which to assess impacts. The chapter will contain a history of development on the project site; a description of the proposed development program (both the Single-Tenant Office and Multi-Tenant Office Scenarios); a description of the proposed actions; figures to depict the proposed scenarios; a description of the anticipated construction process; and a discussion of the approvals required, procedures to be followed, and the role of the EIS in the process. The project description chapter provides the public and decision-makers a base from which to evaluate the project against both future with the proposed project and alternative options.

The project description will include appropriate data from the ULURP application and a graphic presentation of key project elements, such as a site plan, elevations, parking, and circulation plans. The section on required approvals will describe all public actions required to develop the project, including zoning changes and any necessary special permits. The role of the lead agency for CEQR will also be described, as well as the purpose of the EIS as a full disclosure document

to aid in decision-making. Any need for environmental requirements necessary as part of the proposed project will be described.

TASK 2. ANALYSIS FRAMEWORK

The analysis framework chapter will first set the regulatory context in which the EIS is being undertaken (i.e., ULURP and CEQR—their timing, public review, hearings, etc.), and then explain the basic approach to the technical chapters—that each chapter will address existing conditions, a future analysis year without the proposed action (2014), and that future analysis year with the proposed action; that impacts will be identified by comparing the two future analysis year scenarios; that mitigation will be proposed for identified significant adverse environmental impacts; and that alternatives that meet the goals of the proposed action but reduce or eliminate identified impacts will be considered. As part of this discussion, proposals and projects anticipated for completion by the future analysis year, including pending zoning actions or other public policy actions that could affect future land use patterns and trends by 2014, will be described. This chapter will also discuss the framework for the EIS analyses by identifying which of the two proposed scenarios—Single-Tenant Office or Multi-Tenant Office—is the "worst-case" scenario for a particular technical area.

The rationale for the elimination of any technical study areas eliminated in scoping (e.g., coastal policies) will be presented in this chapter. This chapter will describe in detail the No Action development that will be constructed on the development site absent approval of the proposed actions. This No Action project will serve as the No Action condition development scenario.

As discussed in more detail below (see Task 25, "Conceptual Analysis of the Proposed Zoning Text Amendments"), the EIS will examine the potential for the proposed zoning text amendments to affect sites other than the development site, if appropriate. Finally, where appropriate (e.g., shadows), the analysis will consider the impacts associated with each scenario.

TASK 3. LAND USE, ZONING, AND PUBLIC POLICY

The land use, zoning, and public policy analysis will assess the potential impacts of the expected changes in land uses resulting from the proposed project. The analysis will evaluate impacts within the land use study area, which include the development site and a ½-mile study area (see **Figure 15**). The land use assessment will include a description of existing (2008) conditions and evaluations of the future with the proposed project and the No Action condition in 2014.

Tasks include:

A. Provide a brief development history of the development site and study area;

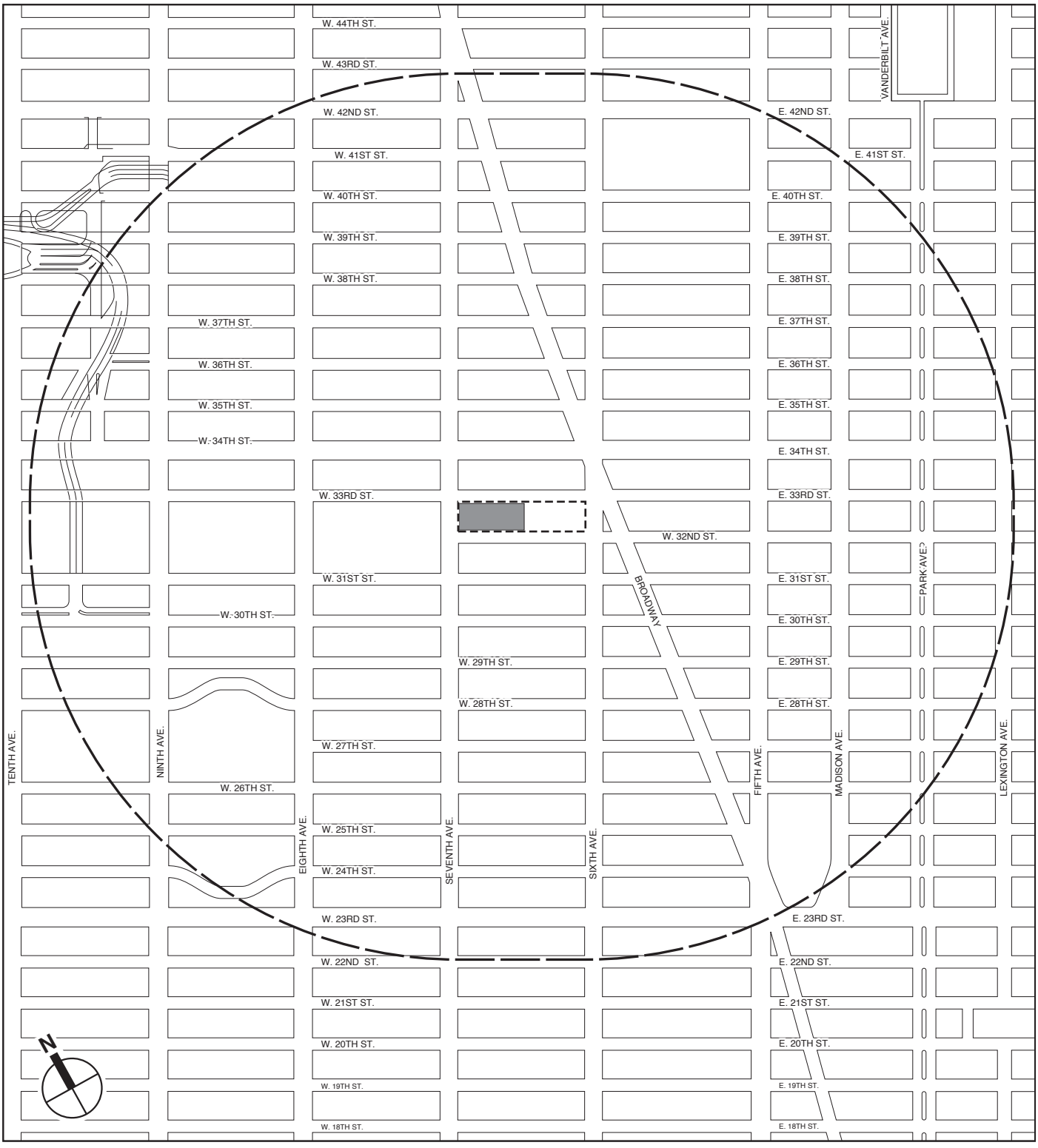
B. Describe conditions on the development site and in the study area, including existing uses and the current zoning;

C. Describe predominant land use patterns in the study area, including a description of recent development trends in this area of Manhattan. Existing land use patterns will be highlighted;

D. Describe the existing zoning and recent zoning actions in the study areas;

E. Describe other public policies that apply to the development site and study area, including specific development projects and plans for public improvements;

F. Based on anticipated changes in the study area, including projects identified in Task 2, assess conditions in the No Action condition; and



Land Use Study Area
Figure 15

G. Describe the proposed project and provide an assessment of the impacts of the proposed actions and projected development—both the Single-Tenant Office and Multi-Tenant Office Scenarios—on land use and land use trends, zoning, and public policy on the development site and in the study area. 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 study area.

H. Cumulative Effects: A qualitative assessment will be undertaken to determine whether there would be the potential for cumulative impacts from construction of the proposed project and other large-scale transportation projects that will be under construction in the vicinity of the development site in the No Action condition.

As discussed in Task 2, the potential for the proposed zoning text amendments to affect sites other than the project site will be examined as part of Task 25, "Conceptual Analysis of the Proposed Zoning Text Amendments."

TASK 4. SOCIOECONOMIC CONDITIONS

Socioeconomic impacts can occur when a proposed project directly or indirectly changes economic activities in an area. The purpose of the socioeconomic assessment is to disclose changes that would be created by the proposed project and identify whether they rise to a significant level. This chapter will examine the effects of the proposed project on socioeconomic conditions in the land use study area described in Task 3, including changes to the population and housing profiles; increases in economic activity; displacement of businesses, employment and residences from the development site; and potential indirect displacement within the study area that will roughly conform to the land use study area (see Task 3).

The analysis will follow the guidelines of the *CEQR Technical Manual* in assessing the proposed project's effects on socioeconomic conditions within the study area. According to the *CEQR Technical Manual*, the five principal issues of concern with respect to socioeconomic conditions are whether a proposed project would result in significant impacts due to: (1) direct residential displacement; (2) direct business and institutional displacement; (3) indirect residential displacement; (4) indirect business and institutional displacement; and (5) adverse effects on a specific industry.

In conformance with *CEQR Technical Manual* guidelines, the analysis of these five areas of concern will begin with a preliminary assessment for primary and secondary study areas that generally correspond to those of the land use analysis. Detailed analyses will be conducted for those analysis components in which the preliminary assessment cannot definitively rule out the potential for significant adverse impacts. The task work required to address each CEQR issue of concern is described below.

DIRECT RESIDENTIAL DISPLACEMENT

Because the development site contains only a transient hotel and additional commercial uses, no direct residential displacement would occur as a result of the proposed project. Therefore, a preliminary assessment of direct residential displacement is not warranted under CEQR.

DIRECT BUSINESS AND INSTITUTIONAL DISPLACEMENT

Absent the proposed project, the development site will be developed with an as-of-right commercial office tower. Therefore, the proposed project would not result in the direct displacement of the existing uses on the development site.

INDIRECT RESIDENTIAL DISPLACEMENT

The objective of the indirect residential displacement analysis is to determine whether a proposed action—by introducing a substantial new development that is markedly different from existing uses, development, and activities within the neighborhood—could lead to increases in property values, and thus rents, making it difficult for some residents to afford their homes. The analysis of indirect residential displacement will describe demographic and residential market trends and conditions for the study areas using 1990 and 2000 US Census data, as well as current real estate market data. This information will be used in responding to CEQR criteria for determining the potential for significant adverse impact. Specifically, in accordance with *CEQR Technical Manual* guidelines, the information will be used to determine whether the proposed project would:

A. Directly displace uses or properties that have had a "blighting" effect on property values in the area;
B. Introduce a "critical mass" of non-residential uses such that the surrounding area becomes more attractive as a residential neighborhood complex; or
C. Introduce a land use that could offset positive trends in the study area, impede efforts to attract investment to the area, or create a climate for disinvestment.

INDIRECT BUSINESS DISPLACEMENT

The objective of the indirect business and institutional displacement analysis is to determine whether the proposed project would ultimately lead to higher property values and rents in commercial or institutional buildings in the study area, causing existing businesses to relocate from the study area or from the City as a whole. The analysis of indirect business displacement will identify employment and business trends in the study areas through Census and/or Department of Labor data, as well as discussions with real estate brokers. This information will be used in responding to CEQR criteria for determining the potential for significant adverse impact. Specifically, in accordance with *CEQR Technical Manual* guidelines, the analysis will determine whether the proposed project would:

A. Introduce enough of a new economic activity to alter existing economic patterns;
B. Add to the concentration of a particular sector of the local economy enough to alter or accelerate an ongoing trend to alter existing economic patterns;
C. Directly displace uses or properties that have had a "blighting" effect on commercial property values in the area, leading to rises in commercial rents;
D. Directly displace uses of any type that directly support businesses in the area or bring people to the area that form a customer base for local businesses;
E. Directly or indirectly displace residents, workers, or visitors who form the customer base of existing businesses in the area; and
F. Introduce a land use that could offset positive trends in the study area, impede efforts to attract investment to the area, or create a climate for disinvestment.

ADVERSE EFFECTS ON SPECIFIC INDUSTRIES

Based on *CEQR Technical Manual* guidelines, the assessment of effects on specific industries will respond to the following issues: 1) whether the proposed project would significantly affect business conditions in any industry or category of businesses within or outside the study area;

and 2) whether the proposed project would substantially reduce employment or impair viability in a specific industry or category of businesses.

TASK 5. COMMUNITY FACILITIES AND SERVICES

In accordance with the thresholds of the *CEQR Technical Manual*, the proposed project would not require detailed analyses of potential impacts on schools, libraries, outpatient health care facilities, or publicly funded day care centers. Because the proposed project would not directly cause the displacement of a police or fire facility, no detailed assessment of such services is required, and the EIS will provide a screening-level analysis of police and fire protection facilities.

TASK 6. OPEN SPACE

Based on the *CEQR Technical Manual*, an open space assessment should be conducted if the proposed action would directly affect an open space by causing the physical loss of public open space, changing the use of an open space so that it no longer serves the same user population, limiting public access to an open space, or causing increased noise or air pollutant emissions, odors, or shadows that would affect its usefulness, whether on a permanent or temporary basis. An open space analysis should also be conducted if the action would indirectly affect existing open space facilities. The CEQR threshold for conducting an assessment of an action's indirect effects is if the project would increase the population by more than 200 residents or 500 workers.

The development site does not contain any publicly accessible open spaces, and the proposed project would not cause the physical loss of public open space, would not change the use of any open space so that it no longer serves the same user population, and would not limit public access to any open space. Because the proposed project would result in a building that would rise to a height of more than 1,000 feet—and may have the potential to result in shadows impacts (see "Shadows," below), an assessment of the project's potential to result in direct significant adverse impacts will be provided in the EIS. In addition, because the proposed project's new workers would exceed the CEQR threshold for an analysis of potential indirect effects, the open space assessment will determine whether the added workers would affect the quantitative and qualitative measures of open space adequacy within the ¼-mile study area recommended for commercial projects in the *CEQR Technical Manual* (see **Figure 16**).

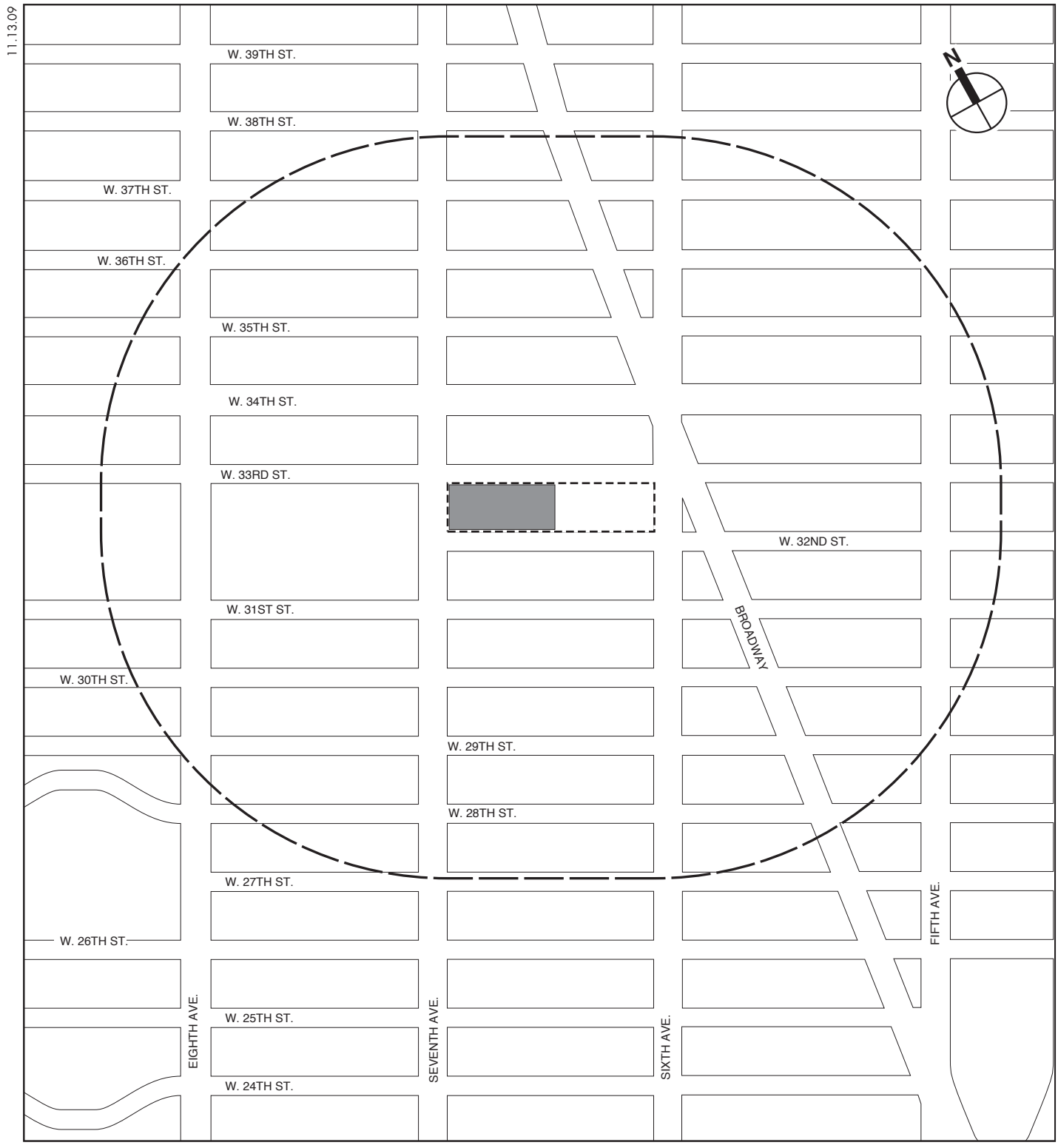
The following tasks are proposed for the open space analysis:

A. Open Space Mapping. Inventory existing open space and recreational facilities within a ¼-mile radius of the development site. Tally open space acreage for passive, publicly accessible recreational facilities.

B. Direct Effect Analysis. In coordination with the Open Space Mapping, Shadows, Air Quality, and Noise tasks, determine the project's potential to result in significant adverse direct effects on open spaces within a ¼-mile of the development site.

C. Quantitative Assessment (Indirect Effects Analysis).

   1. Identify the study area population—i.e., the existing number of employees in the open space study area will be estimated.
   2. Identify and describe study area open spaces. In conjunction with the Open Space Mapping task, open spaces in the study area will be identified and described.



Open Space Study Area
Figure 16

3. Assess the adequacy of existing open space. The existing non-residential open space ratio for the study area will be calculated. The ratio will be expressed as the number of acres of passive open space per 1,000 workers.
4. Determine the future No Action condition. Assess expected changes in future levels of open space supply and demand in the Build year based on planned development projects, including the No Action development, within the study area and public open space expected to be developed. Develop open space ratios for future conditions and compare them with existing ratios to determine changes in future levels of adequacy.
5. Determine the future with the proposed project condition. Based on the worker population to be added by the proposed project (for this assessment, the Single-Tenant Office Scenario, since this scenario would generate a higher number of workers), assess the project's effects on open space supply and demand. The assessment of project impacts will be based on a comparison of open space ratios with the project for the worker population and open space ratios in the No Action condition.

TASK 7. SHADOWS

As described in the *CEQR Technical Manual*, generally, shadow impacts could occur if an action would result in new structures or additions to buildings resulting in structures over 50 feet in height that could cast shadows on natural features, on publicly accessible open space, or on historic features that are dependent on sunlight. Shadows falling on streets and sidewalks or other buildings generally are not considered significant, nor are shadows occurring within an hour-and-one-half of sunrise or sunset.

Both the Single-Tenant Office and the Multi-Tenant Office scenarios would involve the construction of buildings greater than 1,000 feet in height, which would be of greater height than the approximately 580-foot-tall No Action building that will be constructed on the development site absent approval of the proposed actions. Because the proposed project is in proximity to historic resources and neighborhood open spaces (Herald Square and the landscaped plazas and sitting areas located outside One Penn Plaza and Two Penn Plaza), the effects of project-generated shadows on publicly accessible open spaces and historic resources with light-sensitive features will be assessed, using the methodology recommended in the *CEQR Technical Manual.* For this analysis, the building that would result from each scenario will be analyzed (see **Figures 5 and 7**). An analysis of shadows will be prepared focusing on the relation between the incremental shadow created by each scenario (i.e., the additional shadow cast in the future with the proposed action as compared to the shadow that would be cast under the as-of-right scenario) and any sun-sensitive structure, landscape, or open spaces within its reach. These analyses will include the following tasks:

A. Identify sun-sensitive open space, historic resources, and important natural features within the path of the proposed project's shadows. In coordination with a survey for the open space and historic analyses, map and describe any sun-sensitive resources. For open spaces, map active and passive recreation areas and features of the open spaces such as benches or play equipment, as appropriate;
B. Create a 3-dimensional CAD model of the development site and adjacent area that will include existing buildings and take into account the topography of the area. Add proposed building data, including the No Action development, to the existing conditions CAD model in order to perform analysis of the future with the proposed project;

C. Prepare shadow diagrams for time periods when shadows from each scenario could fall onto existing open spaces. The analysis will also take into account any historic resources identified in the area that may have significant sunlight dependent features, such as stained glass windows. The four analysis days are: March 21—the vernal equinox, which is the equivalent of September 21—the autumnal equinox; May 6—the midpoint between the equinox and the longest day of the year, which is the equivalent of August 6—the midpoint between the equinox and the shortest day of the year; June 21—the longest day of the year, and; December 21—the shortest day of the year;

D. Describe the effect of the incremental shadows on the publicly accessible open space and any historic resources with significant sunlight-dependent features based on the shadow diagrams for each of the analysis dates. Assess the effects of the project's incremental shadow compared with shadows expected in the No Action condition; and

E. Create a duration table that will show the entering and exiting times when an incremental shadow would fall on each affected open space or when a sun-sensitive historic feature would be affected by a project-generated incremental shadow.

TASK 8. HISTORIC RESOURCES

The development site is currently occupied by the Hotel Pennsylvania, a 22-story structure with a basement. As discussed above, absent approval of the proposed actions, the Hotel Pennsylvania will be demolished and an as-of-right commercial office building will be constructed on the site.

ARCHAEOLOGICAL RESOURCES

The New York City Landmarks Preservation Commission (LPC) was consulted to determine whether archaeological resources are of concern for the development site. In a letter dated August 21, 2008, LPC determined that the development site does not have the potential to contain archaeological resources. Therefore, no further analysis is warranted.

ARCHITECTURAL RESOURCES

As part of the environmental review for the 2004 Hudson Yards project, the Hotel Pennsylvania, designed by McKim, Mead & White and built in 1918, was determined eligible for listing on the State and National Registers of Historic Places (S/NR-eligible) by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP). As part of the same environmental review, the hotel was determined eligible for designation as a New York City Landmark (NYCL-eligible) (*No. 7 Extension—Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement)*. However, in early 2008, LPC responded to letters and supporting materials submitted to LPC by members of the public requesting an evaluation of the potential eligibility of the Hotel Pennsylvania for designation as a New York City Landmark. LPC made the following finding: "In response to the information you submitted concerning the property referenced above [the Hotel Pennsylvania], a senior staff committee of the Landmarks Preservation Commission has reviewed the property for consideration as a potential landmark. At this time, the property does not appear to meet the criteria for designation and will not be recommended to the full Commission for further consideration as a New York City landmark." As discussed above, absent approval of the proposed actions, the Hotel Pennsylvania will be demolished, and a commercial office building will be constructed on the site as-of-right.

The development site is located across West 32nd Street from the former Equitable Life Assurance Building (S/NR-eligible and NYCL-eligible). Therefore, as set forth in the *CEQR Technical Manual*, an architectural resources analysis will be prepared, including identifying a study area to evaluate any potential project impacts on architectural resources, identifying designated and potential architectural resources in that study area, assessing potential project effects in comparison to conditions in the No Action condition as appropriate, and developing mitigation measures with LPC, if warranted. Specifically, the following tasks will be undertaken as part of the architectural resources analyses:

A. Map and briefly describe known architectural resources within a 400-foot study area (see **Figure 17**). Known architectural resources comprise New York City Landmarks and Historic Districts, properties pending NYCL designation, and properties and districts listed or determined eligible for listing on the S/NR, including National Historic Landmarks (NHLs);

B. Conduct a field survey of the study area to determine whether there are any potential architectural resources that could be impacted by the proposed project. Potential architectural resources comprise properties that appear eligible for listing on the S/NR and/or designation as an NYCL or New York City Historic District (NYCHD). Map and briefly describe any potential architectural resources;

C. Describe the potential for any changes in the study area and its architectural resources in the No Action condition; and

D. Assess the project's potential impacts (both scenarios) on any known or potential architectural resources, including visual and contextual impacts.

The historic resources analysis will be undertaken in consultation with LPC.

TASK 9. URBAN DESIGN AND VISUAL RESOURCES

This analysis will consider the effects of the proposed project on the urban design and visual resources of the surrounding area in comparison to conditions in the No Action condition. The assessment will be based on *CEQR Technical Manual* methodologies, and will include the following tasks:

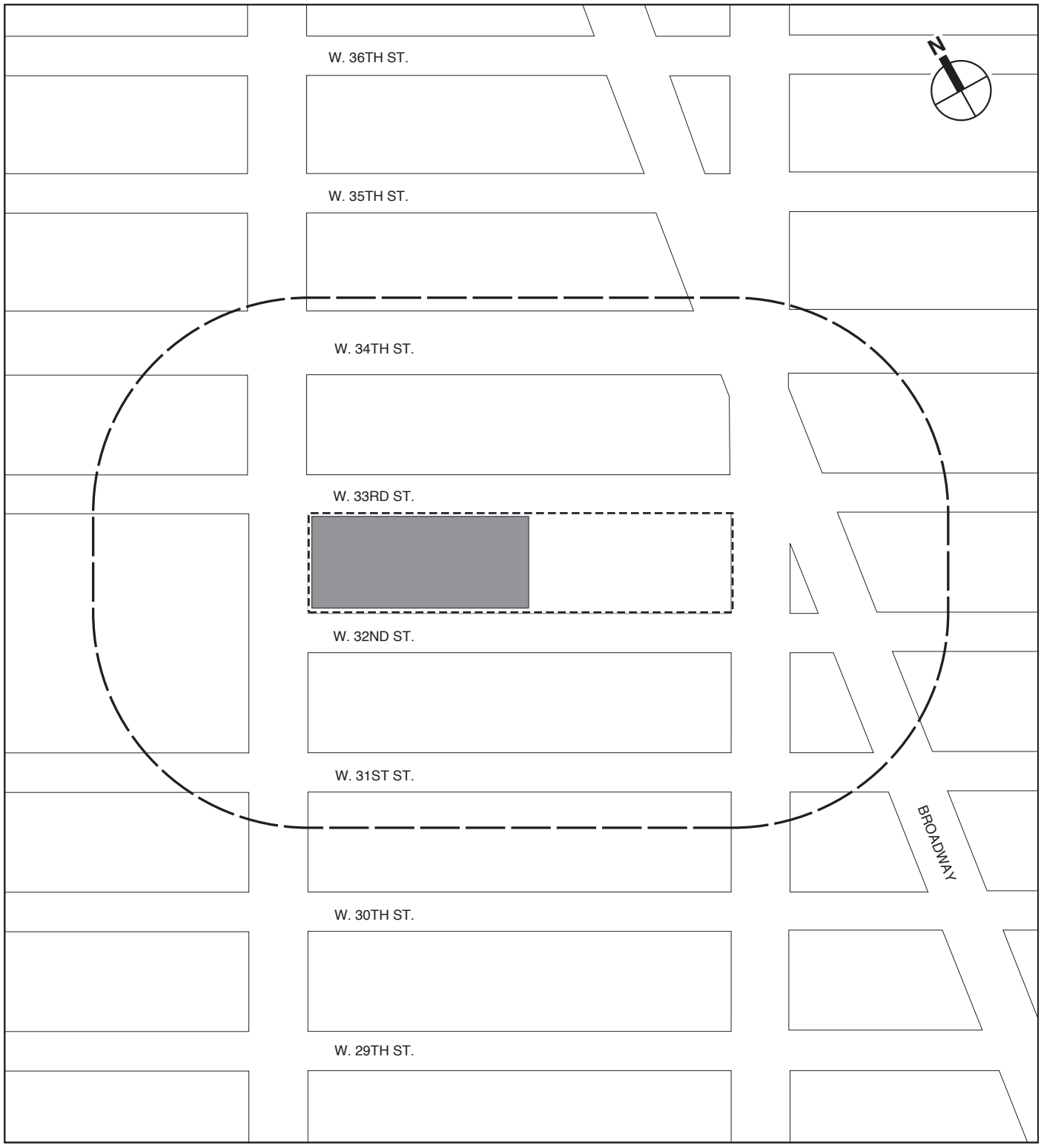
A. Describe the development site and the urban design and visual resources of the 400-foot study area, using photographs and text as appropriate (see **Figure 18**);

B. Describe any changes to the urban design and visual character of the study area that are expected in the No Action condition, including the No Action development;

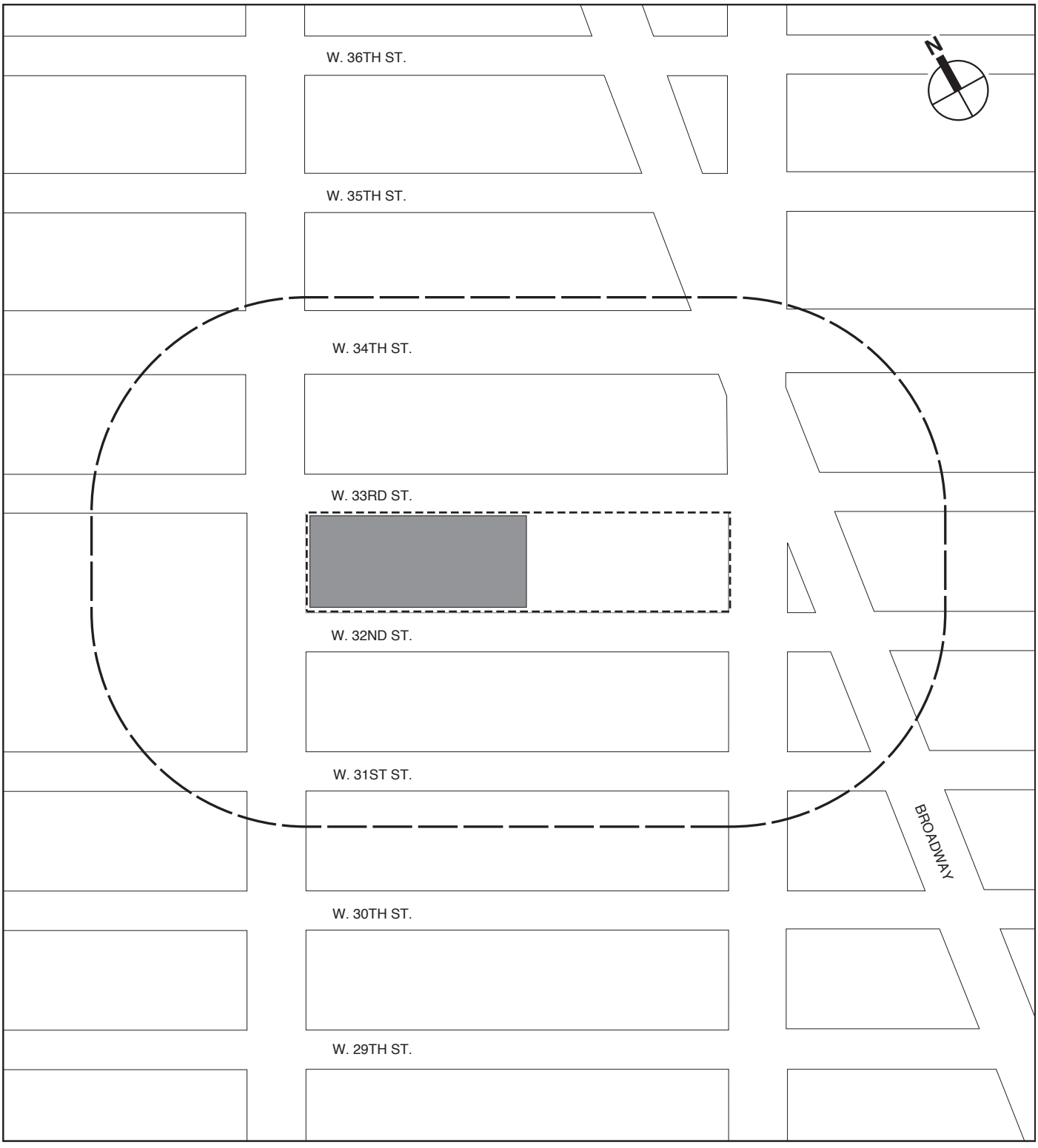
C. Include a description of the visual character of conditions in the future with the proposed project and in the No Action condition. The anticipated changes in urban design and visual resources that would result from the proposed project will be described and the significance of that change will be evaluated;

D. Because the building would be unusually tall, the urban design and visual resources analysis would address views of the structure from some distance, particularly to see whether the new tower would block public views of such visual landmarks as the Empire State Building, the Chrysler Building, or Rockefeller Center;

E. The discussion of the visual and contextual relationship of the proposed project to nearby historic resources will be coordinated with Task 8.



Historic Resources Study Area
Figure 17



Development Site

Project Site

Study Area Boundary (400-foot Perimeter)

NOTE: *Because the proposed building would be unusually tall, the urban design and visual resources analysis would address views of the structure from some distance, particularly to see whether the new tower would block public views of such visual landmarks as the Empire State Building, the Chrysler Building, or Rockefeller Center.*

Urban Design and
Visual Resources Study Area
Figure 18

TASK 10. NEIGHBORHOOD CHARACTER

The character of a neighborhood is established by numerous factors, including land use patterns, the characteristics of its population and economic activities, the scale of its development, the design of its buildings, the presence of notable landmarks, and a variety of other physical features that include noise levels, traffic, and pedestrian patterns. While the proposed project would continue the uses that will occupy the site in the future with the proposed project (the commercial No Action development), the proposed project building would be substantially taller and introduce a larger population than the No Action development. Therefore, the EIS analysis will consist of the following tasks:

A. Based on the other EIS sections, describe the predominant factors that contribute to defining the character of the neighborhood surrounding the development site, which is marked by a mix of commercial, residential, entertainment, transportation, and institutional uses;

B. Based on planned development projects, public policy initiatives, and planned public improvements, describe changes that can be expected in the character of the neighborhood in the No Action condition, including changes expected from the No Action development; and

C. Assess and summarize the proposed project's impact on neighborhood character as compared to changes that would occur in the No Action condition.

TASK 11. NATURAL RESOURCES

A natural resources assessment is conducted when a natural resource is present on or near the development site and when an action involves the disturbance of that resource. The *CEQR Technical Manual* defines natural resources as water resources, including surface water bodies and groundwater; wetland resources, including freshwater and tidal wetlands; upland resources, including beaches, dunes, and bluffs, thickets, grasslands, meadows and old fields, woodlands and forests, and gardens and other ornamental landscaping; and built resources including piers and other waterfront structures. The development site is located in a fully developed area in Manhattan. A screening analysis will be presented in the EIS identifying whether the proposed project would result in significant impacts to natural resources and, if warranted, detailed analysis will be provided.

TASK 12. HAZARDOUS MATERIALS

The EIS will address the potential presence of hazardous materials on the development site. The EIS will summarize any hazardous materials assessments (including any Phase I Environmental Site Assessments and Phase II Subsurface Site Investigations, as applicable) conducted for the development site. The EIS will include any necessary recommendations for additional testing or other activities that would be required either prior to or during construction and/or operation of the project, including at least a conceptual discussion of any necessary remedial or related measures. The EIS will include a general discussion of the health and safety measures that would be implemented during project construction. The appropriate remediation measures specific to the proposed end use of the site will be provided in the EIS, as appropriate.

TASK 13. WATERFRONT REVITALIZATION PROGRAM

The development site is not within the City's coastal zone. Therefore, an assessment of the proposed project's consistency with the City's Local Waterfront Revitalization Program is not warranted.

TASK 14. INFRASTRUCTURE

This chapter will assess the additional demands on the utility infrastructure that would result from the proposed project. These systems include water supply, sanitary sewage, and stormwater runoff. Proposed sustainable design measures to reduce water consumption, sewage generation, and stormwater management will be described.

New York City Environmental Protection (NYCDEP) is currently preparing an Amended Drainage Plan for the Hudson Yards area that will include the area generally bounded by: Route 9A to the west; West 46th Street to the north; West 27th Street to the south; and between Seventh and Tenth Avenues to the east. The wastewater and stormwater analyses described below will take into account the Amended Drainage Plan, as a No Action condition, and future changes to the combined and separate storm systems associated with the Amended Drainage Plan. The analyses will include the following tasks:

WATER SUPPLY

A. Based on information obtained from NYCDEP, the existing water supply network and capacity of the distribution system that currently serves the development site will be described. Improvements to the water supply system that are expected to be implemented as part of the Hudson Yards Rezoning and Development Program and that relate to the proposed project will also be identified.
B. Using water usage rates for typical land uses provided in the *CEQR Technical Manual*, an estimate of the water demand for conditions in the No Action condition and in the future with the proposed project will be estimated.
C. The potential for significant adverse impacts on the water supply system's abilities to maintain adequate water supply and operating pressure as a result of the proposed project's incremental water demand will be assessed. The potential reductions in water demand from proposed water conservation and sustainable measures will also be evaluated.

WASTEWATER

D. Based on information obtained from NYCDEP, the existing sewer system serving the development site will be described. The existing average and maximum monthly flows to the North River Water Pollution Control Plant (WPCP) for the latest 12-month period will be provided.
E. Using the water demand determined in the task above and NYCDEP projections, the sanitary sewage generation for conditions in No Action condition and in the future with the proposed project will be estimated.
F. The potential for significant adverse impacts in terms of system conveyance and WPCP treatment capacity as a result of the proposed project's incremental sanitary sewage demands will be assessed. This evaluation would include a screening level assessment that compares the estimated stormwater and sanitary volumes and flows that would be discharged to the combined sewer under the future with the proposed project to existing conditions. If the screening indicates the need for further analyses, modeling would be conducted in consultation with NYCDEP and in consideration of the results of the screening level assessment.
G. The compliance of the North River WPCP with its permit requirements, which are protective of the Hudson River's water quality, will be discussed.

STORMWATER

H. The existing storm and combined sewer system serving the development site will be described. The description will include the major sewer lines and the location of existing combined sewer outfalls into the Hudson River.

I. Using NYCDEP design criteria, stormwater runoff rates from the proposed project will be calculated and compared to baseline conditions.

J. The potential reductions in stormwater runoff from proposed sustainable measures will be reflected qualitatively in the analysis.

TASK 15. SOLID WASTE AND SANITATION SERVICES

This chapter will assess the proposed project's generation of solid waste and demand for sanitation services and will:

A. Describe existing and future New York City solid waste disposal practices; and

B. Assess the impacts of incremental solid waste generation from the proposed project on the City's collection needs and disposal capacity.

TASK 16. ENERGY

This chapter will present an estimate of the energy demanded of the project, and the ability of the energy systems to provide for this demand.

TASK 17. TRAFFIC AND PARKING

The development site is located near existing major retail and office developments in Midtown Manhattan, and the ability of the transportation system to absorb the proposed new development will be an important issue. The roadway network in this section of Manhattan is very congested, with many of the existing intersections already operating at poor levels of service. The project's sizable office component is expected to generate a considerable number of vehicular, transit, and pedestrian trips going to and from the project site during typical commuter periods.

The specific analysis needs and methodology for this project will be based on guidance in the *CEQR Technical Manual*. The following analytical tasks will be undertaken as part of the traffic analyses:

A. Analyze the primary study area, which was developed to account for the principal travel corridors to/from the development site, including 33 intersections for analysis bounded by West 35th Street to the north, Madison Avenue to the east, West 30th Street to the south, and Eighth Avenue to the west (see **Attachment A**). Preliminary trip generation and assignment patterns suggest that an additional eight to ten key intersections with regional traffic connections along West 34th Street will need to be analyzed, including the intersections at Ninth Avenue, Park Avenue, Lexington Avenue, Third Avenue, Second Avenue, First Avenue, and the FDR Drive. Trip assignment patterns will be submitted for review, and an updated study area graphic will follow;

B. Peak periods for traffic analyses will be selected. All traffic analyses will be done for the weekday AM (8-9 AM), midday (12-1 PM), and PM (5-6 PM) peak hour conditions. In addition, due to the large retail component of the Multi-Tenant Office Scenario, the Saturday midday (12-1 PM) peak hour will be analyzed.

C. Inventory street widths, sidewalk widths, traffic flow directions, curbside parking regulations, and other items required for the traffic analysis. The inventories will be limited to the areas surrounding the project area intersections. The most recent signal timings from the New York City Department of Transportation (NYCDOT) for each study area intersection will be acquired. Analyses of the future conditions will take into account all proposed NYCDOT transportation-related improvements, including but not limited to the 34th Street Bus Rapid Transit Plan, the addition of bike lanes in the study area, the designation of certain intersections as senior areas, and the introduction of pedestrian areas;

D. A 2008 Existing Conditions traffic network will be developed and, in order to maintain consistency, will be used for all projects in the area. This network will utilize data collected for the study area in October 2008, after the implementation of the Bus Rapid Transit (BRT) program on 34th Street. This data collection effort included extensive Automatic Traffic Recorder (ATR) counts and Turning Movement Counts (TMC) to establish daily and hourly patterns and vehicle classification, as well as intersection counts at nearly 100 intersections. Turning movement counts are recorded at 15-minute intervals to provide data for determining the peak hour factors (PHF) required for capacity calculations, and then summarized for each peak travel period;

E. Analyze the capacity of the street system in the study area to provide a detailed evaluation of existing conditions using the *Highway Capacity Manual* version 4.1f 2000 methodology. Existing levels of service, volume-to-capacity (v/c) ratios, and average vehicle delays on streets in the traffic study area will be determined for each peak hour;

F. Compute future traffic volumes in the No Action condition based on a background traffic growth rate for the study area of 0.50 percent per year due to the extensive listing of future development without the proposed project and, in coordination with Task 2, the volume of traffic expected to be generated by other projects anticipated to be in place by 2014, including any specified traffic mitigation measures for these projects. Traffic volumes will be determined, v/c ratios and levels of service will be calculated, and substandard intersection operations will be identified;

G. Determine trip generation and modal split characteristics, both vehicular and pedestrian, for the proposed project using standard references and recent surveys. The trips associated with the 1.6 million-gross-square-foot No Action building will be subtracted from the new trips generated by the proposed project, thus yielding a net increase in trips. The as-of-right development will be reflected in the No Action network. The existing Hotel Pennsylvania trips will be subtracted from the as-of-right development's trips;

   To the extent appropriate, the travel characteristics (modal split, temporal distribution, trip generation rates, in/out distribution) for the office and retail components of the proposed project will be consistent with the *Hudson Yards FGEIS*, the *Western Rail Yard DEIS*, and any other approved EISs. Travel characteristics for the trading floor component of the proposed project will be consistent with the *New York Stock Exchange New Facility EIS* (December 13, 2000). Mode choice percentages and trip generation rates will be established. A Transportation Planning Assumptions Technical Memorandum is attached (see **Attachment A**);

H. Perform a traffic impact assessment of the proposed project. Project-generated trips will be assigned and mapped to the network for each analysis period, and the impact on v/c ratios and delays will be evaluated using the HCM methodology. Significant impacts will be identified in accordance with *CEQR Technical Manual* guidelines.

I. Conduct a parking study of the on- and off-street facilities within ¼ mile of the development site in conformance with the *CEQR Technical Manual*. Field surveys, conducted within the parking study area in November 2008 and January 2009 have determined the AM and Midday utilization rates at all publicly accessible off-street parking garages, and observations of on-street regulations and use. Utilization of these existing facilities will be adjusted to account for conditions in the No Action condition and in the future with the proposed project to determine potential effects on parking conditions in the study area and will account for the presence of the 100-space accessory parking garage developed as part of the proposed project. Due to the frequent changes in on-street parking regulations and off-street parking facilities, 2008 parking conditions will be reflected in the future with and without the proposed project analyses;

J. Collect accident data and perform safety analyses. An investigation of the latest three years of accident history will be conducted to identify potential safety issues concerning study area intersections and to evaluate potential safety impacts that future project-generated trips may have on these locations. The recorded accidents will be categorized and correlated with observed operational conditions. This information will be used as the basis for recommending potential safety improvements and will be taken into consideration should the intersections also require traffic mitigation; and

K. Recommend and analyze mitigation measures, as appropriate, for all significantly impacted locations in the study area. Potential mitigation could include roadway modifications, signal timing changes, and possible parking regulation changes. The identified traffic mitigation measures will be coordinated with those mitigation measures committed to within the Special Hudson Yards District to ensure that Hudson Yards mitigation is not compromised specific to impacts identified in that FGEIS. As appropriate, the identified practicable traffic mitigation measures will also be coordinated with other mitigation measures that may be in effect in the study area, such as from the *Access to the Region's Core EIS*.

TASK 18. TRANSIT AND PEDESTRIANS

As discussed above, the proposed project would generate a considerable number of transit and pedestrian trips to and from the development site. Although the development site is well-served by public transportation, certain nearby transit facilities and sidewalks experience congestion during the morning and evening peak periods.

This chapter will describe how transit improvements developed as part of the proposed project will comply with the Americans with Disabilities Act.

The following analytical tasks will be undertaken in compliance with guidelines contained in the *CEQR Technical Manual* for the proposed project:

A. Perform a quantitative subway analysis for the Herald Square, Seventh Avenue, and Eighth Avenue stations in the AM (8 to 9 AM) and PM (5 to 6 PM) peak hours. The analysis will consist of an assessment of the key station elements, including stairways, control booths, and turnstile areas. Existing counts will be conducted and assignment of transit trips in the No Action condition and in the future with the proposed project will be undertaken in accordance with the travel demand information developed in Task 17. Future volumes at these analysis locations will be increased by a background growth rate of 0.50 percent per year as per *CEQR Technical Manual* guidelines. Future No Action condition and project-generated subway riders will be added to the transit network and analyzed. Project-generated impact criteria will be in accordance with the *CEQR Technical Manual* and/or NYCT design

criteria. As part of the proposed project, several improvements to the subway system will be implemented, including the re-opening of the pedestrian passageway below 33rd Street. In addition to the passageway, several subway stair and control area improvements will be completed. These mass transit improvements will be analyzed in the future with the proposed project;

B. Perform a quantitative analysis of the potential impact of the proposed project on local bus services for the weekday AM and PM peak hours. The peak hour transit trips from the proposed project will be estimated and assigned to the individual bus routes serving the site and deficiencies, if any, at the peak load point will be determined. The bus analysis will conform to the guidelines presented in the *CEQR Technical Manual* and any project-generated impacts will be identified; and

C. Perform a quantitative pedestrian analysis for existing conditions, the No Action condition, and the future with the proposed project condition at the corners, sidewalks, and crosswalks of key pedestrian study locations. Preliminary trip generation and assignment patterns suggest a study area bounded by 34th Street on the north, Sixth Avenue/Broadway on the east, 31st Street on the south, and Eighth Avenue on the west. Trip assignment patterns will be submitted for review, and an updated study area graphic will follow.

TASK 19. AIR QUALITY

The proposed project would generate emissions from both direct and indirect sources. Direct emissions are considered insignificant since the proposed project would utilize Con Edison steam for heating and hot water systems. Potential indirect air quality impacts of the proposed project would stem from increases in vehicular traffic carrying people to and from the project site.

The number of project-generated trips will likely exceed the *CEQR Technical Manual* air quality analysis screening thresholds at a number of locations within the traffic study area. Thus, an analysis of mobile emissions air quality impacts will be conducted. The potential effects of carbon monoxide (CO) from the project-generated vehicles on ambient levels in the project study area will be assessed at the locations where the greatest potential for project-related increases in concentrations would occur.

The City has developed and is employing interim guidance criteria for projects that are prepared under CEQR. In addition, the New York State Department of Environmental Conservation (NYSDEC) has developed a policy that provides guidance on assessing $PM_{2.5}$ impacts and determining when mitigation is necessary. Based on NYCDEP's current guidance, if a sufficient number of equivalent truck trips per hour are projected at area intersections, then the potential impacts on $PM_{2.5}$ and PM_{10} levels from project-generated traffic, will be required.

Since the proposed project is located within 400 feet of an existing manufacturing district, potential air quality impacts from industrial sources on the proposed project will be considered. In addition, emissions from large emission sources within 1,000 feet of the project site and commercial, institutional, or large-scale residential developments with emission sources within 400 feet of the project site will be examined for potential impacts at proposed air intake locations.

MOBILE SOURCE ANALYSES

The mobile source analyses will consist of the following:

A. Gather existing air quality data. Collect and summarize existing ambient air quality data for the study area. Specifically, ambient air quality monitoring data published by NYSDEC will be compiled for the analysis of existing conditions.

B. Determine receptor locations for the microscale analysis. Select critical intersection locations in the study area, and outside the study area, based on the background and project-generated traffic volumes and levels of service. At each intersection, multiple receptor sites will be analyzed in accordance with CEQR guidelines.

C. Select dispersion model. The U.S. Environmental Protection Agency (EPA)'s CAL3QHC screening model will be used. If necessary, EPA's CAL3QHCR refined intersection model will be used at the more sensitive CO receptor locations. For this analysis, five years (2003-2007) of meteorological data from LaGuardia Airport and concurrent upper air data from Brookhaven, New York will be utilized for the simulation program.

D. Select emission calculation methodology and "worst-case" meteorological conditions. Vehicular cruise and idle emissions for the dispersion modeling will be computed using EPA's MOBILE6.2 model and applicable regulatory guidance. For the "worst-case" analysis of CO (at screening locations), conservative meteorological conditions to be assumed in the dispersion modeling are a 1 meter per second wind speed, Class D stability, 50^{o} F temperature, and a 0.77 persistence factor.

E. Select appropriate background levels. For the CO microscale analysis, select appropriate background levels for the study area based on NYSDEC background monitoring data.

F. At each mobile source microscale receptor site, calculate maximum 1- and 8-hour CO concentrations for existing conditions, the No Action condition, and the future with the proposed project condition. The analysis periods chosen will be based on the reasonable worst-case project trips as determined in Task 17.

G. Compare existing and future levels with standards. Future pollutant levels in the No Action condition and in the future with the proposed project condition will be compared with the National Ambient Air Quality Standards (NAAQS) to determine compliance with standards, and the City's CO *de minimis* criteria will be employed to determine the impacts of the proposed project.

H. Assess the potential CO impacts associated with the conceptual parking facility for the proposed project. A screening analysis will be used following the procedures suggested in the *CEQR Technical Manual* for parking facilities to determine maximum potential worst-case impacts. Cumulative impacts from on-street sources and emissions from the proposed parking facilities will be calculated, where appropriate.

I. Determine the consistency of the proposed project with the strategies contained in the SIP for the area. At any receptor sites where violations of standards occur, analyses would be performed to determine what mitigation measures would be required to attain standards.

STATIONARY SOURCE ANALYSES

Industrial Source Analyses

J. A field survey will be performed to determine if there are any manufacturing or processing facilities within 400 feet of the proposed project. NYCDEP's Bureau of Environmental Compliance (BEC) files will be examined to determine if there are permits for any industrial facilities that are identified. A review of federal and state permits will also be conducted.

K. If manufacturing or processing facilities are identified within 400 feet of the proposed project, an industrial stationary source air quality analysis, as detailed in the *CEQR*

Technical Manual, will be performed. The look-up values in Table 3Q-3 of the *CEQR Technical Manual* will be used to estimate the short-term and annual concentrations of critical pollutants at the potential receptor sites. Predicted worst-case impacts on the proposed project will be compared with the short-term guideline concentrations (SGC) and annual guideline concentrations (AGC) reported in NYSDEC's *DAR-1 AGC/SGC Tables* (September 10, 2007) to determine the potential for significant impacts. In the event that violations of standards are predicted, measures to reduce pollutant levels to within standards will be examined.

GREENHOUSE GAS ANALYSES

The EIS will estimate the effects of the proposed project on greenhouse gas emissions (GHG)—including emissions associated with on-site fuel use, electricity use, vehicle trips, solid waste disposal, and construction—and will discuss the proposed project's consistency with the relevant policies of PlaNYC.

TASK 20. NOISE

The noise study will focus on assessing: (1) potential noise impacts due to project-generated traffic; and (2) the level of attenuation needed in the proposed building to satisfy CEQR requirements. Existing noise levels in the area immediately adjacent to the project site are relatively high and reflect the level of activity (particularly vehicular activity) in the area. Autos, taxis, and trucks, along with noise generated by aircraft flyovers, mechanical equipment, and pedestrian activity, all contribute to the total ambient noise levels.

The noise study will include the following tasks:

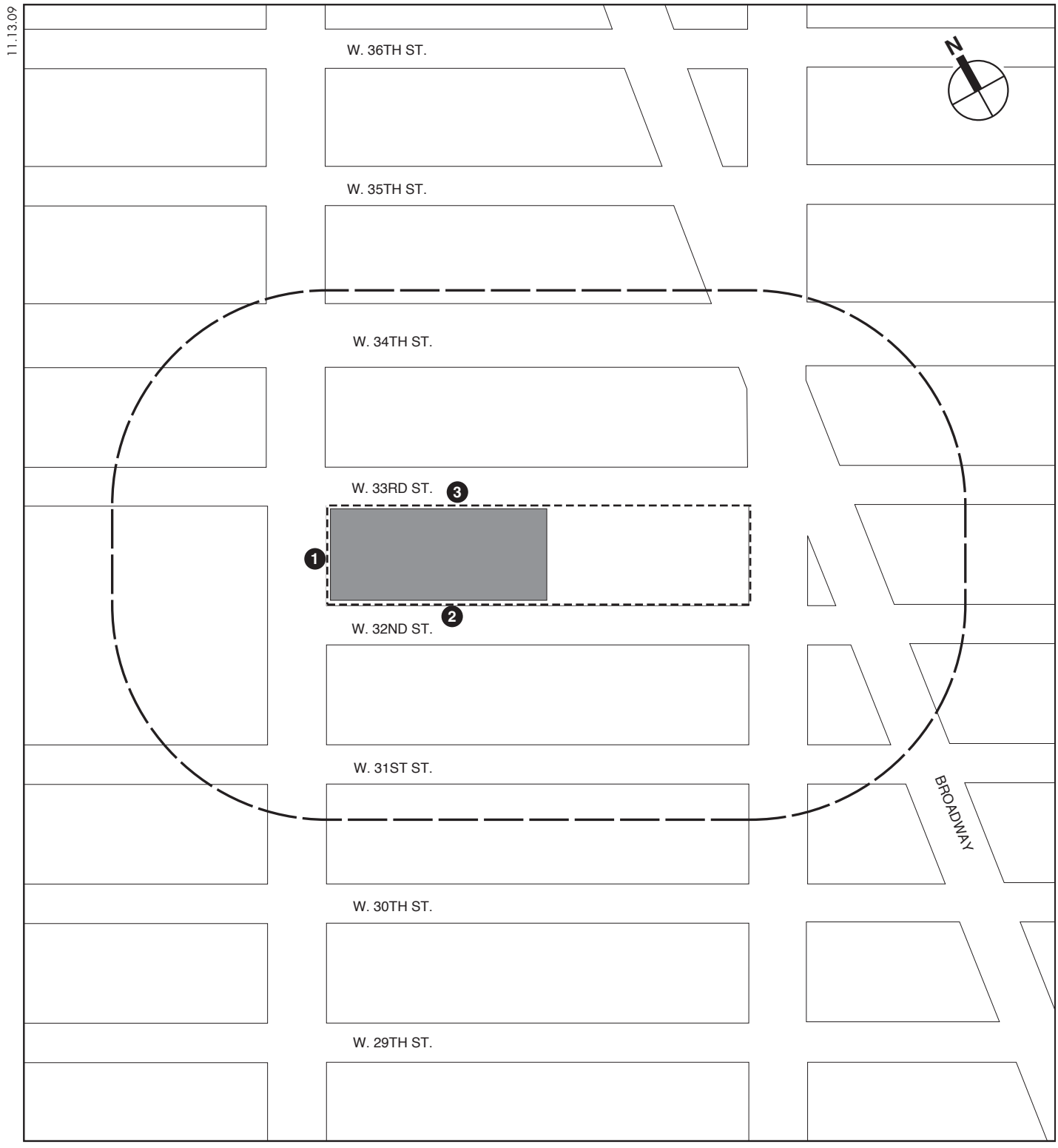
A. Select appropriate noise descriptors. Appropriate noise descriptors to describe the noise environment and the impact of the proposed project will be selected. Consequently, where and when appropriate, examine the L_{10} and 1-hour equivalent ($L_{eq(1)}$) noise descriptors;

B. Select receptor locations for detailed analysis (see **Figure 19**). Receptor sites analyzed will include locations where the proposed project would have the greatest potential to affect ambient noise levels;

C. Determine existing noise levels. Existing noise levels will be determined primarily by field measurements. At each receptor site, 20-minute spot measurements will be made during four time periods—weekday AM peak, weekday Midday peak, weekday PM peak, and Saturday Midday peak—which would correspond to the time periods listed in the traffic analysis. Measurements will be made using a Type I noise analyzer and would include measurements of L_{eq}, L_1, L_{10}, L_{50}, and L_{90}, L_{max}, and L_{min} noise levels. Measurements would screen out aircraft flyovers, sirens, and other atypical street noise. Where necessary, measurements will be supplemented by mathematical model results to determine an appropriate base of existing noise levels;

D. Determine future noise levels without the proposed project. At each receptor location identified above, determine noise levels without the proposed project using existing noise levels, acoustical fundamentals, and mathematical models, including proportional modeling techniques and/or FHWA's Traffic Noise Model (TNM), where appropriate. The methodology used will allow for variations in vehicle/truck mixes;

E. Determine future noise levels with the proposed project. At each receptor location identified above, determine noise levels with the proposed project using existing noise levels, acoustical fundamentals, and mathematical models, including proportional modeling



Development Site

Project Site

Study Area Boundary (400-foot Perimeter)

1 *Noise Receptor Location*

Noise Receptor Locations
Figure 19

techniques and/or FHWA's Traffic Noise Model (TNM), where appropriate. The methodology used will allow for variations in vehicle/truck mixes;

F. Compare noise levels with standards, guidelines, and other impact evaluation criteria. Compare existing noise levels and future noise levels, both with the proposed project and in the No Action condition, with various noise standards, guidelines, and other noise criteria. In addition, compare future noise levels with the proposed project with future noise levels in the No Action condition to determine project impacts (i.e., based on the criteria contained in the *CEQR Technical Manual*, depending on the No Action noise levels, a change of 3 to 5 A-weighted decibels (dBA) or more would be considered a significant impact); and

G. Determine the level of building attenuation required. For the proposed building, the level of attenuation and the types of measures necessary to achieve the attenuation specified in the *CEQR Technical Manual* will be examined. Noise attenuation requirements, if necessary, would likely be specified via an (E) designation;

H. Analyze the potential for significant adverse impacts associated with stationary source noise from the proposed project's mechanical equipment. The building mechanical systems (i.e., heating, ventilation, and air conditioning systems) would be designed to meet all applicable noise regulations (i.e., Subchapter 5, §24-227 of the New York City Noise Control Code and the New York City Department of Buildings code) and to avoid producing levels that would result in any significant increase in ambient noise levels; and

I. If the results of the proportional modeling indicate that a doubling of traffic would occur, a mobile source noise analysis will be performed.

TASK 21. CONSTRUCTION IMPACTS

Construction impacts, though temporary, can have a disruptive and noticeable effect on the adjacent community, as well as on people passing through the area. The likely construction schedule for development at the development site and an estimate of activity on-site will be described. Construction impacts will be evaluated according to *CEQR Technical Manual* guidelines. The construction assessment for the proposed project will focus on areas where construction activities may pose specific environmental problems. Technical areas to be analyzed include:

A. Transportation Systems. This assessment will consider the extent and duration of any street, roadway, or sidewalk closure, any impacts on the parking supply, and any loss in other transportation services during the various phases of construction. In addition, the assessment will identify the increase in vehicle trips from construction workers and equipment. Travel demand assumptions and vehicle trip assignments for construction workers will be developed, and trip assignments will be used to determine if any additional traffic analysis locations outside of the traffic study area described in Task 17 will need to be analyzed. Should a quantified analysis be warranted, significant impacts will be identified in accordance with *CEQR Technical Manual* guidelines, and potential mitigation measures will be identified.

B. Future with the proposed project conditions will be quantified and evaluated, including intersection v/c ratios, average delays, and levels of service. Significant traffic impacts, if any, will be identified in accordance with *CEQR Technical Manual* guidelines.

C. Air Quality. The construction air quality impact section will contain a discussion of both mobile air source emissions from construction equipment and worker and delivery vehicles, and fugitive dust emissions. It will discuss measures to reduce impacts.

D. Noise. The construction noise impact section will contain a discussion of noise from each phase of construction activity.

E. Hazardous Materials. In coordination with Task 12, determine whether the construction of the proposed project has the potential to expose construction workers to contaminants. Summarize actions to be taken during project construction to limit exposure of construction workers to potential contaminants.

F. Historic Resources. The integrity of nearby historic resources within and adjacent to the development site could be adversely affected by construction vibrations; thus, the maintenance of the integrity of such resources will be assessed.

G. Other Technical Areas. As appropriate, discuss other areas of environmental assessment for potential construction-related impacts.

TASK 22. PUBLIC HEALTH

Following the guidelines presented in the *CEQR Technical Manual*, this task will provide a screening assessment to examine the project's potential to significantly impact public health concerns related to the construction and operation of the proposed project. Drawing on other EIS sections, this task will use all relevant information to assess and summarize the potential for significant adverse impacts on public health from project activities.

TASK 23. MITIGATION

Where significant project impacts have been identified in the analyses discussed above, any practicable measures that have the potential to avoid or mitigate those impacts will be identified. This task summarizes the findings of the relevant analyses and discusses potential mitigation measures. Where impacts cannot be mitigated, they will be described as unavoidable adverse impacts.

TASK 24. ALTERNATIVES

The purpose of an alternatives analysis is to examine reasonable and practicable options that avoid or reduce project-related significant adverse impacts and achieve the stated goals and objectives of the proposed actions. The alternatives to be analyzed in the EIS will include:

- A No Action Alternative, which is analyzed through the EIS as the No Action condition;
- Development of the development site with a mixed-use building with office use as a significant component that also includes retail and hotel and/or residential uses within the envelope of the Single-Tenant Office Scenario building. Under this alternative, the terms and conditions of the Restrictive Declaration would be modified to permit mixed-use development;
- An alternative that reduces any unmitigated significant adverse impacts; and
- An alternative that assesses the feasibility of on-site distributed power systems.

The specifics of these alternatives will be finalized with the lead agency as project impacts become clarified. The description and evaluation of each alternative will be provided at a level of detail sufficient to permit a comparative assessment of each alternative discussed.

TASK 25. CONCEPTUAL ANALYSIS OF PROPOSED TEXT AMENDMENTS

Because the land use actions for the proposed project would involve amendments to the New York City Zoning Resolution that could affect more than just the development site, a Conceptual

Analysis of the impacts of the amendments may be required. This analysis will identify those other sites, if any, that could benefit enough from the amendments to induce development or redevelopment that might not otherwise have occurred, and will present a generic impact analysis of such development. Primarily, the Conceptual Analysis seeks to narrow the possibilities reasonably, to address and eliminate those areas in which impacts would not occur, and to highlight only those issues that might arise as a result of the proposed land use actions.

TASK 26. EIS SUMMARY CHAPTERS

In accordance with CEQR guidelines, the EIS will include the following three summary chapters, where appropriate to the proposed project:

A. Unavoidable Adverse Impacts—Any significant impacts for which no mitigation can be put forth or implemented will be presented as unavoidable adverse impacts;

B. Growth-Inducing Aspects of the Proposed Actions—Any growth-inducing aspects of the proposed actions, focusing on whether they are expected to trigger further development, will be described; and

C. Irreversible and Irretrievable Commitments of Resources—This section summarizes the proposed actions and their impacts in terms of the loss of environmental resources, both in the immediate future and the long term.

TASK 27. EXECUTIVE SUMMARY

The executive summary will utilize relevant material from the body of the EIS to describe the proposed project; the necessary approvals, study areas, and environmental impacts predicted to occur; measures to mitigate those impacts; unmitigated and unavoidable impacts (if any); and alternatives to the proposed project. Í

ATTACHMENT A
TRANSPORTATION PLANNING ASSUMPTIONS

stantec.com

Technical Memo

Stantec

To: File

From: Steve Abendschein
Stantec – New York City

File: 193410075

Date: Revised January 22, 2010

Reference: 15 Penn Project – Transportation Planning Assumptions

This memorandum summarizes the transportation planning assumptions to be used for the traffic, parking, transit and pedestrian analyses for the proposed 15 Penn Plaza Project. Estimates of the proposed project's peak hour travel demand and trip assignment patterns are provided, along with discussions of the traffic, parking, transit and pedestrian study areas for the impact analyses. Wherever possible, assumptions regarding trip generation, trip assignment, mode split and trip distribution are consistent with both the *Hudson Yards Rezoning and Development Program FGEIS* and the *Western Rail Yard DEIS*.

PROJECT PROGRAM

The proposed 15 Penn Plaza Redevelopment Project involves the redevelopment of the existing Hotel Pennsylvania, located on Seventh Avenue between West 32nd and West 33rd Streets adjacent to Penn Station in Manhattan (Block 808, Lots 1001 and 1002), to a new commercial office building and retail base.

SINGLE-TENANT OFFICE SCENARIO (SCENARIO 1)

Scenario 1 would consist of a commercial office building of approximately 2.82 million gross square feet (gsf) (2.05 million zsf) with floorplates in the podium of a sufficient size to accommodate trading operations. When complete, Scenario 1 would include approximately 1.53 million gsf of office space, including five floors within the building's podium base that would accommodate trading floor use totaling 340,857 gsf; 18,266 gsf of retail use fronting on Seventh Avenue and on West 32nd and 33rd Streets; 509,071 gsf of building amenity, lobby, service and loading area space; and approximately 418,395 gsf of mechanical space. A portion of the below grade service area could potentially include 100 below-grade accessory parking spaces.

The main entrances to the office and trading floor use would be on Seventh Avenue with secondary entrances on both West 32nd and West 33rd Streets. The first 10 floors of the proposed building, which would contain lobby, retail, office space suitable for trading floor use (on floors two through six), and service/loading areas, would occupy the entire project site and rise to a maximum height of approximately 218 feet. Above this, the tower portion of the building would be set

back before rising to a total height of approximately 1,190 feet to the top of the screen proposed to screen the building's rooftop mechanical uses.

Scenario 1 would have higher mechanical space requirements than found in a typical office use because it would contain office space suitable for trading floor use. Trading activities rely heavily on computers and other information technology, which requires a significant allocation of space for high-technology equipment and redundant backup systems. Trading activities also require substantially enhanced electrical power (up to four times that required for typical office use, which must be 100 percent uninterrupted and 100 percent redundant [emergency back-up] 24 hours a day, 7 days a week, 365 days a year), 100 percent redundant mechanical and telecommunications systems, and 24-hour air conditioning. To permit installation and servicing of the necessary equipment and to allow for flexibility to reconfigure the equipment needs, the layout must provide the necessary separation of the technical support equipment and the trading floor operations. Overall, this requirement results in a much larger allocation of mechanical space than found in a typical office use.

The service and loading area for Scenario 1 would be located at the eastern portion of the development site and would consist of a through-block area extending from West 32nd to West 33rd Street.

MULTI-TENANT OFFICE SCENARIO (SCENARIO 2)

Scenario 2 would consist of a commercial office building and retail base of approximately 2.66 million gsf (2.05 million zsf). When complete, Scenario 2 would include approximately 1.89 million gsf of commercial office use, 361,711 gsf of retail use, 307,180 gsf of mechanical space, 97,131 gsf of building amenity, lobby, and service and loading area space. Like Scenario 1, a portion of the below grade service area could potentially include 100 below-grade accessory parking spaces.

The main entrance to the office use would be on Seventh Avenue with additional entrances on West 32nd and West 33rd Streets. The retail uses would be located on the ground-floor, one below-grade floor, and an additional two floors above the ground-floor for a total of four retail floors. The building's podium would also contain an additional three floors that could be used for either additional retail space or for trading uses; the podium would rise to a height of approximately 130 feet. The office tower would be set back above the podium and would rise to a total height of approximately 1,216 feet, including mechanical area and a screen to hide the mechanical uses.

Scenario 2 would have substantial mechanical space requirements to provide space for high-technology equipment and redundant backup systems for the proposed trading floor use (although the requirements would be less than with Scenario 1 since less trading floor area would be provided). As detailed above, trading floor activities require substantially enhanced electrical power, 100 percent

redundant mechanical and telecommunications systems, and 24-hour air conditioning.

The service and loading area for Scenario 2 would be divided into two separate areas. The service and loading area for the retail uses would be located on West 32nd Street at the eastern edge of the development site. The service and loading area for the commercial office use would be located on West 33rd Street and would consist of truck elevators that would bring trucks to a below-grade service area.

Table 1 below provides a summary of the two proposed building programs.

Table 1
Proposed Building Program – Single-Tenant and Multi-Tenant Office Scenarios

Project Components	Single-Tenant Office Scenario		Multi-Tenant Office Scenario	
	zsf	Gsf	zsf	gsf
Commercial Office	1,394,481	1,534,594	1,723,371	1,893,814
Trading Floor Component	310,180	340,857	0	0
Retail	11,126	18,266	296,392	361,711[1]
Dedicated Mechanical Floors	0	418,395	0	307,180
Lobby Area, Amenity Space, and Back of House	334,880	509,071	32,904	97,131
Total	2,052,667	2,821,183	2,052,667	2,659,836

Notes: *Proposed Program could include up to 100 accessory parking spaces
zsf = zoning square feet; gsf = gross square feet.
1. In the Multi-Tenant Office Scenario, up to 194,442 zsf (or 211,941 gsf) of this retail space could be utilized for trading uses.

Sources: Pelli Clarke Pelli Architects

FUTURE WITHOUT THE PROPOSED PROJECT

DEVELOPMENT SITE

The future baseline in all technical chapters—future without the proposed project—will assume that none of the discretionary approvals proposed as part of the 15 Penn Plaza project are adopted. It is expected that if the proposed actions are not approved, the project sponsor will develop the 15 Penn Plaza site under existing C6-6 and C6-4.5 zoning with an as-of-right, or No Build, building.

This No Build building will consist of approximately 1.6 million gsf (1.15 million zsf) of which approximately 1.3 million gsf will be office use, 40,600 gsf will be retail use, 202,000 gsf will be mechanical space, and 35,438 gsf will be lobby area and amenity space. Accessory parking for 100 vehicles could be located below-grade (see **Table 2**).

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

Table 2
No Build Building Program

Project Components	No Build Zoning	
	zsf	gsf
Commercial Office	1,078,867	1,319,914
Retail	37,587	40,600
Mechanical Space		202,000
Lobby Area, Amenity Space, Service, and Loading Areas	32,546	35,438
Total Building Square Footage	1,149,000	1,597,952

Note: *No Build Program could include up to 100 accessory parking spaces

Source: Pelli Clarke Pelli Architects.

OTHER DEVELOPMENT WITHIN THE STUDY AREA

Typically, projected development projects within a ½-mile from a project site that are expected to occur without the Proposed Project are incorporated into the future No Build conditions. Because the traffic study area defined above encompasses intersections within a busy area of midtown Manhattan, No Build projects beyond the typical ½-mile radius were also included.

The assumed no build list is summarized in Table 3 and illustrated in Figure 1.



Development Site

Project Site Boundary

1 *No Build Project to be Completed by 2014 (see Tables 2-3 and 2-4)*

T34 *No Build Project Included in Background Growth for Traffic Analysis*

No Build Projects
Figure 1

Table 3
Projects Under Construction or Expected to Be Complete by 2014
(¼- and ½-Mile Study Areas)

Map #	Site Description	Build Year	Building Program/Comments
Quarter-Mile Study Area			
1	885 Sixth Avenue and West 32nd Street	2010 (under construction)	338 residential units 21,500 gsf office 25,600 gsf retail
2	855 Sixth Avenue between West 30th and West 31st Streets	2010	433 residential units 38,468 gsf retail
3	835 Sixth Avenue between West 29th and West 30th Streets	2010 (under construction)	302 residential units 290,000 gsf hotel (290 hotel rooms) 26,368 gsf retail
4	REMY 815 Sixth Avenue and West 28th Street	2008 (under construction)	269 residential units 59,000 gsf retail
5	145 West 27 Street Midblock between Sixth and Seventh Avenues	2009	11 residential units 1,029 gsf retail
6	261 West 28th Street Midblock between Seventh and Eighth Avenues	2008	55 residential units 5,145 gsf retail
7	415 Eighth Avenue Southwest corner of West 31st Street (Block 754 Lot 44) (Savanna REF)	2010	106 residential units 10,000 gsf retail
8	West 28th/29th/30th Rezoning	2013	1,277 residential units 40,900 gsf local retail
Half-Mile Study Area			
9	Cambria Suites Madison Square Garden Hotel 325 West 33rd Street between Eighth and Ninth Avenues (Glad Tidings Tabernacle)	2009	239 hotel rooms
10	Strand Hotel 33 West 37th Street between Fifth and Sixth Avenues	2009	178 hotel rooms
11	Hudson Yards Sites 32/33 West side of Ninth Avenue between West 31st and West 33rd Streets	2014	4,615,700 gsf office 82,300 gsf retail
12	Hudson Yards Potential Site 62 East side of Tenth Avenue between West 30th and West 31st Streets	2010 (under construction)	220 residential units 235,750 gsf hotel
13	345 West 35th Street between Eighth and Ninth Avenues	2008	100,500 gsf hotel (200 rooms) Garment Center Special District
14	Wyndham Garden Inn 339 West 36th Street between Eighth and Ninth Avenues	2008	224 hotel rooms Garment Center Special District
15	310-328 West 38th Street Midblock on West 37th and West 38th Streets between Eighth and Ninth Avenues	2010 (under construction)	569 residential units 10,600 gsf retail Garment Center Special District
16	Hudson Yards Site 28, Hudson Mews II (South) Dyer Avenue between West 36th and West 37th Streets	2011	361 residential units 16,100 gsf retail 3,660 sf open space
17	Hudson Yards Site 24, Hudson Mews I (North) Dyer Avenue between West 37th and West 38th Streets	2011	448 residential units 7,460 gsf community facility 170 parking spaces
18	Hudson Yards Site 37 Midblock on West 38th and West 39th Street between Eighth and Ninth Avenues (Block 762, Lot 6)	2010	381,990 gsf office 8,520 gsf retail
19	585 Eighth Avenue between West 38th and West 39th Streets	2009	82,906 gsf hotel (169 hotel rooms) Midtown Special District
20	Fairfield Inn and Four Points Hotel 340-342 West 40th Street	2008	500 hotel rooms
21	Staybridge Suites Time Square 334 West 40th Street	2009	310 hotel rooms
22	Hudson Yards Potential Sites 68,70 Eighth Avenue between West 39th and West 40th Streets	2008	1,061 hotel rooms
23	Port Authority Bus Terminal office tower West side of Eighth Avenue between West 41st and West 42nd Streets	2012	1,300,000 gsf office

Table 3 (cont'd)
Projects Under Construction or Expected to Be Complete by 2014
(¼- and ½-Mile Study Areas)

Half-Mile Study Area (cont'd)			
24	11 Times Square West 42nd Street and Eighth Avenue	2011 (under construction)	938,950 gsf office 49,420 gsf retail
25	Bush Tower Annex 140 West 42nd Street between Broadway and Sixth Avenue	2010	140,000 gsf office
26	101 West 24th Street at 735 Sixth Avenue	2008	199 residential units 16,000 gsf retail
27	124 West 24th Street Midblock between Sixth and Seventh Avenues	2008	21 residential units 1,965 gsf retail
28	133 West 22nd Street between Sixth and Seventh Avenues	2008	89 residential units 2,211 gsf retail Proposed 147 public spaces vs. No Action 147 accessory
Note: sf=square feet.			

Table 3 (cont'd)
Projects Under Construction or Expected to Be Complete by 2014
(Transportation Study Area)

Map #	Site Description	Build Year	Building Program/Comments
T1	316 Eleventh Avenue Between West 29th Street and West 30th Streets (Block 701, Lots 62, 68, and 70)	2010 (under construction)	365 residential units 4,820 gsf retail
T2	Hudson Boulevard midblock street and open space: West 33rd to West 36th Street	2013	open space
T3	Southwest corner of Tenth Avenue and West 30th Street (Block 701, Lots 30, 33, 36, 37, 42-44)	2011 (under construction)	382 residential units 30,000 gsf retail 23,000 gsf parking area
T4	Northeast corner of Eleventh Avenue and West 28th Street (Block 700, Lots 1, 49-61)	2009 (under construction)	600 residential units
T5	Hudson Yards Site 11 West side of Tenth Avenue between West 37th and West 38th Streets	2010	855 residential units 65,320 gsf retail
T6	Hudson Yards Site 18 South side of West 43rd Street between Eleventh and Twelfth Avenues	2010 (under construction)	1,000 residential units 37,950 gsf retail
T7	Hudson Yards Site 19, Theater Row II East side of Tenth Avenue between West 41st and West 42nd Streets	2010 (under construction)	774 residential units 230,000 gsf hotel (250 hotel rooms) 12,500 gsf retail 50,000 sf Equinox fitness club 70,000 sf theater 360-car parking garage
T8	Hudson Yards Site 23 East side of Tenth Avenue between West 37th and West 38th Streets	2009 (under construction)	388 residential units 20,900 gsf retail
T9	Hudson River Park (portions of Segment 5)	2009	9.2 acres parkland
T10	West Chelsea Projected Site 4 547-59 West 27th Street (Block 699, Lot 5)	2012	118 residential units 15,548 gsf retail (Conversion of existing building)
T11	West Chelsea Projected Site 5 507-17 West 27th Street (Block 699, Lots 9, 22-27, 44)	2012	283 residential units 39,976 gsf retail
T12	West Chelsea Projected Site 6 299-311 Tenth Avenue (Block 699, Lots 29, 31-33, 37)	2012	159 residential units 28,637 gsf retail
T13	West Chelsea Projected Site 7 550-558 West 27th Street (Block 698, Lot 1) Otis Elevator Building	2012	57,500 gsf office
T14	520 West 27th Street Midblock between Tenth and Eleventh Avenues	2009	43,400 gsf office

Table 3 (cont'd)
Projects Under Construction or Expected to Be Complete by 2014
(Transportation Study Area)

Map #	Site Description	Build Year	Building Program/Comments
T15	Spindler Site West 26th Street and Tenth Avenue (Block 698, Lots 28, 32)	2012	31 residential units 26,250 gsf hotel (53 hotel rooms)
T16	West Chelsea Projected Site 9 507 West 25th Street (Block 697, Lots 27 and 31)	2012	175 residential units 8,888 gsf retail
T17	420 West 25th Street Midblock between Ninth and Tenth Avenues	2009	76 residential units 7,110 gsf retail
T18	West Chelsea Projected Site 10 550 West 25th Street (Block 696, Lot 58)	2012	110,598 gsf community facility
T19	245 Tenth Avenue	2009	18 residential units
T20	Highline 519 519 West 23rd Street Midblock between Tenth and Eleventh Avenues	2008	22 residential units
T21	200 Eleventh Avenue	2009	16 residential units
T22	552 West 24th Street	2009	15 residential units
T23	23 West 23rd Street	2009	11 residential units
T24	10 Chelsea 500 West 23rd Street	2009	68 residential units
T25	Time Warner garage site Between West 21st and West 22nd Streets (Block 693, Lot 23)	2012	155,925 gsf hotel (312 hotel rooms)
T26	High Line Open Space	2010	4.41 acres open space
T27	West Chelsea Projected Site 13 550 West 21st Street (Block 692, Lots 7, 61, 63)	2012	133 residential units 7,331 gsf retail
T28	West Chelsea Projected Site 14 540-542 West 21st Street (Block 692, Lots 53, 57)	2012	88,128 gsf community facility
T29	West Chelsea Projected Site 15 521-527 West 20th Street (Block 692, Lots 28, 30)	2012	87 residential units 43,420 gsf retail
T30	Nouvel on 19th Street West 19th Street and Eleventh Avenue	2009	72 residential units
T31	Metal Shutter Houses West 19th Street	2009	9 residential units
T32	520 West Chelsea 520 West 19th Street	2008	26 residential units
T33	High Line Bonus Site C, West Chelsea Subarea G Tenth Avenue between West 18th and West 19th Streets	2012	341 residential units
T34	High Line Bonus Site B, West Chelsea Subarea H (Block 689, Lot 17)	2012	945 residential units
T35	306 West 44th Street	2010	484,820 gsf hotel 11,500 gsf retail

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

TRANSPORTATION PLANNING ASSUMPTIONS

The transportation planning assumptions used to forecast travel demand from the project's office and retail components are discussed below. Similarly, the assumptions used to forecast travel demand for other development projects without the Proposed Action, including residential, office, hotel, destination retail, community facility and manufacturing uses, are summarized below. The trip generation rates, temporal distributions and mode choice assumptions were based on accepted CEQR criteria, standard professional references, and studies that have been done for similar uses in Manhattan. These sources were supplemented by data from the 2000 Census and the ITE Trip Generation, 7th Edition.

Wherever possible, transportation planning assumptions, including mode split, trip generation and trip assignment, are consistent with assumptions stated in previous EIS work.

OFFICE (PROPOSED PROJECT)

Daily Trip Rates – The travel demand forecasts for the project's office components were based on weekday trip rates from the *Hudson Yards Rezoning and Development Program FGEIS*.

Vehicle Occupancy and Temporal and Directional Distributions – These trip characteristics were obtained from the *Hudson Yards Rezoning and Development Program FGEIS* and other approved EIS documents.

Mode Split – The mode split distributions for office uses were obtained from an interagency working group, led by City Planning, and were based upon the following principles:

- 2000 Census Reverse Journey-to-Work (RJTW) data sets are used as the exclusive data source.
- For the peak hour traffic, transit and pedestrian impact analyses, office mode split distributions derived from the 7:30 to 9:30 AM Peak Period RJTW data were determined to be the most appropriate ones to use.
- When the character of an area is expected to change as a result of the Proposed Action, the working group may make minor adjustments.
- To the maximum extent practical, the mode split distribution for an area should be based upon the individual census tracts that comprise the area.
- The "worked at home" category should remain in the mode split percentage distributions for office uses, based upon the recommendation of City Planning's Census and Population Division.
- For the Hudson Yards area, west of Ninth Avenue, the mode split distribution should be derived from 2000 Census RJTW data based upon the previously approved methodology in the *Hudson Yards FGEIS, Appendix S-1,* as furnished by the working group.

The working group divided the greater study area into twelve areas – Areas A through Area L – which due splitting some areas into subareas, resulted in 20 different mode split distributions. These distributions are summarized in Table 4 and illustrated in Figure 2. The underlying census tract source for each subarea's mode split distribution is shown in this table. Footnotes at the bottom of the table provide additional information, where applicable.

Trucking Characteristics – The weekday office truck trip rate and temporal distribution are based on the results of the Philip Habib & Associates' June 10, 2004 survey at existing office buildings in Midtown and Lower Manhattan, as reported in the *Atlantic Yards Arena & Redevelopment Project FEIS*, November 2006.

TRADING FLOORS (PROPOSED PROJECT)

Daily Trip Rates – The travel demand forecasts for the project's trading floor components were based on weekday trip rates from the *New York Stock Exchange New Facility EIS*.

Vehicle Occupancy and Temporal and Directional Distributions – These trip characteristics were obtained from the *New York Stock Exchange New Facility EIS*.

Mode Split – The mode split percentages for office use will also be used for trading floor use.

Trucking Characteristics – The weekday office truck trip rate and temporal distribution are based on the *New York Stock Exchange New Facility EIS*.

LOCAL RETAIL (PROPOSED PROJECT)

The proposed project contains a local retail component. For the purposes of the SEIS, local retail is defined as retail floor area of less than 100,000 gross square feet on a single development site.

Daily Trip Rate – The forecasts of travel demand for the local retail category were based on the weekday trip rate from the *Hudson Yards FGEIS*.

The local (or "neighborhood") retail uses would attract trips primarily from the residential and worker populations on-site and in surrounding neighborhoods. It is, therefore, anticipated that the majority of these trips would be via the walk mode and that many would be "linked" trips (e.g., a trip with multiple purposes, such as stopping at a retail store while commuting to or from work) and would therefore not represent the addition of new discrete trips to the study area transportation systems. For the purposes of the travel demand forecast, it is conservatively assumed that 25 percent of retail trips would be such "linked" trips, which is

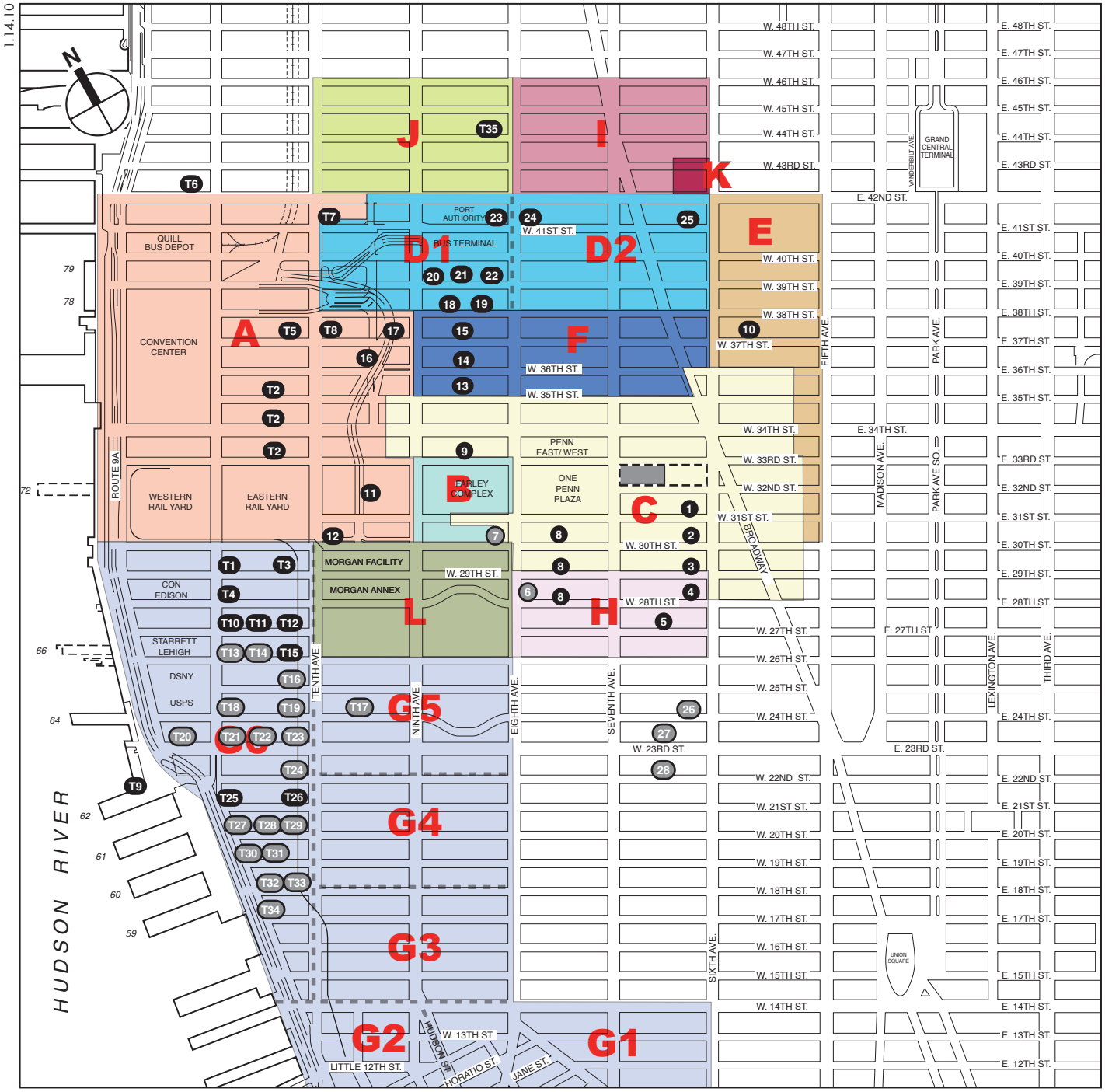
Table 4
OFFICE MODE SPLIT DISTRIBUTIONS -- WEST MIDTOWN
2000 Census Reverse Journey-to-Work -- 7:30 to 9:30 AM Peak Period Data
Inter-Agency Working Group Recommendations

West Midtown		7:30 to 9:30 AM Peak Period Mode Split Distribution									2000 Census RJTW - Sources		
Area	Description	Auto	Taxi / Black Car	Bus	Subway	Railroad	Walk	Worked at Home	Other	Total	Census Tract	Period	Notes
A	Hudson Yards west of 9th Av	9.9%	2.4%	15.8%	43.7%	20.1%	7.2%	0.6%	0.3%	100.0%		7:30 AM to 9:30 AM	1
B	Farley Complex	13.8%	1.2%	12.7%	52.6%	15.5%	3.3%	0.9%	0.0%	100.0%	103	7:30 AM to 9:30 AM	2
C	Moynihan Station Subdistrict -- No Action Condition	10.2%	1.0%	12.9%	47.3%	25.1%	3.2%	0.2%	0.1%	100.0%	101	7:30 AM to 9:30 AM	3
D1	PABT Area South #115 – 38th to 42nd St / 8th to 10th Av	10.5%	2.4%	10.4%	63.4%	8.7%	4.1%	0.5%	0.0%	100.0%	115	7:30 AM to 9:30 AM	6
D2	Times Square Area South #113 – 38th to 42nd St / 6th to 8th Av	9.9%	1.6%	16.8%	48.6%	17.6%	5.5%	0.0%	0.0%	100.0%	113	7:30 AM to 9:30 AM	7
E	Other Development East of Seventh Av	9.3%	1.5%	13.7%	53.9%	17.3%	4.3%	0.0%	0.0%	100.0%	109	7:30 AM to 9:30 AM	8
F	35th to 38th St / 7th to 9th Av	9.3%	1.5%	13.7%	53.9%	17.3%	4.3%	0.0%	0.0%	100.0%	109	7:30 AM to 9:30 AM	8
G1	West Chelsea Census Tract #77	13.4%	2.2%	5.9%	45.4%	6.7%	12.5%	13.9%	0.0%	100.0%	77	7:30 AM to 9:30 AM	9
G2	West Chelsea Census Tract #79	16.3%	2.6%	5.2%	35.0%	12.0%	10.0%	18.9%	0.0%	100.0%	79	7:30 AM to 9:30 AM	9
G3	West Chelsea Census Tract #83	12.7%	0.7%	10.3%	53.9%	12.7%	8.0%	1.7%	0.0%	100.0%	83	7:30 AM to 9:30 AM	9
G4	West Chelsea Census Tract #89	11.0%	4.7%	8.4%	31.1%	6.8%	13.7%	24.2%	0.1%	100.0%	89	7:30 AM to 9:30 AM	9
G5	West Chelsea Census Tract #93	18.1%	0.6%	5.7%	32.5%	8.9%	9.7%	24.4%	0.1%	100.0%	93	7:30 AM to 9:30 AM	9
G6	West Chelsea Census Tract #99 -- W 14th to W 30th St / 10th Av to Route 9A	25.1%	4.1%	10.0%	43.2%	10.4%	7.0%	0.2%	0.0%	100.0%	99	7:30 AM to 9:30 AM	9
H	26th to 29th St / 6th to 8th Av	12.3%	1.2%	8.0%	55.0%	15.8%	6.3%	1.4%	0.0%	100.0%	95	7:30 AM to 9:30 AM	10
I	Times Square Area North # 119 - 42nd to 46h St / 6th to 8th Av	8.6%	2.2%	15.3%	49.3%	19.0%	5.5%	0.1%	0.0%	100.0%	119	7:30 AM to 9:30 AM	11
J	PABT Area North #121 - 42nd to 46th St / 8th to 9th Av	11.8%	0.4%	10.8%	46.2%	7.2%	11.7%	11.4%	0.5%	100.0%	121	7:30 AM to 9:30 AM	12
K	One Bryant Park EIS - SEIS Map #16	9.1%	2.5%	16.6%	44.7%	19.3%	7.8%	0.0%	0.0%	100.0%	EIS		13
L	Chelsea Tract #97 - 26th to 29th St / 8th to 10th Av	14.3%	1.3%	12.7%	55.3%	5.5%	6.8%	4.1%	0.0%	100.0%	97	7:30 AM to 9:30 AM	14

Prepared by: Stantec Consulting Services, Inc., as revised by NYCDCP, NYCDOT, NYCT on Friday 01/25/08. Further revised by NYCDCP on 02/07/08, 03/02/08, 03/04/08, 03/10/08, 03/11/08 and 03/20/08.

Notes:

1 Area A -- Updated Hudson Yards FGEIS Appendix S-1, Office Modal Splits Technical Memorandum, May 20, 2003 by DCP, DOT, & NYCT Working Group
2 Area B -- Census Tract 103. Mode split updated to 7:30 to 9:30 AM peak period
3 Area C - Moynihan Station Subdistrict represented by Census Tract 101.
4 Area D1 -- PABT Area, Census Tract 115.
5 Area D2 -- Times Square Census Tract 113.
6 Areas E & F – See working group spreadsheet dated 07-28-07 for Spreadsheet Site Reference #s 21 - 34, 37 - 39.
7 Areas G1 to G5 -- West Chelsea FEIS mode splits have been revised to reflect 7:30 - 9:30 AM peak period arrival mode for office uses
8 Area H – Census Tract 95. Mode split updated to 7:30 - 9:30 AM peak period.
9 Area I -- Census Tract 119. Mode split updated to 7:30 - 9:30 AM peak period.
10 Area J – Census Tract 121. Mode split updated to 7:30 - 9:30 AM peak period.
11 Area K -- One Bryant Park SEIS
12 Area L -- Census Tract 97. Mode split updated to 7:30 - 9:30 AM peak period.



Development Site

Project Site Boundary

1 *No Build Project to be Completed by 2014 (see Tables 2-3 and 2-4)*

T34 *No Build Project Included in Background Growth for Traffic Analysis*

Office Mode Split
Distribution Analysis Areas
Figure 2

consistent with the percentage assumed for local retail uses in the *Hudson Yards FGEIS*.

Vehicle Occupancy and Temporal and Directional Distributions – For local retail, the temporal and directional distributions for weekdays were obtained from the *Hudson Yards FGEIS.*

Mode Split – The mode split percentages are based on the distributions in the *Hudson Yards FGEIS*.

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts,* FHWA, February, 1981.

DESTINATION RETAIL ((PROPOSED PROJECT)

The future without the Proposed Action includes several projects with more than 300,000 square feet or retail space. For the purposes of the SEIS, destination retail is defined as retail floor area of 100,000 gross square feet or more at a single development site

Daily Trip Rate -- The forecasts of travel demand for the destination retail category were based on the weekday trip rate from the *Hudson Yards FGEIS*. ITE Trip Generation, 7th Edition (Land Use Category 820 – Shopping Centers, Table 3) data for shopping centers with more than 300,000 square feet of GLA was used for destination retail in the immediate vicinity of Penn Station. For destination retail uses elsewhere in the study area, data for shopping centers with 100,000 to 300,000 square feet of GLA was used.

The destination retail uses would attract customers primarily from a distance, but significant number would also be attracted from the residential and worker populations on-site and in surrounding neighborhoods. It is anticipated that a majority of these trips to/from surrounding neighborhoods would be via the walk mode, and that many would be “linked” trips (e.g., a trip with multiple purposes, such as stopping at a retail store while commuting to or from work) and would, therefore, not represent the addition of new discrete trips to the study area transportation systems. For the purposes of the travel demand forecast, it is conservatively assumed that 25 percent of destination retail trips would be “linked” trips, consistent with the rates assumed for other retail developments in New York City, according to the CEQR Manual.

Vehicle Occupancy and Temporal and Directional Distributions – For destination retail, the temporal and directional distributions for weekdays were obtained from the *Hudson Yards FGEIS.* The vehicle occupancy rates were based upon standard values, which were used in *Hudson Yards FGEIS*.

Mode Split – The mode split for the destination retail component of projects without the Proposed Action is based on the distributions in the *Hudson Yards Rezoning and Development Program FGEIS* (Destination Retail, Table 2).

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts,* FHWA, February, 1981. These assumptions are consistent with the *Hudson Yards Rezoning and Development Program FGEIS*.

Table 5 summarizes the assumed Transportation Planning Factors for the two proposed Build Programs.

Table 5
Transportation Planning Factors

Land Use	Office		Trading Floor		Local Retail		Destination Retail	
Trip Generation								
	(6)	(8)	(2, 4)	(2, 4)	(10, 11)	(11, 12)	(6, 11)	(11, 13)
	Weekday	**Saturday**	**Weekday**	**Saturday**	**Weekday**	**Saturday**	**Weekday**	**Saturday**
Daily Person Trips	18.0	3.87	7125	0	205	240	159	185
Net Daily Person Trips	18.0	3.87	7125	0	154	180	119	139
Temporal Distribution	(1, 14)		(5, 16)		(6, 7)		(6, 13)	
AM (8-9)	11.8%		37.8%		3.1%		0.0%	
MD (12-1)	15.0%		0.0%		19.0%		9.5%	
PM 5-6)	13.7%		35.0%		9.6%		9.8%	
SAT (1-2 PM)	14.7%		0.0%		9.5%		9.9%	
In / Out Directional Split	(1, 14)		(5)		(6)		(6, 13)	
	In	**Out**	**In**	**Out**	**In**	**Out**	**In**	**Out**
AM (8-9)	96%	4%	100%	0%	50%	50%	0%	0%
MD (12-1)	48%	52%	0%	0%	50%	50%	55%	45%
PM 5-6)	5%	95%	0%	100%	50%	50%	47%	53%
SAT (1-2 PM)	57%	43%	0%	0%	50%	50%	52%	48%
Modal Split								
	(9)	(6)	(9)	(6)	(6)		(3, 6)	
Mode	**AM / PM**	**MD / SAT**	**AM / PM**	**MD / SAT**	**ALL**		**PM**	**MD / SAT**
Auto	10.2%	1.5%	10.2%	1.5%	2.0%		9.0%	9.0%
Taxi	1.0%	3.0%	1.0%	3.0%	3.0%		4.0%	4.0%
Bus	12.9%	5.0%	12.9%	5.0%	6.0%		8.0%	8.0%
Subway	47.3%	6.0%	47.3%	6.0%	6.0%		26.5%	20.0%
Railroad	25.1%	1.5%	25.1%	1.5%	0.0%		2.0%	0.0%
Walk	3.2%	83.0%	3.2%	83.0%	83.0%		50.5%	59.0%
Other	0.1%	0.0%	0.1%	0.0%	0.0%		0.0%	0.0%
Work at Home	0.2%	0.0%	0.2%	0.0%	0.0%		0.0%	0.0%
	100.00%	100.0%	100.00%	100.0%	100.00%		100.00%	100.0%
Vehicle Occupancy	(6)		(6)		(6)		(6)	
Auto	1.65		1.65		1.65		2.00	
Taxi	1.40		1.40		1.40		2.00	
Truck Trip Generation								
	(6)	(7)	(6)	(7)	(6)	(7)	(6)	(15)
	Weekday	**Saturday**	**Weekday**	**Saturday**	**Weekday**	**Saturday**	**Weekday**	**Saturday**
Daily Vehicle Trips	0.16	0.01	0.16	0.01	0.35	0.02	0.35	0.02
Temporal Distribution	(7)		(7)		(6, 7)		(6, 15)	
AM (8-9)	7.0%		7.0%		7.7%		7.7%	
MD (12-1)	7.0%		7.0%		11.0%		11.0%	
PM 5-6)	3.0%		3.0%		1.0%		1.0%	
SAT (1-2 PM)	11.0%		11.0%		11.0%		11.0%	
In / Out	In	Out	In	Out	In	Out	In	Out
	50%	50%	50%	50%	50%	50%	50%	50%

Sources:

(1) Pushkarev & Zupan, "Urban Space for Pedestrians," 1975.
(2) New York Stock Exchange New Facility EIS, 1999.
(3) Farley/Moynihan West FEIS, 2006, Table 13-1
(4) Assumes 3,750 new traders employed by member firms
(5) Assumes 95% daily attendance and two trips per person per day, with neglible trips during the midday peak hour
(6) No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS, 2004.
(7) Atlantic Yards and Arena Redevelopment FEIS, 2006
(8) ITE Trip Generation, 7th Edition, Land Use Code 710: General Office Building Ratio of Weekday to Saturday Trip Generation Rates
(9) Hudson Yards FGEIS, Appendix S-1 Updated by NYCDCP, NYCDOT and NYCT Working Group
(10) City Environmental Quality Review (CEQR) Technical Manual, Appendix 3, 2001
(11) Assumes 25% linked trips for retail uses as per No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS, 2004.
(12) ITE Trip Generation, 7th Edition, Land Use Code 851: Convenience Retail Ratio of Weekday to Saturday Trip Generation Rates
(13) ITE Trip Generation, 7th Edition, Land Use Code 820: Shopping Center Ratio of Weekday to Saturday Trip Generation Rates
Directional distribution based upon Saturday peak hour of the generator
(14) ITE Trip Generation, 7th Edition, Land Use Code 710: General Office Building Ratio of Saturday Peak Hour Trip Generation Rate to Saturday Daily Rate.
Directional distribution based upon Saturday peak hour of the generator
(15) Assumes same Saturday truck trip generation rate as local retail.
(16) Based on April 1997 survey of NYSE traders and staff

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

HOTEL (NO BUILD PROJECTS)

Since the Proposed Project involves the removal of the Hotel Pennsylvania, the Hotel's generated trips are removed from the transportation network.

Daily Trip Rates – The travel demand forecast for the hotel is based on trip rates from the *Hudson Yards FGEIS.*

Vehicle Occupancy and Temporal and Directional Distributions – These trip characteristics were obtained from the *Hudson Yards Rezoning and Development Program FGEIS* and other approved EIS documents.

Mode Split – The mode split is based on the distributions in the *Hudson Yards FGEIS*.

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the *Curbside Pickup & Delivery Operations & Arterial Traffic Impacts,* FHWA, February, 1981.

RESIDENTIAL (NO BUILD PROJECTS)

The future without the Proposed Project includes several development sites with substantial residential components.

Daily Trip Rates – The forecasts of travel demand for a project's residential components were based on weekday person trip rates from *Urban Space for Pedestrians* (Pushkarev & Zupan, 1975).

Vehicle Occupancy and Temporal and Directional Distributions – These trip characteristics were obtained from the *Hudson Yards Rezoning and Development Program FGEIS* and other approved EIS documents.

Mode Split – The mode split distributions for residential uses were calculated by Stantec, based upon guidance received from City Planning and NYCDOT:

- 2000 Census Journey-to-Work (JTW) data sets are to be used as the exclusive data source.
- For the traffic, transit and pedestrian impact analyses, residential mode split distributions are to be derived from daily JTW data, available on City Planning's website.
- To the maximum extent practical, the mode split distribution for an area should be based upon the individual census tracts that comprise the area.
- The "worked at home" category should not be included, as a mode of transportation, when computing the mode split percentage distribution for residential uses, based upon the recommendation of City Planning's Census and Population Division.

- Based upon direction received from City Planning, the method for aggregating the more ambiguous modes (motorcycle, ferryboat, bicycle and other means) approved by their Census and Population Division was used, as follows:
    - Auto = Auto
    - Taxi = Taxi + Motorcycle + Other Means
    - Bus = Bus or Trolley Bus
    - Subway = Street Car or Trolley Car + Subway or Elevated
    - Railroad = Railroad + Ferryboat
    - Walk Only = Bicycle + Walk
    - Work at Home = Work at Home
    - For the Hudson Yards area, west of Ninth Avenue, the residential mode split distribution from the *Hudson Yards FGEIS, Appendix S-1* is used.

The greater study area was divided into fourteen areas – Area A through Area N – which due to splitting some areas into subareas, resulted in 26 different residential mode split distributions. These distributions are summarized in Table 6 and illustrated in Figure 3. The underlying census tract source for each subarea's mode split distribution is shown in this table. Footnotes at the bottom of the table provide additional information, where applicable.

Although residential-based trips in the midday would likely be more local in nature than in the peak commuter hours (and therefore have a higher walk share, for example), the mode split distributions, based on daily census journey-to-work data, is conservatively assumed for all weekday analysis hours.

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the *Hudson Yards Rezoning and Development Program FGEIS* for the residential category.

COMMUNITY FACILITY (NO BUILD PROJECTS)

The future without the Proposed Actions includes several projects with an undefined community facility component, especially in the Hudson Yards Special District.

Daily Trip Rate – In developing forecasts of travel demand for the community facility category, Stantec considered the Recreational Center and Day Care Center categories from the *Hudson Yards FGEIS*, Appendix S-1. The trip rate for the Recreational Center category was selected, because the daily trip was a little higher.

Vehicle Occupancy and Temporal and Directional Distributions – For a community facility, the temporal and directional distributions for all periods are based on the average for Recreational Center and Day Care Center land use categories from the *Hudson Yards FGEIS*, Appendix S-1.

Table 6
RESIDENTIAL MODE SPLIT DISTRIBUTIONS -- WEST MIDTOWN
2000 Census Journey-to-Work -- Daily Data
Cilty Planning and City DOT Recommendations

West Midtown		Daily Mode Split Distribution									2000 Census JTW - Sources		
Area	Description	Auto	Taxi / Black Car	Bus	Subway	Railroad	Walk	Worked at Home	Other	Total	Manhattan Census Tract	Period	Notes
A	Hudson Yards west of 9th Av	6.6%	6.5%	5.8%	37.5%	2.0%	40.3%	-	1.3%	100.0%	EIS	Daily	1
B	Farley Complex Area	8.9%	7.3%	6.8%	52.0%	0.4%	24.5%	-	0.0%	100.0%	103	Daily	2
C	Penn Station Area #101	0.0%	11.8%	0.0%	59.1%	0.0%	29.1%	-	0.0%	100.0%	101	Daily	3
D1	PABT Area South #115 – 38th to 42nd St / 8th to 10th Av	8.6%	2.4%	7.3%	35.5%	2.6%	43.5%	-	0.0%	100.0%	115	Daily	4
D2	Times Square Area South #113 – 38th to 42nd St / 6th to 8th Av	28.1%	0.0%	6.3%	23.4%	0.0%	42.2%	-	0.0%	100.0%	113	Daily	4
E1	Herald Sq East Area #84 35 to 42 St / 5th to 6th Av	7.8%	3.9%	4.3%	45.4%	0.0%	38.6%	-	0.0%	100.0%	84	Daily	5
E2	Greeley Sq Area #76 - 28 to 35 St / 5th to 6th Av	8.5%	3.3%	5.3%	39.9%	1.1%	41.8%	-	0.0%	100.0%	76	Daily	5
F	35th to 38th St / 7th to 9th Av	0.0%	69.1%	0.0%	30.9%	0.0%	0.0%	-	0.0%	100.0%	109	Daily	6
G1	West Chelsea Census Tract #77	6.7%	6.0%	3.7%	55.6%	1.3%	26.8%	-	0.0%	100.0%	77	Daily	7
G2	West Chelsea Census Tract #79	10.8%	13.8%	3.1%	49.2%	0.9%	22.2%	-	0.0%	100.0%	79	Daily	7
G3	West Chelsea Census Tract #83	4.1%	7.1%	7.7%	55.1%	0.4%	25.6%	-	0.0%	100.0%	83	Daily	7
G4	West Chelsea Census Tract #89	8.8%	10.9%	6.9%	42.7%	1.7%	29.0%	-	0.0%	100.0%	89	Daily	7
G5	West Chelsea Census Tract #93	7.1%	9.5%	9.6%	44.4%	1.1%	28.3%	-	0.0%	100.0%	93	Daily	7
G6	West Chelsea Census Tract #99 -- W 14th to W 30th St / 10th Av to Route 9A	17.4%	19.1%	9.3%	27.2%	0.0%	27.0%	-	0.0%	100.0%	99	Daily	7
H1	East Chelsea Census Tract #95 - 26th to 29th St / 6th to 8th Av	7.5%	8.4%	1.4%	39.5%	4.5%	38.6%	-	0.0%	100.0%	95	Daily	8
H2	East Chelsea Census Tract #95 - 22 to 26 St / 6th to 8th Av	7.0%	4.0%	2.2%	54.6%	1.1%	31.1%	-	0.0%	100.0%	91	Daily	8
H3	East Chelsea Census Tract #95 - 18 to 22 St / 6th to 8th Av	7.8%	6.9%	1.7%	52.8%	0.9%	29.9%	-	0.0%	100.0%	87	Daily	8
H4	East Chelsea Census Tract #95 - 14 to 18 St / 6th to 8th Av	8.6%	3.7%	2.9%	59.7%	1.2%	23.9%	-	0.0%	100.0%	81	Daily	8
I	Times Square Area North # 119 - 42nd to 46h St / 6th to 8th Av	6.8%	1.1%	5.6%	42.7%	0.0%	43.8%	-	0.0%	100.0%	119	Daily	9
J	Southeast Clinton #121 - 42nd to 46th St / 8th to 10th Av	7.8%	4.8%	8.1%	36.0%	1.4%	41.9%	-	0.0%	100.0%	121	Daily	10
K	One Bryant Park EIS - SEIS Map #16	6.8%	1.1%	5.6%	42.7%	0.0%	43.8%	-	0.0%	100.0%	119	Daily	11
L	Chelsea Tract #97 - 26th to 29th St / 8th to 10th Av	5.2%	6.4%	4.9%	51.1%	1.5%	30.9%	-	0.0%	100.0%	97	Daily	12

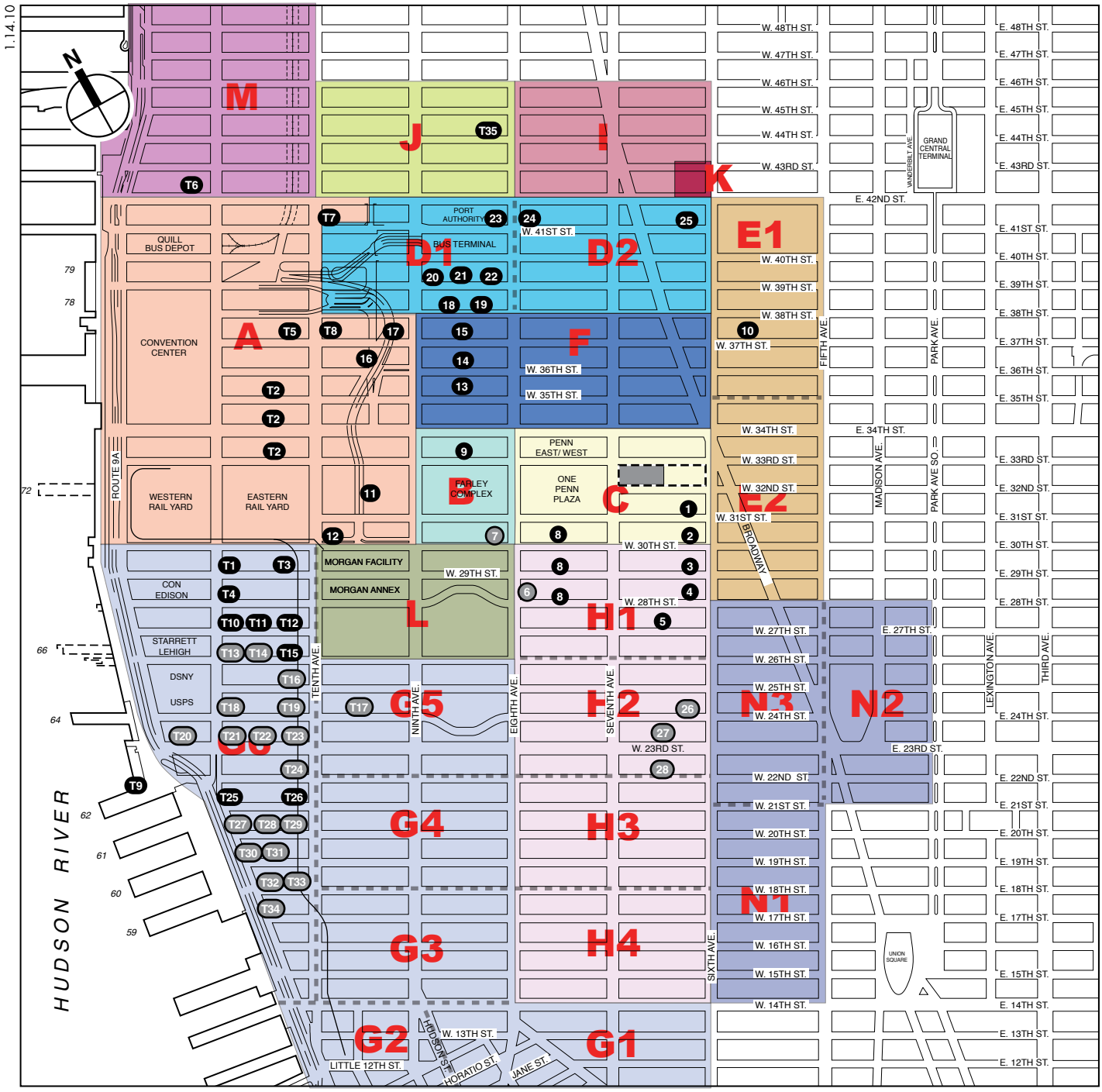
Table 6
RESIDENTIAL MODE SPLIT DISTRIBUTIONS -- WEST MIDTOWN
2000 Census Journey-to-Work -- Daily Data
Cilty Planning and City DOT Recommendations

West Midtown		Daily Mode Split Distribution									2000 Census JTW - Sources		
Area	Description	Auto	Taxi / Black Car	Bus	Subway	Railroad	Walk	Worked at Home	Other	Total	Manhattan Census Tract	Period	Notes
M	Southwest Clinton #129 - 42 to 50 St / 10th to 12th Av	5.1%	8.4%	16.1%	26.7%	1.3%	42.4%	-	0.0%	100.0%	129	Daily	13
N1	Flatiron/Ladies Mile Census Tract #52 - 14 to 21 St / 5th to 6th Av	5.0%	10.2%	1.1%	47.2%	0.3%	36.2%	-	0.0%	100.0%	52	Daily	14
N2	Madison Sq Census Tract #56 - E 21 to E 28 St / 5th to Park Av	7.5%	7.5%	2.1%	49.0%	1.6%	32.4%	-	0.0%	100.0%	56	Daily	14
N3	Flatiron/Ladies Mile Census Tract #58 - 21 to 28 St / 5th to 6th Av	1.6%	8.8%	7.7%	43.9%	2.3%	35.7%	-	0.0%	100.0%	58	Daily	14

Prepared by: Stantec Consulting Services, Inc. from daily 2000 Census Journey-to-Work data available from NYCDP Web-site. Summarized based upon guidance from NYCDCP as furnished AKRF, Inc.

Notes:

1 Area A -- Hudson Yards FGEIS, Appendix S-1, Residential
2 Area B -- Census Tract 103
3 Area C - Census Tract 101
4 Areas D1 & D2 -- Census Tracts 115 and 113, respectively
5 Areas E1 and E2 -- Census Tracts 84 and 76, respectively
6 Area F - Represented by Census Tract 109
7 Areas G1 to G6 -- Census Tracts 77, 79, 83, 89, 93 and 99, respectively
8 Area H1 to H4 – Census Tracts 95, 91, 87 and 81, respectively.
9 Area I -- Census Tract 119
10 Area J – Census Tract 121
11 Area K -- Census Tract 119
12 Area L -- Census Tract 97
13 Area M -- Census Tract 129
14 Areas N1 to N3 -- Census Tracts 52, 56 and 58, respectively



Development Site

Project Site Boundary

No Build Project to be Completed by 2014 (see Tables 2-3 and 2-4)

No Build Project Included in Background Growth for Traffic Analysis

0 1000 2000 FEET

SCALE

Residential Mode Split Distribution Analysis Areas
Figure 3

Mode Split – The mode split percentages distributions are based on the average of the mode split distributions for Recreational Center and Day Care Center land use categories from the *Hudson Yards FGEIS*, Appendix S-1.

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the averages of these characteristics for Recreational Center and Day Care Center land use categories from the *Hudson Yards FGEIS*, Appendix S-1.

MANUFACTURING (NO BUILD PROJECTS)

The future without the Proposed Actions includes several existing sites with manufacturing uses.

Daily Trip Rate – The forecasts of travel demand for the manufacturing category is based on the weekday trip rate from the *Hudson Yards FGEIS*, Appendix S-1.

Vehicle Occupancy and Temporal and Directional Distributions – For the manufacturing category, the temporal and directional distributions for all periods were obtained from the *Hudson Yards FGEIS*, Appendix S-1.

Mode Split – The weekday AM and PM mode split percentage distributions are based upon an update of the methodology used in the *Hudson Yards FGEIS,* which was based on 2000 US Census reverse journey-to-work data for census tracts between 23rd and 59th Streets, Third and Eighth Avenues. The midday mode split percentages were based upon the *Hudson Yards FGEIS*.

Trucking Characteristics – Truck trip generation rates and temporal distributions are based on the *Hudson Yards Rezoning and Development Program FGEIS* for the manufacturing category.

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

STUDY AREA

TRAFFIC

The primary study area, which was developed to account for the principal travel corridors to/from the development site, including 43 intersections for analysis bounded by West 35th Street to the north, Madison Avenue to the east, West 30th Street to the south, and Eighth Avenue to the west will be analyzed. Preliminary trip generation and assignment patterns suggest an additional ten to twelve key intersections with regional traffic connections along West 34th Street will need to be analyzed, including the intersections at Ninth Avenue, Park Avenue, Lexington Avenue, Third Avenue, Second Avenue, First Avenue, and the FDR Drive.

PEDESTRIAN / TRANSIT

Preliminary trip generation and assignment suggest a pedestrian and transit study area encompassing the area bounded by West 34th Street on the north, 6th Avenue / Broadway on the east, West 31st Street on the south, and 8th Avenue on the west.

In addition, the following subway stations will be analyzed:

- 34th Street Station on the Eighth Avenue Line (A, C, and E routes)
- 34th Street Station on the Seventh Avenue Line (1, 2, and 3 routes)
- Herald Square Station Complex (B, D, F, N, Q, R, W, V, and PATH)

Key station elements within each of these subway stations will be analyzed, including stairways, escalators, and control areas. Trip assignment patterns will be submitted for review and the study area adjusted accordingly.

SELECTION OF PEAK HOURS FOR ANALYSIS

On weekdays, the proposed project's office and retail components are expected to generate their highest demand during the traditional 8-9 AM and 5-6 PM commuter periods as well as during the 12-1 PM midday (lunch time) period. Due to the higher retail component for the multi-tenant program, a Saturday midday peak hour 12-1 PM will also be analyzed.

TRIP GENERATION

The incremental difference in person and vehicle trips expected to result from the proposed action by 2014 were derived for the two build programs – the Single Tenant and Multi-Tenant Scenarios. Tables 7 and 8 provide an estimate of the incremental net change in peak hour person trips (versus the No-Action condition) that would occur in 2014.

Table 7
Incremental Person Trips - Single Tenant Scenario

LAND USE		AM Peak Hour								MD Peak Hour							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total	Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total
Office 214,680 gsf	**In**	45	4	56	207	110	14	1	437	4	8	14	17	4	231	0	278
	Out	2	1	2	9	5	1	0	20	5	9	15	18	5	250	0	302
	Total	47	5	58	216	115	15	1	457	9	17	29	35	9	481	0	580
Trading Floor 5 floors - 340,857 gsf	**In**	275	27	347	1274	676	86	8	2693	0	0	0	0	0	0	0	0
	Out	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	275	27	347	1274	676	86	8	2693	0	0	0	0	0	0	0	0
Local Retail -22,334 gsf	**In**	-1	-2	-3	-3	0	-44	0	-53	-7	-10	-20	-20	0	-271	0	-328
	Out	-1	-2	-3	-3	0	-44	0	-53	-7	-10	-20	-20	0	-271	0	-328
	Total	-2	-4	-6	-6	0	-88	0	-106	-14	-20	-40	-40	0	-542	0	-656
Destination Retail 0 gsf	**In**																
	Out																
	Total																
Total Trips	**In**	**319**	**29**	**400**	**1478**	**786**	**56**	**9**	**3077**	-3	-2	-6	-3	4	-40	0	-50
	Out	**1**	**-1**	**-1**	**6**	**5**	**-43**	**0**	**-33**	-2	-1	-5	-2	5	-21	0	-26
	Total	**320**	**28**	**399**	**1484**	**791**	**13**	**9**	**3044**	-5	-3	-11	-5	9	-61	0	-76

LAND USE		PM Peak Hour								SAT Peak Hour							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total	Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total
Office 214,680 gsf	**In**	3	0	3	13	7	1	0	27	7	1	9	32	17	2	0	68
	Out	51	5	65	238	126	16	2	503	6	1	7	27	14	2	0	57
	Total	54	5	68	251	133	17	2	530	13	2	16	59	31	4	0	125
Trading Floor 5 floors - 340,857 gsf	**In**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Out	254	25	322	1180	626	80	7	2494	0	0	0	0	0	0	0	0
	Total	254	25	322	1180	626	80	7	2494	0	0	0	0	0	0	0	0
Local Retail -22,334 gsf	**In**	-3	-5	-10	-10	0	-137	0	-165	-4	-6	-11	-11	0	-158	0	-190
	Out	-3	-5	-10	-10	0	-137	0	-165	-4	-6	-11	-11	0	-158	0	-190
	Total	-6	-10	-20	-20	0	-274	0	-330	-8	-12	-22	-22	0	-316	0	-380
Destination Retail 0 gsf	**In**																
	Out																
	Total																
Total Trips	**In**	0	-5	-7	3	7	-136	0	-138	3	-5	-2	21	17	-156	0	-122
	Out	302	25	377	1408	752	-41	9	2832	2	-5	-4	16	14	-156	0	-133
	Total	302	20	370	1411	759	-177	9	2694	5	-10	-6	37	31	-312	0	-255

Table 8
Incremental Person Trips - Multi Tenant Scenario

LAND USE		AM Peak Hour								MD Peak Hour							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total	Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total
Office 573,900 gsf	**In**	119	12	151	554	294	37	3	1170	11	22	37	45	11	617	0	744
	Out	5	0	6	23	12	2	0	49	12	24	40	48	12	669	0	806
	Total	124	12	157	577	306	39	3	1218	23	46	77	93	23	1286	0	1550
Trading Floor 0 gsf	**In**																
	Out																
	Total																
Local Retail -40,600 gsf	**In**	-2	-3	-6	-6	0	-80	0	-97	-12	-18	-36	-36	0	-493	0	-594
	Out	-2	-3	-6	-6	0	-80	0	-97	-12	-18	-36	-36	0	-493	0	-594
	Total	-4	-6	-12	-12	0	-161	0	-194	-24	-36	-71	-71	0	-986	0	-1188
Destination Retail 361,711 gsf	**In**	0	0	0	0	0	0	0	0	201	89	179	447	0	1317	0	2233
	Out	0	0	0	0	0	0	0	0	167	74	149	371	0	1095	0	1857
	Total	0	0	0	0	0	0	0	0	368	164	327	818	0	2413	0	4089
Total Trips	**In**	117	9	145	548	294	-43	3	1073	**200**	**94**	**180**	**456**	**11**	**1442**	**0**	**2382**
	Out	3	-2	0	17	12	-79	0	-48	**167**	**81**	**153**	**384**	**12**	**1271**	**0**	**2068**
	Total	120	7	145	565	306	-122	3	1025	**367**	**175**	**333**	**840**	**23**	**2713**	**0**	**4450**

LAND USE		PM Peak Hour								SAT Peak Hour							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total	Auto	Taxi	Bus	Subway	Railroad	Walk	Other	Total
Office 573,900 gsf	**In**	7	1	9	33	18	2	0	71	18	2	23	85	45	6	1	180
	Out	137	13	173	636	337	43	3	1343	16	2	20	72	38	5	1	154
	Total	144	14	183	669	355	45	3	1414	34	3	43	158	84	11	2	334
Trading Floor 0 gsf	**In**																
	Out																
	Total																
Local Retail -40,600 gsf	**In**	-6	-9	-18	-18	0	-249	0	-300	-7	-10	-21	-21	0	-288	0	-347
	Out	-6	-9	-18	-18	0	-249	0	-300	-7	-10	-21	-21	0	-288	0	-347
	Total	-12	-18	-36	-36	0	-498	0	-600	-14	-21	-42	-42	0	-576	0	-694
Destination Retail 361,711 gsf	**In**	177	79	157	521	39	994	0	1967	245	109	217	543	0	1603	0	2717
	Out	203	90	180	596	45	1137	0	2251	203	90	181	452	0	1334	0	2261
	Total	380	169	337	1117	84	2131	0	4218	448	199	398	996	0	2937	0	4978
Total Trips	**In**	**178**	**70**	**148**	**537**	**57**	**747**	**0**	**1737**	**256**	**100**	**220**	**608**	**45**	**1321**	**1**	**2550**
	Out	**334**	**94**	**336**	**1214**	**382**	**931**	**3**	**3295**	**212**	**82**	**180**	**504**	**38**	**1050**	**1**	**2067**
	Total	**512**	**164**	**484**	**1751**	**439**	**1678**	**3**	**5032**	**468**	**182**	**400**	**1112**	**83**	**2371**	**2**	**4617**

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

As shown in Table 7 under the Single Tenant Scenario, the proposed action would generate an increase of approximately 3,040 total person trips in the weekday AM peak hour, a decrease of 80 person trips in the weekday midday peak hour, an increase of 2,690 person trips in the weekday PM peak hour and a decrease of 260 person trips in the Saturday peak hour, compared to the No-Action condition. Person trips by auto and taxi would increase by a net total of 350 in the weekday AM peak hour, decrease by 10 in the weekday midday peak hour, increase by 320 in the weekday PM peak hour and decrease by 10 in the Saturday peak hour. Peak hour subway trips would increase by 1,480 in the weekday AM peak hour, decrease by 10 in the weekday midday peak hour, increase by 1,410 in the weekday PM peak hour and increase by 40 in the Saturday peak hour. Peak hour bus trips would increase by 400 in the weekday AM peak hour, decrease by 10 in the weekday midday peak hour, increase by 370 in the weekday PM peak hour and decrease by 10 in the Saturday peak hour. Peak hour commuter railroad trips would increase by 790 in the weekday AM peak hour, 10 in the weekday midday peak hour, 760 in the weekday PM peak hour and by 30 in the Saturday peak hour. Trips made solely by the walk mode would increase by 10 in the weekday AM peak hour, decrease by 60 in the weekday midday peak hour, decrease by 180 in the weekday PM peak hour and decrease by 310 in the Saturday peak hour.

As shown in Table 8 under the Multi-Tenant Scenario, the proposed action would generate an increase of approximately 1,020 total person trips in the weekday AM peak hour, 4,450 person trips in the weekday midday peak hour, 5,030 person trips in the weekday PM peak hour and 4,620 person trips in the Saturday peak hour, compared to the No-Action condition. Person trips by auto and taxi would increase by a net total of 130 in the weekday AM peak hour, 540 in the weekday midday peak hour, 680 in the weekday PM peak hour and 650 in the Saturday peak hour. Peak hour subway trips would increase by 570 in the weekday AM peak hour, 840 in the weekday midday peak hour, 1,750 in the weekday PM peak hour and 1,110 in the Saturday peak hour. Peak hour bus trips would increase by approximately 150 in the weekday AM peak hour, 330 in the weekday midday peak hour, 480 in the weekday PM peak hour and 400 in the Saturday peak hour. Peak hour commuter railroad trips would increase by 310 in the weekday AM peak hour, 20 in the weekday midday peak hour, 440 in the weekday PM peak hour and by 80 in the Saturday peak hour. Trips made solely by the walk mode would decrease by approximately 120 in the weekday AM peak hour, increase by 2,710 in the weekday midday peak hour, 1,680 in the weekday PM peak hour and 2,370 in the Saturday peak hour.

Tables 9 and 10 provide an estimate of the incremental net change in peak hour vehicle trips (auto, taxi and truck) that would occur in 2014.

As shown in Table 9 under the Single Tenant Scenario, the proposed action would generate an increase of approximately 240 vehicle trips in the weekday AM peak

Table 9
Incremental Vehicle Trips - Single Tenant Scenario

LAND USE		AM Peak Hour					MD Peak Hour				
		Auto	Truck	Taxi	Balanced Taxi	Total	Auto	Truck	Taxi	Balanced Taxi	Total
Office	In	27	1	3	-	31	3	1	6	-	10
	Out	1	1	0	-	2	3	1	6	-	10
	Total	28	2	3	-	33	6	2	12	-	20
Trading Floor	In	166	2	19	-	187	0	2	0	-	2
	Out	0	2	0	-	2	0	2	0	-	2
	Total	166	4	19	-	189	0	4	0	-	4
Local Retail	In	-1	0	-1	-	-2	-4	0	-7	-	-11
	Out	-1	0	-1	-	-2	-4	0	-7	-	-11
	Total	-2	0	-2	-	-4	-8	0	-14	-	-22
Destination Retail	In				-	0				-	0
	Out				-	0				-	0
	Total				-	0				-	0
Total Trips	In	**192**	**3**	**21**	**21**	**216**	-1	3	-1	0	2
	Out	**0**	**3**	**-1**	**21**	**24**	-1	3	-1	0	2
	Total	**192**	**6**	**20**	**42**	**240**	-2	6	-2	0	4

LAND USE		PM Peak Hour					SAT Peak Hour				
		Auto	Truck	Taxi	Balanced Taxi	Total	Auto	Truck	Taxi	Balanced Taxi	Total
Office	In	2	1	0	-	3	4	0	1	-	5
	Out	31	1	4	-	36	4	0	1	-	5
	Total	33	2	4	-	39	8	0	2	-	10
Trading Floor	In	0	2	0	-	2	0	0	0	-	0
	Out	154	2	18	-	174	0	0	0	-	0
	Total	154	4	18	-	176	0	0	0	-	0
Local Retail	In	-2	0	-4	-	-6	-2	0	-4	-	-6
	Out	-2	0	-4	-	-6	-2	0	-4	-	-6
	Total	-4	0	-8	-	-12	-4	0	-8	-	-12
Destination Retail	In				-	0				-	0
	Out				-	0				-	0
	Total				-	0				-	0
Total Trips	In	0	3	-4	18	21	2	0	-3	0	2
	Out	183	3	18	18	204	2	0	-3	0	2
	Total	183	6	14	36	225	4	0	-6	0	4

Table 10
Incremental Vehicle Trips - Multi Tenant Scenario

LAND USE		AM Peak Hour					MD Peak Hour				
		Auto	Truck	Taxi	Balanced Taxi	Total	Auto	Truck	Taxi	Balanced Taxi	Total
Office	In	72	3	8	-	83	7	3	16	-	26
	Out	3	3	1	-	7	7	3	17	-	27
	Total	75	6	9	-	90	14	6	33	-	53
Trading Floor	In	0	0	0	-	0	0	0	0	-	0
	Out	0	0	0	-	0	0	0	0	-	0
	Total	0	0	0	-	0	0	0	0	-	0
Local Retail	In	-1	-1	-2	-	-4	-7	-1	-13	-	-21
	Out	-1	-1	-2	-	-4	-7	-1	-13	-	-21
	Total	-2	-2	-4	-	-8	-14	-2	-26	-	-42
Destination Retail	In	0	5	0	-	5	100	7	45	-	152
	Out	0	5	0	-	5	84	7	37	-	128
	Total	0	10	0	-	10	184	14	82	-	280
Total Trips	In	71	7	6	6	84	**100**	**9**	**48**	**67**	**176**
	Out	2	7	-1	6	15	**84**	**9**	**41**	**67**	**160**
	Total	73	14	5	12	99	**184**	**18**	**89**	**134**	**336**

LAND USE		PM Peak Hour					SAT Peak Hour				
		Auto	Truck	Taxi	Balanced Taxi	Total	Auto	Truck	Taxi	Balanced Taxi	Total
Office	In	4	2	1	-	7	11	1	1	-	13
	Out	83	2	10	-	95	9	1	1	-	11
	Total	87	4	11	-	102	20	2	2	-	24
Trading Floor	In	0	0	0	-	0	0	0	0	-	0
	Out	0	0	0	-	0	0	0	0	-	0
	Total	0	0	0	-	0	0	0	0	-	0
Local Retail	In	-4	0	-6	-	-10	-4	0	-7	-	-11
	Out	-4	0	-6	-	-10	-4	0	-7	-	-11
	Total	-8	0	-12	-	-20	-8	0	-14	-	-22
Destination Retail	In	89	1	39	-	129	122	1	54	-	177
	Out	101	1	45	-	147	102	1	45	-	148
	Total	190	2	84	-	276	224	2	99	-	325
Total Trips	In	**89**	**3**	**34**	**62**	**154**	**129**	**2**	**48**	**65**	**196**
	Out	**180**	**3**	**49**	**62**	**245**	**107**	**2**	**39**	**65**	**174**
	Total	**269**	**6**	**83**	**124**	**399**	**236**	**4**	**87**	**130**	**370**

hour, 4 vehicle trips in the weekday midday peak hour, 225 vehicle trips in the weekday PM peak hour and 4 vehicle trips in the Saturday peak hour, compared to the No-Action condition.

As shown in Table 10 under the Multi-Tenant Scenario, the proposed action would generate an increase of approximately 100 vehicle trips in the weekday AM peak hour, 340 vehicle trips in the weekday midday peak hour, 400 vehicle trips in the weekday PM peak hour and 370 vehicle trips in the Saturday peak hour, compared to the No-Action condition.

TRIP DISTRIBUTION

Trip directional distributions were developed by Stantec for autos, taxis and trucks. In order to maintain consistency, trip distribution assumptions from the *Expanded Moynihan / Penn Station Redevelopment* Project were used.

AUTO

The auto trip directional distribution was developed based upon data from the Hub-Bound 2003 Travel Report, prepared by the New York Metropolitan Transportation Council and released in February 2006. This report provided information on autos, taxis, vans and trucks entering an existing the Manhattan CBD south of 60th Street on a typical weekday. The cordon data was grouped by the following four[1] sectors:

- 60th Street sector
- Brooklyn sector
- Queens sector, and
- New Jersey sector.

For each sector, entering and exiting volume data are provided for streets, avenues, bridges and tunnels, which cross the sector boundaries for 8-9 AM, 7-10 AM and daily. Stantec analyzed all three periods, but selected the 7-10 AM peak period as being most representative of the travel patterns being analyzed in the SEIS during the three analysis hours. For each cordon crossing point, Stantec estimated the portion of vehicles that would arrive in or depart from the primary study area via Route 9A, the Lincoln Tunnel, or cross the study area boundary on the north, east or south, as summarized in Table 9 by land use category.

TAXI

The taxi trip directional distribution was developed based upon data from The New York City Taxi Fact Book, Schaller Consulting, March 2006. This report provided percentage distributions taxi trips stratified as follows:

- Airports

[1] The Staten Island ferry no longer carries vehicles.

- Outer Boroughs
- Manhattan North of 96th Street
- Manhattan 60th to 96th Street – east side
- Manhattan 60th to 96th Street – west side
- Manhattan East Midtown
- Manhattan West Midtown
- Manhattan south of 30th Street – east side
- Manhattan south of 30th Street – west side

Stantec used the percentage distributions from the taxi fact book to directionally distribute entering and exiting taxi trips to the primary study area's north, east and south boundary crossing points or to Route 9A or the Lincoln Tunnel on the west periphery of the study area, as summarized below in Table 11.

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

Table 11
Trip Directional Distribution Summary
Primary Study Area

Land Use & Direction	Route 9A	Lincoln Tunnel	Crossing Study Area Boundary			Total
			North	East	South	
AUTO TRIPS[1]						
OFFICE						
Arrivals	15%	10%	25%	35%	15%	100%
Departures	15%	10%	20%	40%	15%	100%
RETAIL						
Arrivals	15%	5%	25%	40%	15%	100%
Departures	15%	5%	20%	45%	15%	100%
HOTEL						
Arrivals	20%	10%	15%	40%	15%	100%
Departures	20%	10%	15%	40%	15%	100%
RESIDENTIAL						
Arrivals	10%	5%	25%	45%	15%	100%
Departures	10%	5%	20%	50%	15%	100%
TAXI TRIPS[2]						
OFFICE						
Arrivals	10%	0%	35%	35%	20%	100%
Departures	10%	0%	35%	35%	20%	100%
RETAIL						
Arrivals	10%	0%	40%	30%	20%	100%
Departures	10%	0%	40%	30%	20%	100%
HOTEL						
Arrivals	15%	5%	30%	40%	10%	100%
Departures	15%	5%	30%	40%	10%	100%
RESIDENTIAL						
Arrivals	15%	5%	30%	40%	10%	100%
Departures	15%	5%	30%	40%	10%	100%

[1] Estimates developed by Stantec, based on Hub-Bound 2003 Travel Report, NYMTC, February 2006 and rounded to nearest 5%.

[2] Estimates developed by Stantec, based on The New York City Taxi Fact Book, Schaller Consulting, March 2006 and rounded to nearest 5%

TRUCKS

The truck trip directional distribution was developed based upon data from the 2006 New York City Bridge Traffic Volumes, prepared by the New York City Department of Transportation (NYCDOT) and released in August 2007. This report provided information on vehicle volumes on bridges and tunnels in New York City, including those operated by NYCDOT, MTA Bridges and Tunnels and

The Port Authority. For the purpose of developing a truck trip distribution for the primary study area, Stantec used traffic data by vehicle class for the East River, Harlem River and Hudson River crossings. Stantec used the truck volumes on selected bridges and tunnels to directionally distribute truck trips in the primary study area, as summarized in Table 12.

Table 12
Truck Trip Directional Distribution Summary
Primary Study Area

Direction & Time of Day	Directional Distribution				Total
	North	South	East	West	
INBOUND					
AM	47%	15%	20%	19%	100%
MD	41%	25%	16%	18%	100%
PM	56%	18%	12%	14%	100%
OUTBOUND					
AM	46%	16%	25%	13%	100%
MD	35%	18%	26%	21%	100%
PM	49%	10%	25%	16%	100%

Note: Estimates developed by Stantec, based upon 2006 New York City Bridge Traffic Volumes, NYCDOT and rounded to nearest 1%.

SUBWAY IMPROVEMENTS

The Proposed Project would relocate and significantly upgrade the existing subway entrances on West 32nd and West 33rd Streets and would undertake significant subway improvements, including the re-opening and refurbishing of the passageway under the south side of 33rd Street. The refurbished passageway would be widened to accommodate pedestrian flows between Penn Station/the Seventh Avenue subway lines (1, 2, and 3) and the Sixth Avenue subway lines (B, D, F, N, Q, R, V, and W) and the PATH station, improving pedestrian circulation on the street-level sidewalks. The passageway would provide an alternative to pedestrians traveling along the 33rd Street corridor. In addition, both scenarios would improve several subway stairways and control areas.

TRANSIT / PEDESTRIAN

The distribution of project-generated subway and commuter railroad trips (including NJ Transit, PATH, Metro North, and Long Island Rail Road) for each project component were based on survey data, Census data and consultations with New York City Transit. Tables 13 and 14 below summarize the transit line assignment assumptions.

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

Table 13
Subway and Railroad Trip Assignments

STATION	AM[1] (In)	AM[1] (Out)	AM[1] (Total)	PM[2] (In)	PM[2] (Out)	PM[2] (Total)
Eighth Avenue Line (A, C, E Routes)	1	222	223	182	80	262
Seventh Avenue Line (1, 2, 3 Routes)	2	591	593	486	215	701
Sixth Avenue Line (B, D, F, V Routes)	1	332	333	273	121	394
Broadway Line (N, Q, R, W Routes)	1	332	333	273	121	394
Total Subway Trips	**5**	**1,477**	**1,482**	**1,214**	**537**	**1,751**

STATION	AM[1] (In)	AM[1] (Out)	AM[1] (Total)	PM[2] (In)	PM[2] (Out)	PM[2] (Total)
Long Island Railroad	2	299	301	145	22	167
New Jersey Transit	2	409	411	199	30	229
Amtrak	0	39	39	19	3	22
PATH	0	39	39	19	3	22
Total Railroad Trips	**4**	**786**	**790**	**382**	**58**	**440**

Notes:
(1) Single Tenant Scenario
(2) Multi-Tenant Scenario

Project-generated bus trips focuses on the 10 routes located within 1/4-mile of the site, as it is on these routes that project trips would be most heavily concentrated. These routes include the M4, M5, M6, M7, M10, M11, M16, M20, M34, and Q32. Assignment of project increment bus trips to individual routes will be based on existing demand patterns and the relative proximity of each route to the proposed development site.

Table 14
Bus Line Trip Assignments

BUS LINE	AM[1] (In)	AM[1] (Out)	AM[1] (Total)	PM[2] (In)	PM[2] (Out)	PM[2] (Total)
M4	0	80	80	67	30	97
M5	0	20	20	17	7	24
M6	0	40	40	34	15	49
M7	0	40	40	34	15	49
M10	0	30	30	25	11	36
M11	0	0	0	0	0	0
M16	0	40	40	34	15	49
M20	0	30	30	25	11	36
M34	0	60	60	50	22	72
Q32	0	60	60	50	22	72
Total Bus Trips	**0**	**400**	**400**	**336**	**148**	**484**

Notes:
(1) Single Tenant Scenario
(2) Multi-Tenant Scenario

Pedestrians walking between off-site parking facilities and project sites were distributed in the general direction of the parking facilities where auto trips were assigned, as numerous off-site parking facilities exist in the study area. Walk-only trips (i.e., walk trips not associated with other travel modes) were widely dispersed among links between residential areas and commercial areas.

TRIP ASSIGNMENT

AUTO / TAXI

Auto and taxi trips will be assigned to the street network based upon the trip distribution patterns described above, the primary corridors providing access to the study area, and the development site origin or destination of the trip. The most direct routes were used to major access points, such as the West Side Highway (Route 9A), the Lincoln Tunnel, Manhattan avenues, the Queens-Midtown Tunnel and the FDR Drive. The auto trips were assigned to parking facilities with available parking spaces to maximum extent practical, as described above. Taxi

trips were assigned to the various project sites in accordance with the *CEQR Technical Manual*.

For future development without the Proposed Actions, auto and taxi trips assignments were based directly upon those used in the *Hudson Yards FGEIS*, where available and still applicable. Other projects were assigned to the street network by Stantec following the parameters outlined above. The assignments of auto and taxi (as well as truck) trips will take into account changes to the study area traffic network that are expected to occur by the 2014 Build year as a result of other development and initiatives by the City and other agencies.

TRUCK

Truck trips were assigned to designated local and through truck routes within the street network. These include but are not necessarily limited to Route 9A (south of 59th Street), Eighth, Ninth, Tenth, Eleventh and Dyer Avenues, and 30th, 31st and 34th Streets.

TRANSIT

Transit users were assigned to subway lines based on survey data and through consultations with New York City Transit. Trip assignments to uptown and downtown routes, as well as local and express routes, were based on existing count data and discussions with New York City Transit.

Users were assigned to subway stairways and control areas based on observed patterns and existing count data collected in the stations.

PEDESTRIAN

Sidewalk, corner area and crosswalk locations in the area bounded by West 34th Street on the north, 6th Avenue / Broadway on the east, West 31st Street on the south, and 8th Avenue on the west were analyzed. These locations were selected as they serve as key links between the project site and the surrounding street system, and/or would be used by concentrations of project-generated pedestrian demand linked to other modes (i.e., en route to subway stations, bus stops or off-site parking garages).

Pedestrian trips were assigned fairly evenly to sidewalks and intersections comprising the pedestrian network in accordance with the previously developed pedestrian distribution patterns, described above.

PARKING

PARKING DEMAND

Parking demand from new office and retail space will be derived from the forecasts of daily auto trips for these uses. To accommodate projected parking

demand, it is anticipated that the Proposed Project could provide up to a maximum of 100 accessory parking spaces permitted by zoning.

The analysis of off-street parking will therefore examine conditions at public off-street parking facilities within a 1/4-mile radius of the development site. On-street parking regulations have been collected within 1/4-mile of the development sites. Stantec observed that legal on-street spaces are essentially fully occupied. Therefore, the SEIS will assume that the on-street parking is fully occupied.

ASSIGNMENT OF PARKING DEMAND

For the identified development sites without the proposed action, the parking accumulation for each site has been calculated based upon its daily parking demand and the arrival and departure temporal distributions for the mix of land uses on the site. The temporal distributions were obtained from Appendix S-1 of the *Hudson Yards Rezoning and Development Program FGEIS* and included office, hotel, residential, local retail, destination retail and light manufacturing uses, etc. Each site's calculated peak parking accumulation was allocated to nearby parking facilities, based upon their available capacities during the appropriate peak accumulation period, typically midday for commercial uses and overnight for residential uses.

CAPACITY ANALYSIS ASSUMPTIONS

STREET INTERSECTION

For the street intersection capacity analysis, Stantec will use Highway Capacity Software (HCS) 2000, Version 4.1f. The specific assumptions are as follows:

- *Traffic Volumes* – The Existing conditions traffic volumes would be balanced. All sinks and sources actually used in the balancing of the Existing condition networks would be identified. Sinks and sources used in the No Build and Build condition networks would also be identified.
- *Illegal Turns* – Illegal turn volumes will be removed as part of balancing the Existing condition traffic volumes. In addition, No Build and Build trips will not be assigned to make any illegal turns.
- *Physical Inventories* – Intersection physical inventories will be provided in order to verify the bus stops, bike lanes, street width, number of observed moving lanes and any other physical characteristics that affect the HCS analysis.
- *Lane Widths and Configurations* – Lane widths and configurations initially assumed in the traffic analysis were based on a combination of Hudson Yards data and project field data. Where lane widths are not based on recent field data (2006 or later), field observations were made to ensure that the lane configurations have not changed, and if necessary lane width measurements were redone. As a general rule, lane width assumptions are not to be used.

At high volume intersection approaches, it was sometimes observed that the approach was operating with a defacto "turning pocket", similar to daylighting. In those cases, a turning pocket was included in the HCS analysis during the affected analysis hour(s), as noted in the footnotes in the capacity and LOS analysis tables.

- *Area Type* – The "CBD" area type is used for all intersections, including those on Route 9A. (The *Hudson Yards Rezoning and Development Program FGEIS* had assumed "Non-CBD" area type for Route 9A.) If reasonable adjustments to other factors can not lower the v/c ratio to 1.05 or less, the issue will be discussed with NYCDOT before changing the area type.
- *Right Turn on Red* – Not permitted.
- *Peak Hour Factor* – A peak hour factor of 0.95 is used for all movements, at all locations, and during all peak hours.[2]
- *Base Saturation Flow Rate* – 1,900 passenger cars per hour per lane.
- *Heavy Vehicle Percentages* – based on *Atlantic Yards FEIS* truck percentages and Stantec's sample vehicle classification counts.
- *Upstream Filtering/Metering Adjustment* – The intersections are analyzed as isolated intersections, where this adjustment factor equals 1.
- *Conflicting Pedestrians* – Pedestrian count data has been collected at 29 intersections within and around the Special Moynihan Station District and that field data will be used for the number of conflicting pedestrians in the traffic capacity analyses. The intersections within this district encompass a full-range of pedestrian activity in the West Midtown area. Based upon these count data and field observations, including sample counts as appropriate, Stantec will estimate the number of conflicting pedestrians for the remaining areas in the study area. For manufacturing areas located on the far west side, the numbers of conflicting pedestrians are based on field observations. A listing of analysis intersections, where estimates of conflicting pedestrians are used, will be complied and submitted to NYCDOT for their approval.
- *Arrival Type (AT)* – One-way avenues would use AT-4 during peak periods. Cross-streets and other minor streets would use AT-3 throughout the day.
- *Bus Blockages* – It was agreed with NYCDOT that bus blockages would be addressed where there is a near-side bus stop (far-side bus stops will not be analyzed). The number of bus blockages per hour would be based upon the cumulative number of buses per hour furnished by New York City Transit for the surface transit peak load point analysis. For avenues or streets located beyond the primary transit study area, the number of bus blockages per hour would be based on published bus schedule information on the MTA Web-site. On heavily used transit corridors, such as Madison and Fifth Avenues, there are often two or three designated bus stops on some blocks. Only bus routes designated to use the near side bus stops will be included in the number of

[2] PHF of 0.95 was used in the *Hudson Yards FGEIS* for Existing, No Build and Build conditions. A few locations in the *Hudson Yards FGEIS* used a PHF of 0.96 or 0.97.

bus blockages per hour in the HCS analyses. All buses are accounted for in the heavy vehicle percentages, regardless of the presence of bus stops.

- *Adjacent Parking Lane* – This information is based on the existing parking regulations inventory, as the initial assumption, and field observations as a supplement, which may vary by analysis hour, depending on curbside parking regulations and motorist's behavior.
- *No Standing / No Parking Regulations* – Where illegal standing or parking is commonly observed on streets or avenues with posted No Standing/No Parking regulations, it was agreed with NYCDOT that HCS analysis would select the "adjacent parking lane with zero (0) parking maneuvers" option. This would result in a parking adjustment factor slightly less than 1.00. Where the No Standing / No Parking regulations are typically obeyed, the HCS analysis would select the "no adjacent parking" option.
- *Parking Maneuvers* – Default values of 5 and 10 parking maneuvers per hour has been used for residential areas and commercial areas, as suggested by NYCDOT in coordination with the *Western Rail Yards DEIS*.
- *Signal Timing/Phasing* – Official NYCDOT 2006 traffic signal timing/phasing plans will be used for the 2006 Existing Conditions. Notable traffic signal phasing/timing differences from official timing/phasing observed in the field will be brought to NYCDOT's attention for concurrence before changes are made. For the No Build conditions, the 2007 or most current official signal timing/phasing would be used and then mitigation signal timing/phasing from approved EISs would be applied, if still needed. Regarding previously approved mitigation measures, the general rule is not to make changes that would result in conditions worse than they would have been, if the most current official signal timing/phasing were used. The Build condition analyses will use the same traffic signal timing/phasing as the No Build condition.
- *Bicycle Lanes* – Existing bicycle lanes within the traffic study area will be included in the capacity and level of service analyses and shown on all schematics where mitigation is proposed. The proposed bicycle lanes in NYCDOT's Bikeway Master Plan for Manhattan include both Type 1 (physical buffer) and Type 2 (pavement markings) bicycle lanes. While it is expected that these bicycle lane proposals would be in place in both the 2013 and 2020 analysis years, details of proposed bicycle lanes will not be available until August 2008 at the earliest. Therefore, NYCDOT directed that only the two bicycle lane proposed for implementation in FY 2009 be included in the future No Build condition. For Type 1 bicycle lanes, a reduction of one (1) effective moving lane would be made. For a Type 2 bicycle lane, the width of the bicycle lane would be deducted from the net approach width after deducting the parking lane(s).
- *Pedestrian Walking Speed* – The traffic analyses will use the same walking speed assumptions as the Pedestrian analyses, as described below.
- *Adjustment to Analysis Factors* – Adjustments often need to be made to analysis factors to reduce high v/c rations in the Existing conditions to 1.05. The Existing condition's capacity and level of service summary table in SEIS

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

Chapter 16 – Traffic and Parking, includes a notes column, where the Stantec documented the adjustments that were made to the analysis factors, so as to lower the v/c ratio for a particular lane group to 1.05. Details are available in the HCS analysis sheets. [If additional documentation is needed by NYCDOT, it was agreed that the Stantec would provide it in a technical memo.]

- Input parameters would be carefully reviewed based upon field observations before adjustments are made to the Analysis Factors.
- Adjustment factors that result in a linear proportioning of capacity and remain constant in future years can be modified to bring v/c ratio down, so long as those adjustments reflect observed field conditions. The order in which changes would be made to Analysis Factors are as follows:
  - Reductions in the number of parking maneuvers per hour and/or the percentage of heavy vehicle factor; would be based on actual field verified information;
  - Reducing the I-factor would have little effect on reducing the v/c ratio, but reductions in this factor could be used to reduce D2 component of Control Delay, if the changes reflect observed field conditions;
  - Increase ideal saturation flow rate. The maximum allowable rate without justification is 2,050 pcphgpl;
  - Increase the lane utilization factor (fLU);
  - Increase the percentage of left-turns using the protected portion of a protected-plus-permitted phase;
  - Extension of effective green to a maximum of 3 seconds;
  - Increase the percent of lef-turning vehicles using a designated left + thru shared lane;
  - Adjustments to the peak hour factor (PHF) would not be made, because the PHF is already 0.95.
- Adjustments would be applied to the left-turn and right-turn factors only as a last resort, because they are calculated based upon other input parameters. In addition, because the left and right turn factors vary depending on competing volumes and other parameters in the future year, they need be adjusted in the future analysis years based upon the percentage adjustment made to the Existing conditions, so that these factors remain consistent for all scenarios. The reason for this future year percentage adjustment is illustrated in the example shown in Appendix D, Table D-1.
- An effort would be made not adjust more than 2 or 3 factors, as multiple adjustments raise flags.
- Adjustments to factors, including the lane utilization factor and ideal saturation flow rate, would only be applied to the particular lane group during the analysis hours where the Existing conditions v/c ratio had been greater than 1.05. If the other lane groups or analysis hours do

not require adjustments to lower the v/c ratio, then the standard values, as cited above would be used.
- If the above adjustments to analysis factors, including adjustments to the left-turn and right-turn factors, cannot reduce the Existing Conditions v/c ratio to 1.05, an increase in the base saturation flow rate would be tested up to a maximum of 2,100 vph and the results would be reported to NYCDOT in a brief memo, before this step would be formally submitted.
- Modified factors will be carried through to the No-Build and Build scenarios for the affected analysis hours.

TRANSIT

For transit analysis, Stantec will follow the *CEQR Technical Manual*. The specific assumptions are as follows:

- *NYC Transit Station Planning and Design Guidelines* will be used to provide effective widths, processing rates and design capacities for subway station elements. Level-of-service guidelines from the *CEQR Technical Manual* will be used to analyze the following station elements:
  - Turnstiles
  - Gates
  - Stairs
  - Passageways
  - Escalators – capacities for escalators were supplied by NYC Transit – 75 persons per minute (LOS E) for a standard 40-inch escalator (with lower capacities for narrower widths).
- *Subway Line Haul Capacities* – The line haul capacities and existing peak load point volumes will be supplied by NYC Transit.
- *Bus Capacities* – Bus capacities by type were supplied by NYC Transit:
  - Standard (40') bus – 65 people.
  - Articulated (60') bus – 93 people.
  - Express (45') bus – 57 people.

PEDESTRIAN

For pedestrian analysis, Stantec will follow the *Highway Capacity Manual 2000*. The specific assumptions are as follows:

- *Pedestrian Routing* – Hand assignments for all No Build projects and the proposed action compiled by Stantec to be reviewed by DOT and DCP
- *Pedestrian Walking Speed* – A default walking speed of 4.0 feet/second will be used, except as noted below. NYCDOT is in the process of designating Senior Areas throughout the City. It is expected that a Senior Area would eventually be designated in Chelsea, a neighborhood encompassing both the pedestrian and traffic study areas. For the SEIS, the lower pedestrian walking speed (3.0

feet/second) would not be applied as blanket change over this entire proposed senior area, which is still under study at NYCDOT. Instead, the lower walking speed would be used at designated school crosswalks and other crosswalks adjacent to daycare centers, hospitals, senior citizen centers/homes and/or parks (where the elderly congregate). Mapped information available on City Planning's Web-site will be used to identify the locations of these community facilities within the pedestrian and traffic study areas. For those identified intersections, the "Don't Walk Interval" would first be adjusted to correspond to a walking speed of 3 feet/second. If the remaining "Walk" indication was over the minimum interval, then no further adjustment would be applied. However, should the "Walk" indication time fall below the minimum interval, then the timing splits would be changed, so that there would be a minimum "Walk" interval and "Don't Walk" interval, based on the walking speed of 3 feet/second.

- *Sidewalk and Corner Measurements* – The effective width between permanent obstructions will be used for sidewalk analyses in accordance with HCM 2000. For corner analyses, the actual sidewalk widths will be used for area calculations minus corner obstructions, including newsstands, trash cans, etc.
- *Pedestrians Overflowing Sidewalks* – In the Herald/Greeley Square area of the study area, pedestrians are sometimes observed to walk in the street, because the pedestrian volumes are high. These pedestrian movements are included in the analyzed pedestrian volume within the effective width of the adjacent sidewalk. At other locations in the Herald/Greeley Square area, such as between 33rd and 34th Streets along both Sixth Avenue and Broadway, the curb lane of the street has been dedicated for use by pedestrians as an extension of the sidewalk. Planters are placed at the outer edge of the curb lane to separate the pedestrians from the vehicles. Again, these pedestrian movements would be included in the analyzed pedestrian volume, but the effective width of the dedicated pedestrian space in the street would be added to the effective width of the adjacent sidewalk.
- *Signal Timing/Phasing* – The same signal timing and phasing assumptions will be used as described above under the traffic analysis.
- *Conflicting Vehicles Assumptions* – Standard default values are used except as noted:
    - Average clearance time per vehicle – a default value of 5 seconds per vehicle.
    - Average vehicle sweep path – a default value of 8 feet.
    - Corner Radii – based upon collected field data.

Reference: 15 Penn Plaza Redevelopment Project
Transportation Planning Assumptions

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