Technical Analysis of an Extended Build-Out of the Atlantic Yards Arena and Redevelopment Project

A. INTRODUCTION

In November 2006, the Empire State Development Corporation (ESDC), in cooperation with the Metropolitan Transportation Authority (MTA) and the City of New York (the City), prepared the Final Environmental Impact Statement (FEIS) for the Atlantic Yards Arena and Redevelopment Project (the "Project"). The approved Project was subject to environmental review under the State Environmental Quality Review Act (SEQRA) and the City Environmental Quality Review (CEQR), with ESDC as the lead agency. A Modified General Project Plan (2006 MGPP) for the Project was affirmed by the New York State Urban Development Corporation (UDC), a public benefit corporation of New York State, doing business as ESDC. In December 2006, ESDC adopted its SEQRA findings, pursuant to New York Environmental Conservation Law Article 8, and its implementing regulations adopted by the New York State Department of Environmental Conservation (NYSDEC) and codified at Title 6 of the New York Code of Rules and Regulations (N.Y.C.R.R.) Part 617 (the SEQRA Regulations).

In June 2009, ESDC approved a resolution adopting certain modifications to the 2006 MGPP as set forth in a second Modified General Project Plan (2009 MGPP). A Technical Memorandum (2009 Technical Memorandum) was prepared that described the proposed modifications, changes related to design development, changes to the Project's schedule, and changes in background conditions and analysis methodologies under the *CEQR Technical Manual* and assessed whether the Project as envisioned would result in any new or different significant adverse environmental impacts not previously identified in the FEIS. The 2009 Technical Memorandum discussed shifts in completion years for Phase I of the Project from 2010 to 2014, and full build-out from 2016 to 2019. In addition, the 2009 Technical Memorandum assessed the potential for a delayed completion of Building 1 (the commercial building on the arena block) as well as a post-2019 full build-out scenario, for which 2024 was selected as a hypothetical completion year. As presented in the 2009 Technical Memorandum, the potential environmental impacts related to the program modifications, schedule changes, and other updates would be substantially the same as that approved in 2006.

At ESDC's request, AKRF, Inc., ESDC's environmental consultant (AKRF), has prepared this technical analysis in connection with ESDC's compliance with an Order of the Supreme Court for New York County dated November 9, 2010. The discussion that follows evaluates the potential for any new significant adverse environmental impacts not previously disclosed in the FEIS from a prolonged delay beyond the 2024 hypothetical completion year assessed in the 2009 Technical Memorandum. At ESDC's direction, it has been assumed for analysis purposes that the potential post-2024 condition could extend to 2035. This delay scenario is referred to as the Extended Build-Out Scenario in this document. In 2009, ESDC determined that the potential delay of the Project's 10-year construction schedule would not require or warrant a Supplemental Environmental Impact Statement (SEIS), based on the construction delay scenario

presented in the 2009 Technical Memorandum. The delay scenario in the 2009 Technical Memorandum assumed a hypothetical 2024 build year for certain analyses. This examination of the Extended Build-Out Scenario provides an analysis to allow a determination as to whether the 2024 Build year assumption in the 2009 Technical Memorandum was critical to that document's conclusion that a delay in the Project's 10-year construction schedule would not result in significant adverse environmental impacts not identified in the FEIS. Accordingly, the analysis below uses the same analysis methodologies and criteria employed in the FEIS and the 2009 Technical Memorandum. It provides a discussion of updates to background conditions to account for anticipated changes to a hypothetical completion year of 2035; assesses the environmental impacts of the Extended Build-Out Scenario; and compares those impacts to the impacts disclosed in the FEIS and 2009 Technical Memoradum. Section E, "Construction Period Impacts," discusses the construction sequencing and impacts from the Extended Build-Out Scenario.

B. DESCRIPTION OF THE EXTENDED BUILD-OUT SCENARIO

Under the Extended Build-Out Scenario, the Project upon completion would remain unchanged from that approved in 2009. Development of the Project—regardless of the completion year—would need to be consistent with the approved 2009 Modified General Project Plan (MGPP), 2006 Design Guidelines, and Amended Memorandum of Environmental Commitments (December 2009). Any future modifications of those documents would be subject to review under SEQRA.

The 2009 MGPP anticipates the development of the arena block in Phase I followed by development of the Phase II parcels. In order to assess whether significant construction-related impacts not previously addressed in the FEIS and 2009 Technical Memorandum would result from a hypothetical delay in Project construction extending beyond 2024, an illustrative construction sequencing for the Extended Build-Out Scenario has been prepared and is described in detail in Section E. This Extended Build-Out Scenario illustrative construction sequencing has been designed to illustrate the general sequence that could be followed in implementing the Project over an extended period. However, it does not identify a specific schedule with fixed years for each Project element given the market-related and other uncertainties inherent in making long-term predictions concerning a construction schedule under the Extended Build-Out Scenario. Moreover, the Project sponsors have not developed a date-specific schedule for individual Project elements under the Extended Build-Out Scenario because it is obligated to use commercially reasonable efforts to construct the Project on an expedited schedule.

The Extended Build-Out Scenario would not materially affect the timing of completion of the arena and Building 2, the transit access improvements, construction of the new MTA/LIRR permanent rail yard, and the reconstruction of the Carlton Avenue Bridge. Development of each site is still generally expected to occur from west to east in a clockwise direction, starting with the arena block. As each building is completed, irrespective of its actual sequencing, it must conform with the 2006 Design Guidelines for that site and provide the necessary permanent facilities such as public access, open space, below-grade parking, infrastructure retention/detention capacity, and other commitments. As an example, publicly accessible open space would be constructed incrementally as each building is completed, as required by the Design Guidelines. Completion and permanent occupancy would be at a slower pace under the Extended Build-Out Scenario but would still represent an incremental transformation of the site, albeit over a longer time period.

The sequence of development assumed for the Extended Build-Out Scenario accounts for certain constraints that have been put into place since the preparation of the FEIS, Conceptual Master Plan Phasing contained in the 2006 Design Guidelines, and the 2009 Technical Memorandum. For example, subsequent to the 2009 Technical Memorandum, the MTA agreements were executed, which stipulate that air space acquisition and platform construction on Blocks 1120 and 1121 may only occur after the completion of improvements to the new permanent MTA/LIRR rail yard. As stipulated by the MTA agreements, the outside date for completion of the rail yard improvement is 2016, thus, this analysis conservatively assumes that platform construction would not start until 2016 and may be completed in up to three contiguous segments. This would delay the start of construction on Block 1120 to 2016. Another constraint imposed on Project sequencing is a requirement by ESDC that a building on Block 1129 be initiated by 2020. The requirement to have a building on Block 1129 initiated by 2020 would start the transition of Block 1129 from an interim surface lot and staging area to permanent use. Construction on the eastern end of the Project site would entail development in a north-south pattern that encompasses portions of Block 1121 and Block 1129. Because of the permanent rail yard beneath Block 1121, buildings on that block would not include below-grade parking; thus construction of those sites is expected to proceed together with construction of permanent below-grade parking on portions of Block 1129. Should there be further delay of construction, temporary open space and public amenities such as retail kiosks, landscaped seating areas, and plantings would be provided, where feasible.

The Extended Build-Out Scenario would result in prolonged, albeit less intense, construction activities at the sites since fewer buildings would be under concurrent construction. For a portion of the Extended Build-Out Scenario, there would be a prolonged use of one area of Block 1129 for construction staging and other areas of Block 1129 for surface parking for construction workers and arena patrons during events.

C. CHANGES TO BACKGROUND CONDITIONS

Background conditions and the status of known development projects anticipated for completion through 2035 have been updated for the FEIS study area. Updates to the No Build list (See **Table 1** and **Figure 1**) were made through review of New York City Department of Buildings permits, identification of construction sites, and review of project lists compiled by various organizations and agencies including Downtown Brooklyn Council, New York City Economic Development Corporation, New York City Department of City Planning, New York City Department of Housing Preservation and Development, and Forest City Ratner Companies.

The updated No Build list includes projects that were planned prior to the recent economic slowdown. Although some of these projects are now on hold, they are assumed to still be moving forward in the future when market conditions improve. Therefore, since projects were not removed, this list is conservatively inclusive.

Since the FEIS was completed in 2006, the 2009 Technical Memorandum identified development projects that were completed in the surrounding area; were on hold, due to changes in market conditions and financing availability; and were under development or proposed. As anticipated in the FEIS and described in the 2009 Technical Memorandum, a substantial amount of new development in and around Downtown Brooklyn had been completed or was under construction—although a number of anticipated commercial office projects had been changed to residential projects—due in part to the rezoning of this area in 2004. In the FEIS, 35 projects were included in the No Build list, six of which were listed as recently completed. Ten additional

projects noted in the FEIS were completed at the time of the 2009 Technical Memorandum. Several of the projects that were completed, as well as others on the FEIS list, were modified since the FEIS. Specifically, the projects that were modified would create over 600 additional residential units compared to the No Build projections utilized in the FEIS. In general, the demand for office space has not been as high as anticipated in the FEIS and the overall amount of projected commercial development in the study area is less than assumed in the FEIS, whereas the demand for residential and hotel uses has been less adversely affected by current market conditions. As noted in the 2009 Technical Memorandum, there are also 28 new projects in the study area that were not identified in the FEIS list, and which had either been completed or were anticipated to be complete by 2019. Most of those projects are predominantly residential uses.

Since the 2009 Technical Memorandum, 16 projects described in the FEIS and the 2009 Technical Memorandum have been completed. Eight new projects planned, proposed, or under construction have been identified and are shown in Table 1—projects with 20 or fewer residential units were not included. As shown in Table 1, most of the development projects added since the 2009 Technical Memorandum will introduce new residential units. As shown in Figure 1, most of the new development sites identified since the 2009 Technical Memorandum are located in the Prospect Heights neighborhood with one project located in each of the the Bedford-Stuyvesant, Fort Greene, Boerum Hill, and Downtown Brooklyn neighborhoods, as well as one project along Fourth Avenue. Table 1 provides updated information on developments in the study area. Information that has changed since the 2009 Technical Memorandum and FEIS is noted in bold, italicized, and/or bracketed text (see Table 1 notes).

Overall, the development programs for some of the projects listed in the FEIS have changed and several new projects have been added to the No Build list. These changes are modest in relation to the overall land use development anticipated within the study area and notwithstanding these changes, the overall land use profile of the primary and secondary study areas will remain the same in the future without the proposed Project as described in the FEIS. There are no specific developments proposed to be completed 20 and 25 years from now, and it would be speculative to project what discrete growth will take place that far in the future. It is anticipated that development of new residential and commercial uses would continue 20 and 25 years in the future with small to medium size projects, similar to those identified on Table 1.

Table 1
Development in the Study Area Recently Completed or Anticipated to be Complete by 2035

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year[8]
1	LIU Recreation and Wellness Center (site of present Goldner Building and LIU tennis courts)	10,000 sf for Brooklyn Hospital Center/athletic staff; 117,000 sf wellness/recreation center with natatorium, tennis courts, track, 3,500 seating for athletic events	Primary	Completed
2	The Greene House, 383 Carlton Avenue between Lafayette and Greene Avenues	27 dwelling units	Primary	Completed
3	Atlantic Terminal	425,000 sf office, 470,000 sf retail, rehabilitated LIRR station[3]	Primary	Completed
4	One Hanson Place (Williamsburgh Savings Bank Building)	**178** [*189*] dwelling units**;** 30,000 sf dental offices; 23,000 sf retail	Primary	Completed
5	South Portland Avenue at Atlantic Avenue (Block 2004)	32 3-family houses	Primary	Completed
6	Atlantic Terrace **(aka 669 Atlantic Avenue)**, Atlantic Ave. between South Portland Ave. and South Oxford St.	80 dwelling units; **12,100** [*11,960*] sf ground-floor retail, **87 subgrade parking spaces** Rezoning: C6-1 to C6-2[4]	Primary	2011
7	567 Warren Street between Third and Fourth Avenues	20 dwelling units	Primary	Completed
8	The Washington, 35 Underhill Avenue between Pacific and Dean Streets	39 dwelling units	Primary	Completed
9	**On Prospect Park, 1 Grand Army Plaza** [*17 Eastern Parkway*]	**102** [*200*] dwelling units	Primary	Completed
10	Bond Street Garage	14,000 sf retail; 4,000 sf community facility	Primary	Completed
11	**State Renaissance Court** [*Schermerhorn between Hoyt and Bond Streets (Block 171)*]	**158** [*135*] units, 14,700 sf ground-floor retail and 50 parking spaces, 14 townhouses[5]	Primary	Completed
12	80 DeKalb Avenue between Hudson Avenue and Rockwell Place	**335,000** [*430,000*] sf residential **(365 residential units)**	Primary	**Completed**
13	BAM LDC **South** (Block **2108** bounded by Ashland Place and Lafayette and Flatbush Avenues)[2]	**180 housing units, 187,000 sf rehearsal studio, cinema, visual arts space**[9] [*140,000 sf visual and performing arts library, 40,000 sf theater, 15,000 sf commercial, 466 car public parking facility*]	Primary	2035
14	BAM LDC North (Block 2107 bounded by Ashland and Rockwell Places, Lafayette Avenue, and Fulton Streets)	**299 seat/30,000 sf** [*50,000 sf*] theater**, office/rehearsal space, public outdoor space, 187** [*570,000 sf*] residential **units, 4,000** [*10,000*] sf retail space [*7,000 sf open space, 43,000 sf dance center, 160,000 sf museum/gallery, 465-space parking facility*]	Primary	2035
15	395 Flatbush Avenue Ext.[2]	12,000 sf retail/office expansion	Primary	2035
16	Atlantic Center	850,000 sf residential, **500,000** [*550,000*] sf commercial, 395,000 sf retail on lower levels (same as in existing conditions)	Primary	2035
17	254 Livingston Street[2]	186,000 sf residential, 21,000 sf commercial	Primary	2035
18	230 Livingston Street at the southwest corner of Bond Street (Block 165, Lots 17-19 and 58)[2]	**271 unit/260,000 sf** [*163,000 sf*] residential [*18,000 sf commercial*]	Primary	2013
19	Fulton Street/Rockwell Place **(aka 29 Flatbush Avenue)**	**333** [*140*] dwelling units	Primary	2035
20	**The Forte:** Fulton Street/Ashland Place	**108** [*100*] dwelling units	Primary	Completed
21	**BAM LDC East:** 620-**622** Fulton Street	**150** *[80]* residential units **(100,000 sf), 60,000 sf community facility** *[7,200 sf retail]*	Primary	2035
22	Ingersoll Community Center	18,250 sf community center (replaces former 9,000 sf center)	Secondary	**Completed**
23	**City Point**: Flatbush Avenue at Albee Square West (Block 149, Lots 1 and 49)[2]	**360,000** [*1,233,000*] sf office, **520,000** [*415,000*] sf retail, **650 unit/900,000 sf residential, 404 parking spaces (113,962 sf)**[6]	Secondary	2013
24-A	**Sheraton Hotel: 222-228 Duffield Street**: Willoughby Street between Gold and Duffield Streets (Block 146, Lots 2, 7, 11-18, 23, 29, 34-37, 41-43, and 46-52)	**321 hotel rooms**	Secondary	**Completed**
24-B	**Hotel Indigo (237 Duffield Street)**[2]	182 hotel rooms, 1.25-acre [1.15-acre] public space (Willoughby Square), 700 -space [694-space] public parking facility [999,000 sf office, 48,000 sf retail]	Secondary	2013
24-C	Aloft Hotel (216 Duffield Street)	176 hotel rooms	Secondary	2013
24-D	**Hotel (231 Duffield Street)**	**130 hotel rooms**	Secondary	2035
25	**505 Fulton Street**: Willoughby Street between Duffield and Bridge Streets (Block 145, Lots 8, 10, 13-16, 18-22, 26, and 32)[2]	544,000 sf **residential** [*office*], 50,000 sf retail	Secondary	2013
26	**Red Hook Lane:** Adams Street/Boerum Place at Fulton Street (Block 153, Lots 3, 14, and 15; Block 154, Lots 1, 5, 11, 12, and 36-40)[2]	788,000 sf office, 70,000 sf retail	Secondary	2035
27	53 Boerum Place	99 dwelling units, 85 parking spaces	Secondary	Completed

Table 1 (cont'd)
Development in the Study Area Recently Completed or Anticipated to be Complete by 2035

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year[8]
28	**Schermerhorn House and Hoyt-Schermerhorn I and II:** ESDC/HS (Block 170, south of Schermerhorn Street between Smith and Hoyt Streets)	440 dwelling units (including **217** [*200*] affordable)	Secondary	**Completed**
29	**The Smith Condominiums and Hotel** (**75** Smith Street at Atlantic Avenue)	50 dwelling units, **93-unit hotel,** 15,000 sf ground floor retail, 8,500 sf community facility, 130 space parking facility [*31,500 sf commercial/office use*]	Secondary	Completed
30	**Toren**, Myrtle Avenue at Flatbush Avenue (Block 2060, Lots 22-27, 32 [part], and 122; Block 2061, Lot 1 [part]; Block 2062, Lot 6 [part])[2]	**280** residential **units** [*300,000 sf*], 60,000 sf retail; 457-space public parking facility	Secondary	Completed
31 - A	Catsimatidis Red Apple, Myrtle Avenue between Fleet Place and Ashland Place (Block 2061, Lot 1 [part])[2]	565 residential units [259,000 sf], 22,000 sf [86,000 sf] retail	Secondary	2035
31 - B	**The Andrea** - Catsimatidis Red Apple,218 Myrtle Avenue between Fleet Place and Ashland Place (Block 2061, Lot 101)	95 Units	Secondary	**Completed**
32	**The Collection 525** (525 Clinton Avenue)	30 dwelling units, 15,500 of medical office, 41 parking spaces	Primary	Completed
33	557 Atlantic Avenue	72 dwelling units	Primary	Completed
34	477 Atlantic Avenue	21 dwelling units	Primary	Completed
35	Waverly Avenue Charter School	Conversion of existing 80,000 sf building to a charter school	Primary	**Completed**
36	Park Slope Court (110 Fourth Avenue near Warren)	49 residential units	Primary	**Completed**
37	126 Fourth Avenue	50 residential units	Primary	Completed
38	255 Fourth Avenue	41 residential units	Secondary	2035
39	Elan Park Slope (255 1st Street)	21 residential units	Secondary	Completed
40	Crest (302 2nd Street at Fourth Avenue)	68 residential units	Secondary	Completed
41	159 Myrtle Avenue by Avalon Bay	650 residential units, 5,000 sf retail, parking	Secondary	**Completed**
42	470 Vanderbilt Avenue	376 residential units, 115,424 sf retail, 579,645 sf office, 397 accessory parking spaces[7]	Primary	2035
43	Rockwell Place	37 residential units	Primary	Completed
44	111 Lawrence Street (Block 148, Lot 1)	500 residential units	Secondary	**Completed**
45	150 Fourth Avenue	95 residential units	Primary	2035
46	181 Third Avenue	130 room/65,785 sf hotel	Primary	2035
47	252 Atlantic Avenue/97 Boerum Place	65 residential units, ground floor retail, on-site parking	Secondary	2035
48	Brooklyn House of Detention (275 Atlantic Avenue)	Expansion of current jail from 815 to 1,478 beds (renovation and 40,000 sf of new construction)	Secondary	2035
49	Holiday Inn, 300 Schermerhorn Street (Block 174, Lot 24)	247 room/108,163 sf hotel	Primary	2035
50	307 Atlantic Avenue	26 residential units (27,462 sf)	Secondary	**Completed**
51	316 Bergen Street	39 residential units (63,434 sf)	Primary	2035
52	388 Bridge Street	360 residential units	Secondary	2035
53	462 Baltic Street	35,551 sf office, 61 parking spaces	Primary	2035
54	611 DeGraw Street	25 room/12,625 sf hotel	Primary	2035
55	675 Sackett Street	38 residential units	Primary	**Completed**
56	340-346 Bond Street	22 residential units	Secondary	**Completed**
57	265 Third Avenue	57-room hotel	Secondary	**Completed**
58	Consolidated Edison (block bounded by First and Third Streets)	52,000 sf office	Secondary	**Completed**
59	225 Fourth Avenue	40 residential units	Secondary	**Completed**
60	238 St. Marks Avenue	20 residential units	Primary	**Completed**
61	324 Grand Avenue	29 residential units	Primary	2035
62	76 Lexington Avenue	21 residential units	Secondary	2035
63	1122-1124 Bedford Avenue **(aka 315 Gates Avenue)**	68 dwelling units at 315 Gates Avenue; **renovation of existing building at 1122 Bedford to include ground floor retail and an additional 5th floor (2 units) of residential**	Secondary	2011
64	**319 Schermerhorn Street**	**61 residential units**	**Primary**	**2035**
65	**610 Baltic Street**	**School Construction Authority - P.S. 124, 115,903 sf**	**Primary**	**2011**
66	**1122 Bedford Avenue (aka 315 Gates Avenue)**	**68 dwelling units at 315 Gates Avenue; renovation of existing building at 1122 Bedford to include ground floor retail and an additional 5th floor (2 units) of residential**	**Secondary**	**2035**
67	**346 Bergen Street**	**24 residential units**	**Primary**	**2035**
68	**892 Bergen Street**	**38 residential units**	**Primary**	**2035**

Table 1 (cont'd)
Development in the Study Area Recently Completed or Anticipated to be Complete by 2035

Map No.[1]	Project Name/Address	Development Proposal/Program	Study Area	Build Year[8]
69	**840 Bergen Street**	**67 residential units**	**Primary**	**2035**
70	**801 Bergen Street**	**31 residential units**	**Primary**	**2035**
71	**311 Ashland Place – BAM**	**Conversion and enlargement of 2-story building to 7-story arts/education/community facility building; 23,792 sf**	**Primary**	**2035**

Notes: Projects noted as complete (not bold text) were complete as of the 2009 Technical Memorandum. Projects noted as complete (**bold** text) have been finished since the 2009 Technical Memorandum. Changes in projects since the FEIS or 2009 Technical Memorandum are noted with **bold** text; the portions of these projects that are no longer accurate are noted [in brackets] and *in italics*.

[1] See Figure 1
[2] Projects anticipated as a result of the Downtown Brooklyn rezoning.
[3] The LIRR station rehabilitation is currently under construction.
[4] **Rezoning to C6-2 completed.**
[5] **The townhouses are currently under construction.**
[6] Includes 373,000 sf of existing retail; project will add 147,000 additional sf of retail.
[7] **Includes 578,554 sf of existing office and 200 existing parking spaces; project will add 1,091 sf office and 197 accessory parking spaces.**
[8] **Projects for which completion dates were not available were assumed to be completed by a post-2024 hypothetical year of 2035.**
[9] **Development plan still being finalized.**
[10] **Projects with 20 or fewer residential units were not included.**

Sources: Downtown Brooklyn Council, New York City Economic Development Corporation, New York City Department of City Planning, New York City Department of Housing Preservation and Development, AKRF, Forest City Ratner Companies.

It is expected that these additional smaller projects and renovations—typically those allowable under the current zoning and not requiring environmental review—have occurred and will continue to occur throughout the study area. These small developments would be accounted for in the general growth rate. Many large projects proposed that far in the future would likely require a discretionary approval and therefore require an environmental analysis to evaluate its potential impacts on the area.

D. POTENTIAL IMPACTS OF THE EXTENDED BUILD-OUT SCENARIO

The purpose of the analysis that follows is to determine, with respect to each relevant technical area, whether the Extended Build-Out Scenario would result in significant adverse environmental impacts not addressed in the FEIS. The analysis of potential significant adverse construction period impacts resulting from the Extended Build-Out Scenario is provided in Section E. In the discussions below, for each of the environmental areas, the analysis is presented under individual headings for clarity of presentation. However, the evaluation and conclusions considered both the individual and collective effects of each component of the analysis.

LAND USE, ZONING AND PUBLIC POLICY

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to land use, zoning and public policy. The timing of building construction would not affect the Project's land uses, building layout, density, the amount of affordable housing and publicly accessible open space, or the Project's consistency with relevant public policies as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP. The Extended Build-Out Scenario would not affect the land use, zoning, and public policy analysis as described in the FEIS.

The Extended Build-Out Scenario would not change the 2009 MGPP requirement for 2,250 units of affordable housing upon completion of the Project. Project documentation (e.g., Development Agreement, lease agreements, and related contractual documents) reflects the commitment made in the 2009 MGPP. As stipulated in the 2009 MGPP and Amended Memorandum of Environmental Commitments (compliance with which is required by the Development Agreement), at least 30 percent of the residential units on the arena block (but no less than 300) must be affordable housing. The remainder of the affordable units will be built in Phase II or on Site 5; however, no more than 50 percent of the Phase II units can be built without completion of at least 50 percent of the Phase II affordable units. The affordable units are expected to be financed under existing and proposed New York City and State housing programs.

The Extended Build-Out Scenario would not change the total amount of affordable housing to be developed, however, the timing of the construction of the units and when they would be available could be delayed or deferred. As in the FEIS, the exact timing for construction of the affordable units will depend on the demand and availability of financing from New York City and State housing programs, which would be the case for other affordable housing project in the area. Therefore, the Extended Build-Out Scenario would not diminish the Project's benefits of providing 2,250 units of affordable housing.

SOCIOECONOMIC CONDITIONS

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse socioeconomic impacts for any of the five areas of socioeconomic concern and that the Project would generate substantial economic benefits for New York City and State. Irrespective of the timing of construction, the Project would continue to directly displace a total of up to 410 residents, 27 businesses and 2 institutional uses, most of which has occurred. The potential effects of direct displacement was analyzed in the FEIS, and that analysis was not dependent upon the timing of the displacement. As stated in the FEIS, ESDC would provide relocation assistance to all directly displaced households, in accordance with all applicable laws and regulations. The Project sponsors have extended relocation offers to on-site rental tenants either through compensation or offers for comparable off-site housing with the opportunity to move back into the proposed development at rent levels comparable to their current rents. Moreover, the Project sponsors have agreed to pay the difference, if any, in rent between the tenant's current rent and the rent for the comparable interim unit until such time as the tenant has been offered a new unit in the proposed development. The agreement would terminate only if the Project were abandoned or the tenant breached its obligations. Thus, these relocation terms would remain unchanged under the Extended Build-Out Scenario.

The potential for indirect displacement due to the Project would not be expected to increase with an the Extended Build-Out Scenario. As detailed in the FEIS, there are existing trends toward increased residential and commercial rents in the study areas resulting in the indirect displacement of at-risk households and businesses independent of the Project. If there is a longer period before the Project is fully built, the number of at-risk households and businesses would continue to diminish as a result of trends unrelated to the Project.

As noted in the 2009 Technical Memorandum, delays in construction would postpone the full realization of the social and economic benefits of the completed Project identified in the FEIS. However, the quantified estimates of economic and fiscal benefits from the construction and operation of the Project reported in the FEIS would still be accurate because the values were

reported in 2006 dollars. Specifically, during construction the total employment (expressed in person-years), wages and salaries (expressed in 2006 dollars), total effect on the local economy (in constant 2006 dollars) and tax dollars (in 2006 dollars) would not be affected by the Extended Build-Out Scenario. During operation, the permanent employment, annual wages and salaries (in 2006 dollars), total effect on the local economy (in 2006 dollars), and tax dollars (in 2006 dollars) also would not be affected. The value of the dollar changes over time, but when expressed in constant dollars, the underlying values are unchanged. However, using this methodology some estimates may be overly conservative in not accounting for subsequent increases in the City's sales tax rate, and for real increases in costs over time. A delay in the Project, however, would postpone the social and economic benefits associated with any delayed buildings.

COMMUNITY FACILITIES

The FEIS analysis of community facilities concluded that the Project would not result in any significant adverse impacts to police and fire services, public libraries, child care facilities, or hospitals and health care facilities. With respect to public schools, the FEIS found that there would be a shortfall of seats at elementary and intermediate schools in the 2016 future with the Project, and that these shortfalls would constitute a significant adverse impact on elementary and intermediate schools within the ½-mile study area. To partially mitigate the significant adverse impact on public schools, the Project sponsors committed to provide adequate space for the construction and operation of an elementary and intermediate school in the base of one of the Phase II residential buildings. The FEIS stated that additional mitigation measures, such as shifting the boundaries of school catchment areas within the Community School Districts (CSDs), creating new satellite facilities in less crowded schools, or building new school facilities off-site would be required to fully mitigate the significant adverse impacts on public schools identified in the FEIS.

The 2009 Technical Memorandum included a revised analysis to determine whether the changed background conditions (including new enrollment data and updated enrollment projections) and updated methodologies (i.e., a change to the CEQR generation rates for public school students and child care eligible children) would result in any new or different impacts than those previously identified in the FEIS. The revised analysis concluded that the Project would result in a significant adverse impact on elementary schools within the ½-mile study area but that it would no longer result in a significant adverse impact on intermediate schools in the ½-mile study area. The Project sponsors' obligation to provide space for an elementary and intermediate public school on the Project site was included in the Amended Memorandum of Environmental Commitments associated with the 2009 MGPP. The analysis of publicly funded child care facilities in the 2009 Technical Memorandum found that the updated background conditions and updated methodologies (i.e., new CEQR generation rates for child care eligible children) would result in additional demand for publicly funded child care facilities in the study area, which could result in a shortfall of child care slots in the 2019 future with the Project. To meet the additional demand, the Project sponsors are obligated to construct on the Project site and arrange for the long-term operations of a licensed day care center that can accommodate at least 100 children with publicly funded vouchers and to assess child care enrollment and capacity in the study area as the Project progresses and, if necessary, work with the Administration for Children's Services to provide up to approximately 250 additional child care slots either on-site or in the vicinity of the site to meet project-generated demand. With these commitments, included in the Amended Memorandum of Environmental Commitments, the 2009 Technical

Memorandum concluded that there would be no new significant adverse impacts on publicly funded child care facilities in the study area.

The Extended Build-Out Scenario would not affect the FEIS and 2009 Technical Memorandum conclusions with respect to community facilities and services. Although the final build-out would be delayed, the proposed uses and program would remain the same as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP. Thus, there would be no additional demand for police protection, fire protection, emergency services, public schools, libraries, hospitals and health care facilities, or daycare centers.

The Extended Build-Out Scenario could affect the timing of the public school and child care facilities significant adverse impacts. These impacts are directly related to the development of new residential units; any delay in the development of residential units would also delay Project demand for new public school and child care facilities. Furthermore, the Project sponsors remain obligated to providing space for the anticipated on-site school and child care facility. In the event that the Project's residential buildings are delayed, the deadline for the New York City School Construction Authority (SCA) to decide whether it wants to develop a school at the Project site would be extended, as set forth in the Amended Memorandum of Environmental Commitments. Under the Extended Build-Out Scenario, the Project sponsors would also continue to assess child care enrollment and capacity in the study area as the Project is completed, as set forth in the Amended Memorandum of Environmental Commitments.

School enrollment and capacity and publicly funded child care facilities will change over the course of the Extended Build-Out Scenario. To provide the most accurate baseline for evaluating Project effects, the most recent data on current public school enrollment and capacity, enrollment projections, and the Department of Education (DOE) capital plan, and publicly funded child care enrollment and capacity were consulted.

Compared to the data available for the 2009 Technical Memorandum, in the ½-mile study area elementary school capacity has decreased and intermediate school capacity has increased. Overall, in CSD 13 both elementary and intermediate school capacity decreased while in CSD 15, elementary school capacity decreased and intermediate school capacity increased.

Overall, the updated enrollment data would not alter the FEIS or 2009 Technical Memorandum conclusions with respect to elementary or intermediate schools. With the decrease in elementary school capacity in the ½-mile study area, the Project would continue to result in a significant adverse impact on elementary schools in this area, as disclosed in the FEIS and 2009 Technical Memorandum. The Project sponsors remain obligated to providing an on-site public school, if requested by the SCA. No additional mitigation measures—beyond those proposed in the FEIS—would be required to mitigate the impact on elementary schools in the ½-mile study area. Within CSD 13, elementary school capacity has decreased but it is expected that CSD 13 would operate with excess capacity in the future with the Project and, as in the FEIS and 2009 Technical Memorandum, the Project would not result in a significant adverse impact on elementary schools in CSD 13. Elementary school capacity has also decreased in CSD 15, although not to a level that would result in the Project-generated students exceeding the CEQR threshold of a 5 percentage point decrease in the utilization rate. Similarly, intermediate school capacity in CSD 15 would not decrease to the level that the Project-generated students would exceed the CEQR threshold of a 5 percentage point decrease in the utilization rate. Based on the updated enrollment data, it is further expected that Brooklyn high schools would operate with sufficient capacity in the future with the Project. Overall, the new data would not alter the 2009 Technical Memorandum conclusions with respect to public schools.

The most recent enrollment projections project school enrollment to 2018; enrollment projections further into the future have not been developed at this time. This analysis follows standard CEQR practice and uses the latest available projection (2018) for the 2035 build year. As enrollment changes, new school capacity will be developed through future DOE five year capital plans. The most current capital plan is the "2010-2014 Five-Year Capital Plan – Proposed Amendment – November 2010," which identifies one new school to be constructed in CSD 13 and six new schools in CSD 15. Future capital plans may include additional schools, if needed to service the area.

The latest enrollment and capacity data for publicly funded child care facilities indicate that the study area currently has a surplus of publicly funded child care slots, but overall the study area has approximately 200 fewer child care slots compared to the 2009 Technical Memorandum. It is expected that there would continue to be a shortfall of slots in the future with the Project. Future changes to child care enrollment and capacity will depend on a number of factors, including: the number of affordable housing units developed in the study area; how many parents elect to use group child care facilities rather than another option such as family child care facilities or private facilities; and whether the private market or ACS develops new child care facilities. It is expected that the private market may respond to additional demand by opening child care centers and increasing capacity in the study area as population increases. Likewise, ACS could respond to additional demand by creating new capacity as part of its public-private partnership initiatives. Despite changes to future conditions in publicly funded child care facilities, the project sponsors remain obligated to providing for child care, as set forth in the Amended Memorandum of Environmental Commitments. As noted above, the project sponsors will monitor child care enrollment and capacity in the study area and work with ACS to meet project-generated demand through the provision of an on-site child care facility as stipulated in the Amended Memorandum of Environmental Commitments. Therefore, the new data and the Extended Build-Out Scenario would not result in significant adverse impacts to child care facilities that were not addressed in the FEIS and 2009 Technical Memorandum.

Overall, the Extended Build-Out Scenario of the Project would not result in significant adverse environmental impacts with respect to community facilities that were not addressed in the FEIS and 2009 Technical Memorandum.

OPEN SPACE

With the Extended Build-Out Scenario, the temporary significant adverse open space impact in the non-residential (¼-mile) study area identified in the FEIS would be addressed by the completion of the Phase II open space. Moreover, as each of the Phase II buildings is completed, the adjacent open space would be provided in conformance with the 2006 Design Guidelines, thereby offsetting some of this temporary open space impact.

SHADOWS

As a result of the shadows cast by the Project's buildings, the FEIS identified a significant adverse impact on the open space resource of the Atlantic Terminal Houses, a New York City Housing Authority (NYCHA) development. As stipulated in the Amended Memorandum of Environmental Commitments, the Project sponsors and NYCHA developed measures to improve the Atlantic Terminal Houses open space.

The FEIS identified the incremental shadows on the Church of the Redeemer (an S/NR-eligible historic resource) from the proposed building on Site 5 as a significant adverse impact because

the shadows would reduce light to the stained glass windows on the church's east façade. The Extended Build-Out Scenario would delay the construction of the building on Site 5. Therefore, this would result in a delay of when the significant adverse shadow impact would occur on the Church of the Redeemer. The Project sponsors and the church reached an agreement with respect to these measures, as stipulated in the Amended Memorandum of Environmental Commitments, under which the Project sponsors provided the church with funding to undertake cleaning and other measures to address the shadows from Site 5.

The Extended Build-Out Scenario would not affect the proposed massing envelopes analyzed for shadow impacts, which would remain the same as analyzed in the FEIS, 2009 Technical Memorandum, and as specified in the 2009 MGPP and 2006 Design Guidelines, and therefore, the Extended Build-Out Scenario would not result in significant adverse environmental impacts with respect to shadows that were not addressed in the FEIS. The stipulations in the Amended Memorandum of Environmental Commitments to improve the Atlantic Terminal Houses open space and stained glass windows at the Church of the Redeemer would not be affected by the Extended Build-Out Scenario.

HISTORIC RESOURCES

The Extended Build-Out Scenario would not result in any effects to archaeological or architectural resources that were not previously identified in the FEIS; in addition, it would not change the stipulations of the Letter of Resolution among ESDC, the Project sponsor, and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP). Therefore, the Extended Build-Out Scenario would not have any significant adverse impacts to historic resources that were not previously identified in the FEIS.

URBAN DESIGN AND VISUAL RESOURCES

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to urban design and visual resources. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not result in changes to the buildings' bulk, uses, the type or arrangement of the buildings, the layout of the open space, and other matters as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP and 2006 Design Guidelines. The Extended Build-Out Scenario would not affect the urban design and visual resources analysis for the full build-out as described in the FEIS. A discussion of impacts to urban design and visual resources during the construction period for the Extended Build-Out Scenario is provided in Section E, "Construction Period Impacts," below.

HAZARDOUS MATERIALS

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to hazardous materials. As set forth in the Amended Memorandum of Environmental Commitments, the Project sponsors are obligated to implement measures to prevent volatile organic compounds (VOCs) from infiltrating the interior of the buildings as well as measures to protect workers and the general public from adverse impacts associated with hazardous materials during construction. The stipulations in the Amended Memorandum of Environmental Commitments would not be affected by the Extended Build-Out Scenario. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not result in any changes to the footprint of

the Project site, and therefore the Extended Build-Out Scenario would not affect the analysis of hazardous materials as described in the FEIS.

INFRASTRUCTURE

The Extended Build-Out Scenario would affect the timing of construction of the buildings but it would not affect the proposed uses, which would remain the same as described in the FEIS. Thus, there would be no increase in project-generated demand for these services as a result of the Extended Build-Out Scenario. Therefore, the Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to infrastructure, including water supply, sanitary wastewater treatment, stormwater runoff and combined sewer overflows (CSOs), solid waste management, and energy.

Since the FEIS, the design for the arena roof changed such that it would not incorporate stormwater detention tanks or a green roof. Instead, detention tanks would be located in the base of the arena and enlarged to accommodate the additional stormwater load associated with the elimination of the green roof. As analyzed in the 2009 Technical Memorandum, these changes would not have a significant adverse effect. The Extended Build-Out Scenario would not affect this design change and therefore not affect the conclusions of the 2009 Technical Memorandum.

As set forth in the Amended Memorandum of Environmental Commitments, the Project sponsors are obligated to construct new water mains and new sewer improvements as well as implement measures to minimize stormwater and sewage. Since the 2009 Technical Memorandum, the infrastructure and utilities located within the 5th Avenue streetbed on the Project site have been relocated and replaced with new sewers and watermains in Dean Street, 6th Avenue, Atlantic Avenue, and Flatbush Avenue. In addition, a new trunk watermain in Atlantic and Flatbush Avenues is being designed and installed. These improvements would continue as construction progresses and new infrastructure is needed to service the new buildings. Water mains on Dean Street and Carlton Avenue would be installed to replace the existing water main in Pacific Street, which would be relocated as part of the Phase II construction. The Extended Build-Out Scenario would delay the construction of some of the infrastructure improvements stipulated in the Amended Memorandum of Environmental Commitments required for Phase II. However, the delay in new building construction would also result in a delay in the additional demand for water and sewer service and new stormwater management measures.

TRAFFIC AND PARKING

FEIS

To establish a future baseline condition (the No Build condition) from which to assess the potential transportation impacts of the Project, the FEIS assumed that traffic and parking demands in the study area would increase over the 10 year build-out period (i.e., through 2016) due to long-term background growth as well as the development of new office/commercial, residential, cultural, community facility, court, and retail space in Downtown Brooklyn. To forecast this future No Build demand, the principal land use study area development projects listed in Table 2-1 and shown in Figure 2-1 in Chapter 2, "Procedural and Analytical Framework," in the FEIS were considered, as were several large development projects that are located outside of the study area but that were expected to add trips to study area intersections by

2016. These included the Brooklyn Cruise Terminal at Pier 12, the Federal Courthouse at Adams and Tillary Streets, the IKEA store in Red Hook, Brooklyn Bridge Park and all of the projected development sites for the Downtown Brooklyn Development project. Additional projects were also added as discrete No Build sites for the FEIS in response to agency and public comments on the DEIS. (A detailed discussion of all discrete No Build sites considered in the transportation analyses is provided in a technical memorandum entitled *Summary of No Build Sites Considered for the EIS Transportation Analyses* included in Appendix C of the FEIS.) Overall, the No Build traffic and parking analyses in the FEIS considered a total of approximately 5.2 million square feet of new office/commercial space, 6,254 new dwelling units, 1.2 million sf of new retail space, and more than 2.4 million square feet of other uses including new cultural and community facility space, new court space, 504 new hotel rooms, and 85 acres of new park space.

In addition to demand from new developments, an annual background growth rate of 0.5 percent per year was applied to the entire 2006 existing baseline traffic network for the 2006 through 2016 period. This background growth rate, recommended in the 2001 *CEQR Technical Manual* for projects in Downtown Brooklyn, was applied to account for smaller projects, as-of-right developments not reflected in the land use analyses, and general increases in travel demand not attributable to specific development projects. The background growth rate was conservatively applied to every intersection in the traffic study area in each peak hour, and is equivalent to an approximately five percent increase in traffic by 2016 compared to 2006 levels. In the AM peak hour alone, the amount of background growth assumed for the 2006 through 2016 period would account for roughly 2,000 additional vehicle trips entering and exiting the study area, equivalent to the travel demand generated by 19,000 new dwelling units or nine million square feet of new office space in Downtown Brooklyn.

For the FEIS analyses of conditions in the 2016 future with the Project, the traffic and parking demands generated by the full build-out of the Project were added onto this No Build baseline condition. Significant adverse traffic impacts were then identified, and a detailed traffic mitigation plan incorporating physical and operation changes to the street system and an array of demand management strategies was developed.

2009 TECHNICAL MEMORANDUM

The 2009 Technical Memorandum was prepared that described changes to the Project's schedule and background conditions and assessed whether the Project as contemplated would result in any new or different significant adverse environmental impacts not previously identified in the FEIS. The 2009 Technical Memorandum included an analysis of a three-year extension to 2019 for the full build-out of the Project to determine whether there would be any effect on the conclusions of the FEIS, as well as an assessment of the potential effects of a delayed build-out due to prolonged adverse economic conditions based on a hypothetical delay of approximately five years, resulting for analytical purposes in a 2024 Build year.

Schedule Change to 2019

In order to determine future background conditions, the analyses in the 2009 Technical Memorandum employed the same methodology with respect to background growth (i.e., 0.5 percent per year) and identifying discrete No Build development sites as was used for the analyses in the FEIS described above. The list of potential No Build sites was updated to reflect conditions since issuance of the FEIS, with some development projects having been completed in the surrounding area; some put on hold due to changes in market conditions and financing availability; and some under development. Overall, development totaling approximately 675

dwelling units, 16,000 sf of office space, 511,800 sf of retail space, 373 hotel rooms and 854,700 sf of courthouse and other space was found to have been completed since issuance of the FEIS. The analysis further identified a total of approximately 9,610 dwelling units; 2,554,491 sf of office space; 747,724 sf of retail space, 1,151 hotel rooms, and 850,000 sf of other space that could potentially be developed in Downtown Brooklyn and its vicinity by 2019.

A travel demand forecast was prepared for this updated No Build development scenario. Overall, it was found that there would be up to 337 fewer vehicle trips generated by new development in the weekday AM, midday and PM peak hours compared to the development assumed for the FEIS No Build scenario, and up to 292 more vehicle trips in the pre-game and post-game peak hours. It was noted, however, that the additional vehicle trips forecasted for the pre-game and post-game peak hours would be widely dispersed throughout Downtown Brooklyn and its vicinity, and that the number of additional trips from changes in No Build developments occurring at any one intersection would be relatively small.

Data on bridge and tunnel crossings were also collected as well as automatic traffic recorder (ATR) count data for two of the primary arteries serving the Project site (Atlantic and Flatbush Avenues). Overall, traffic volumes in the vicinity of the Project site were found to have declined since the data collection effort for the FEIS traffic analysis in 2005. The ATR data indicated that there had been a 7 to 12 percent decline in weekday and Saturday traffic volumes on Atlantic and Flatbush from 2005 to 2008.

Based on these data, the 2009 Technical Memorandum concluded that the potential 1.5 percent increase in study area background traffic associated with the three-year shift in the Build year and the changes in anticipated No Build development expected to occur by 2019 would not be expected to result in total traffic volumes greater than what was analyzed in the FEIS for the 2016 Build year.

Similarly, it was concluded that a shift in the Build year from 2016 to 2019 would also not result in greater demand for off-street public parking in the vicinity of the Project site than was analyzed in the FEIS. The basis for this conclusion was that study area parking demand had likely declined commensurate with the overall decline in study area traffic volumes noted above; that there had been an increase in unemployment city-wide since issuance of the FEIS; and that there had been a net decrease in new office space (and therefore substantially lower office-related parking demand) projected for development under the updated No Build development scenario compared to the FEIS No Build scenario. In addition, it was noted that the FEIS analysis showed that the parking study area would continue to operate with a surplus of between 624 and 2,919 off-street public parking spaces in the analyzed weekday AM, midday, evening and Saturday midday peak hours in the 2016 future with the proposed Project (see Tables 12-27 and 12-38 in the FEIS), and therefore, even if there were to be a small increase in parking demand by 2019 compared to the levels forecast for 2016, sufficient off-street public parking capacity would be expected to be available to accommodate this demand, and it would not result in new significant adverse parking impacts.

Delayed Build-Out (2024)

The 2009 Technical Memorandum also assessed the potential effects on the conclusions of the FEIS from a delayed build-out due to prolonged adverse economic conditions. A hypothetical delay of approximately five additional years was assumed, resulting for analytical purposes in a 2024 Build year. If the 0.5 percent annual growth factor were to be applied to a Build year of 2024, it would potentially represent an approximately four percent increase in background growth compared to the 2016 Build year analyzed in the FEIS. However, as was noted in the

2009 Technical Memorandum, under a scenario of prolonged adverse economic conditions that are assumed to delay development projects, the application of this level of background growth to the additional period of delay would not be appropriate. Such robust background growth is not consistent with this scenario, under which there would be a reduced demand for housing and commercial space and delays in development projects in the study area.

The 2009 Technical Memorandum found that once adverse economic conditions begin to abate and the economy begins to recover, transportation demand in the study area would once again be expected to experience some level of background growth. New demand from discrete No Build sites in the area would also be generated as these developments once again begin to advance. Although the characteristics of specific No Build projects may have changed in the interim, it was determined that the inclusive list of No Build sites compiled for the 2019 No Build scenario provided a conservative basis for projecting the magnitude of future development that could be expected as conditions improve. Overall, the 2009 Technical Memorandum concluded that the anticipated traffic and parking demand from background growth and No Build development associated with a 2024 Build year would be unlikely to result in total traffic volumes or parking demand greater than what was analyzed in the FEIS for the 2016 Build year, especially in the context of the 7 to 12 percent decline in weekday and Saturday traffic volumes that occurred from 2005 to 2008. Moreover, under a scenario of prolonged adverse economic conditions, it would be unrealistic to assume that housing and employment growth—the principal factors driving traffic volumes and parking demand—would continue to result in a 0.5 percent annual increase in background growth.

EXTENDED BUILD-OUT SCENARIO

The discussion below evaluates the potential for new significant adverse traffic and parking impacts not previously disclosed in the FEIS under the Extended Build-Out Scenario.

An additional 9.9 percent of background growth over 2016 levels (based on a background growth of 0.5 percent per year) would potentially be represented under the Extended Build-Out Scenario. However, it is important to note that overall traffic volumes in New York City have generally declined in recent years due to the economic downturn, and recent data suggest that they have not yet recovered to the levels assumed as the 2006 baseline for the FEIS traffic analysis. For example, May 2010 traffic volumes at two of Brooklyn's primary gateway facilities—the Brooklyn-Battery Tunnel and the Verrazano-Narrows Bridge—were eight percent and one percent below May 2006 volumes at these facilities, respectively.[1] At two other primary gateway facilities in closer proximity to the Project site—the Brooklyn Bridge and the Manhattan Bridge—average weekday two-way traffic volumes in 2009 were 1.4 percent and 3.6 percent below the average weekday volumes in 2006, respectively.[2]

Notable decreases in traffic volumes are also evident along both Flatbush Avenue and Atlantic Avenue, two of the primary arterials providing access to the Project site. A comparison of automatic traffic recorder (ATR) count data collected adjacent to the Project site in September 2008 and May 2010 with similar data collected for the FEIS traffic analysis in June 2005 is presented in **Table 2**. As noted previously and shown in Table 2, the 2008 ATR data indicate that average weekday two-way traffic volumes on Atlantic Avenue declined by approximately

[1] Source: MTA Bridges and Tunnels

[2] Source: NYCDOT

11.5 percent during the 2005 to 2008 period, while Saturday volumes declined by approximately 7.3 percent. Two-way traffic volumes on Flatbush Avenue were found to have declined by approximately 9 percent on weekdays and 10.7 percent on Saturdays over the same three-year period. The 2010 ATR data indicate that average weekday two-way traffic volumes on Flatbush Avenue have declined by approximately 17.7 percent on weekdays and 17.9 percent on Saturdays since 2005, and that weekday two-way traffic volumes on Atlantic Avenue have declined by approximately 19.1 percent over the same period. (Saturday 2010 data for Atlantic Avenue were not available.) It should be noted that the 2008 data were collected prior to street closures on the Project site while the 2010 data were collected subsequent to the closures of segments of 5th Avenue and Pacific Street and the Carlton Avenue Bridge on the Project site. However, given the 7 to 12 percent declines in traffic shown in the 2008 data, it is unlikely that the localized traffic diversions associated with the recent street closures would account for all of the substantial reductions in daily traffic volumes on Atlantic and Flatbush Avenues compared to the 2005 data used to establish the baseline for the FEIS traffic analysis.

Table 2
Comparison of 2005, 2008, and 2010 Daily Two-Way Traffic Volumes

	2005		2008		2010		Percent Change: 2005 to 2008		Percent Change: 2005 to 2010	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
Atlantic Avenue	46,445	45,898	41,087	42,570	37,568	n/a	-11.5%	-7.3%	-19.1%	n/a
Flatbush Avenue	44,848	48,700	40,801	43,481	36,908	39,998	-9.0%	-10.7%	-17.7%	-17.9%

Notes:
1. June 2005 and September 2008 ATR counts conducted on Atlantic Avenue east of South Oxford Street and on Flatbush Avenue south of Dean Street. Source: PHA.
2. May 2010 ATR counts conducted on Atlantic Avenue at 6th Avenue and on Flatbush Avenue at 6th Avenue.

n/a – data not available.
Source: Sam Schwartz Engineering.

It is also important to note that the City has recently revisited the subject of annual background growth rates to be used for transportation analysis purposes, and acknowledged that a 0.5 percent per year background growth rate for Downtown Brooklyn was overly conservative (i.e., overestimated likely growth) over the long term. Based on general trends in traffic and growth over a number of years, the City now recommends that for transportation analyses in the vicinity of Downtown Brooklyn, an annual background growth rate of 0.25 percent be applied for the first five years and an annual rate of 0.125 percent be applied for the sixth year and beyond. These rates would result in a substantially smaller increase in travel demand associated with background growth than was assumed in the FEIS analysis. For example, based on the rates now recommended by the City, transportation demand in the vicinity of Downtown Brooklyn is expected to increase by an estimated 3.8 percent for the 25-year period from 2010 through 2035. By contrast, the FEIS analysis assumed that transportation demand would increase by a total of 5.1 percent due to background growth during the 10-year period from 2006 through 2016.

In addition to new traffic demand due to background growth, the future No Build baseline for the FEIS traffic analysis also reflected the traffic likely to be generated by potential No Build development sites. These included developments located within the ¾-mile secondary land use study area, developments outside of the secondary study area that were included in the FEIS at the request of DOT, and developments located in proximity to corridors analyzed for the traffic analysis. All of the projected development sites for the Downtown Brooklyn Development project were also included. Projects with programs less than the minimum development thresholds for Downtown Brooklyn identified in Table 3O-1 in the 2001 *CEQR Technical*

Manual as potentially requiring traffic, parking, transit, and/or pedestrian analyses were not included.[1] (Exceptions were made if a development program included a mix of uses that in aggregate were expected to generate 50 or more vehicle trips or 200 or more transit or pedestrian trips in a peak hour.)

As shown in **Table 3**, the discrete No Build sites accounted for in the FEIS traffic and parking analyses comprised a total of approximately 6,254 dwelling units; 5,185,400 sf of office space; 1,152,100 sf of retail space; and 504 hotel rooms. A total of 2,244,615 sf of "other" space (a mix of academic, performance, community facility, marina, and courthouse space) was also included.

Since the issuance of the FEIS, some development projects have been completed in the surrounding area; some are now on hold, due to changes in market conditions and financing availability; and some new projects are under development. Overall, as shown in Table 3, development totaling approximately 3,596 dwelling units, 16,000 sf of office space, 591,500 sf of retail space, 694 hotel rooms and 934,700 sf of courthouse and other space was completed by late-2010. As noted above, even with the additional travel demand generated by this completed development, 2010 traffic volumes in the vicinity of the Project site are actually lower than the 2006 baseline volumes for the FEIS analysis.

In order to determine the transportation demand that would be generated by new development now anticipated to occur post-2010, an updated No Build scenario for the transportation analyses was developed based on the same criteria used for identifying discrete No Build sites for the transportation analyses in the FEIS. As shown in Table 3, based on current data, it is anticipated that a total of approximately 6,676 dwelling units; 2,554,491 sf of office space; 668,024 sf of retail space, 959 hotel rooms, and 885,903 sf of other space is expected to be developed in the vicinity of the Project site by the hypothetical 2035 analysis year.

Table 4 shows the estimated travel demand generated by the No Build residential, office, retail and hotel development assumed for the 2006 through 2016 period in the FEIS, and the estimated travel demand from such new development now anticipated to occur by 2035. As shown in Table 4, the residential, office, retail and hotel uses in the FEIS No Build development scenario would generate an estimated 336 to 2,504 vehicle trips (auto, taxi and truck) in each analyzed peak hour. For the FEIS traffic analysis, the vehicle trips generated by No Build sites were added to the 2006 baseline network (along with a total of approximately five percent background growth—0.5 percent per year) to forecast 2016 No Build conditions. By comparison, new residential, office, retail and hotel development now anticipated to occur during the 2010 through 2035 period would generate an estimated 323 to 1,775 vehicle trips in each peak hour. There would be 513 fewer vehicle trips generated in the weekday AM peak hour compared to the FEIS No Build development scenario, 505 fewer in the midday and 729 fewer in the weekday PM peak hour. In the weekday pre-game and post-game and Saturday pre-game and post-game peak hours, development now planned by 2035 would generate approximately 165, 13, 63 and 88 fewer vehicle trips, respectively, compared to the FEIS scenario.

[1] These minimums are: 200 residential dwelling units; 100,000-gsf office space; 20,000-gsf retail space; and 25,000-gsf community facility space.

Table 3
Comparison of the FEIS Transportation Analyses 2016 No Build Development Scenario with a 2035 No Build Development Scenario

		FEIS 2016 NO BUILD SCENARIO						DEVELOPMENT COMPLETED OR ANTICIPATED BY 2035						
No.	Project Name/Location	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Notes
1	LIU Recreation and Wellness Center	2005		10,000			117,000	2005		10,000			117,000	completed
2 [NA]	Federal Courthouse (Adams & Tillary Sts)	2005					700,000	2005					700,000	completed
3 [NA]	Pier 12	2006					23,200	2006					23,200	completed
4 [NA]	110 Livingston Street	2006	375				6,000	2006	300				6,000	completed
5 [NA]	Brooklyn Marriott Expansion	2006			8,500	280		2006			8,500	280		completed
6 [NA]	IKEA Red Hook	2006			346,000			2006			346,000			completed
7 [NA]	Fairway Supermarket	2006		91,500	119,300		19,200	2006	45	6,000	119,300			completed
8 [4]	Williamsburgh Savings Bank Building	2007	189		23,000			2007	178		23,000			completed; 30,000 sf of existing dental office space retained
9 [9]	17 Eastern Pkwy (Union Temple site)	2007	200					2007	102					completed
10 [29]	Atlantic Avenue & Smith Street	2007	50	31,500	15,000		8,500	2007	50		15,000	93	8,500	completed; "other" includes community facility space
11 [NA]	306 & 313 Gold Street	2015	517					2008	514					completed
12 [11]	Schermerhorn St btwn Hoyt and Bond Sts	2009	149		14,700			2009	172		14,700			completed

Table 3 (cont'd)
Comparison of the FEIS Transportation Analyses 2016 No Build Development Scenario with a 2035 No Build Development Scenario

		FEIS 2016 NO BUILD SCENARIO						DEVELOPMENT COMPLETED OR ANTICIPATED BY 2035						
No.	Project Name/Location	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Notes
13 [24-A]	Sheraton Aloft Hotel 222-228 Duffield Street	2013		999,000	48,000			2009				321		completed
14 [28]	ESDC/HS Schermerhorn St Block 170	2008	440					2009	440					completed
15 [30]	Myrtle Ave & Flatbush Ave	2013	300		60,000			2009	280		60,000			completed
16 [35]	Waverly Avenue Charter School	2008					80,000	2009					80,000	completed
17 [41]	159 Myrtle Avenue by Avalon Bay	Not included in FEIS No Build Scenario						2009	650		5,000			completed
18 [12]	80 DeKalb Ave	2009	430					2010	365					completed
19 [44]	111 Lawrence Street	Not included in FEIS No Build Scenario						2010	500					completed
20 [49]	Holiday Inn: 300 Schermerhorn Street	Not included in FEIS No Build Scenario						TBD				247		cleared, no construction
21 [42]	470 Vanderbilt Avenue	Not included in FEIS No Build Scenario						2011	376	1,091	115,424			totals reflect the displacement of 578,554 sf of existing office uses on the site.
22 [31]	Myrtle Ave & Ashland Pl	2013	259		86,000				660		22,000			95 D.U. completed
23 [NA]	Brooklyn Bridge Park	2012	1,210	164,400	237,600	224	(see note)	2012	1,210	164,400	237,600	224	(see note)	"other" includes a 185-slip marina and 1,000-seat theater; park facilities partially completed
24 [48]	Brooklyn House of Detention	Not included in FEIS No Build Scenario						2012					40,000	"other" includes expansion of current jail from 815 to 1,478 beds

Table 3 (cont'd)
Comparison of the FEIS Transportation Analyses 2016 No Build Development Scenario with a 2035 No Build Development Scenario

		FEIS 2016 NO BUILD SCENARIO						DEVELOPMENT COMPLETED OR ANTICIPATED BY 2035						
No.	Project Name/Location	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Build Year	Residential (D.U.)	Office (sf)	Retail (sf)	Hotel (rooms)	Other (sf)	Notes
25 [13]	BAM LDC (bounded by Ashland Pl and Lafayette & Flatbush Aves)	2013		15,000			180,000	2013	180				187,000	"other" includes rehearsal studio/cinema/visual arts space
26 [14]	BAM LDC North (bounded by Ashland Pl, Rockwell Pl, Lafayette Ave, & Fulton St)	2013	570		10,000		253,000	2013	187	0	4,000	0	74,000	"other" includes rehearsal/performance/arts space
27 [15]	395 Flatbush Avenue Ext.	2013			12,000			2013			12,000			
28 [17]	254 Livingston Street	2013	186	21,000				2013	186	21,000				
29 [18]	236 Livingston St (SW corner of Bond St)	2013	163	18,000				2013	271					under construction
30 [23]	Flatbush Ave at Albee Square W.	2013		1,233,000	42,000			2013	650	360,000	147,000			excludes 373,000 sf of existing retail that would be retained; under construction
31 [25]	505 Fulton St (Willoughby St btwn Duffield & Bridge Sts)	2013		544,000	50,000			2013	544		50,000			under construction
32 [26]	Adams St/Boerum Pl at Fulton St	2013		788,000	70,000			2013		788,000	70,000			
33 [NA]	Site C, Jay & Johnson Sts	2013		720,000			8,000	2013		720,000			8,000	
34 [NA]	Site G, Johnson & Gold Sts	2013	71		10,000			2013	71		10,000			
35 [19]	29 Flatbush Avenue		Not included in FEIS No Build Scenario					2013	333					

Table 3 (cont'd)
Comparison of the FEIS Transportation Analyses 2016 No Build Development Scenario with a 2035 No Build Development Scenario

		FEIS 2016 NO BUILD SCENARIO						DEVELOPMENT COMPLETED OR ANTICIPATED BY 2035						
No.	**Project Name/Location**	**Build Year**	**Residential (D.U.)**	**Office (sf)**	**Retail (sf)**	**Hotel (rooms)**	**Other (sf)**	**Build Year**	**Residential (D.U.)**	**Office (sf)**	**Retail (sf)**	**Hotel (rooms)**	**Other (sf)**	**Notes**
36 [21]	BAM LDC East	Not included in FEIS No Build Scenario						2013	150				60,000	"other" includes community facility space
37 [52]	388 Bridge Street	Not included in FEIS No Build Scenario						2019	360					under construction
38 [16]	Atlantic Center	2013	850	550,000				TBD	850	500,000				
39 [NA]	Bridge Plaza Rezoning	2004	295					TBD	648					
40 [NA]	City University (Site A)	TBD					590,777	TBD					244,000	
41 [NA]	City University (Site B)	TBD					258,938	TBD					157,000	
42 [24-B]	Hotel Indigo 237 Duffield Street	Not included in FEIS No Build Scenario						TBD				182		under construction
43C [24-C]	Aloft Hotel 216 Duffield Street	Not included in FEIS No Build Scenario						TBD				176		under construction
44 [24-D]	231 Duffield Street	Not included in FEIS No Build Scenario						TBD				130		under construction
45 [66]	P.S. 124 4th Avenue & Butler Street	Not included in FEIS No Build Scenario						TBD						under construction
	Development 2006–2010		2,650	1,132,000	634,500	280	953,900		3,596	16,000	591,500	694	934,700	
	Development 2010–2016/2035		3,604	4,053,400	517,600	224	1,290,715		6,676	2,554,491	668,024	959	885,903	
	Total Development 2006–2016/2035		**6,254**	**5,185,400**	**1,152,100**	**504**	**2,244,615**		**10,272**	**2,570,491**	**1,259,524**	**1,653**	**1,820,603**	

Table 4
Travel Demand Comparison
FEIS 2016 No Build Scenario vs Anticipated Development 2010 - 2035

		FEIS 2006 - 2016 NO BUILD SCENARIO					DEVELOPMENT ANTICIPATED 2010-2035					NET DIFFERENCE				
		Residential	**Office**	**Retail**	**Hotel**	**Total**	**Residential**	**Office**	**Retail**	**Hotel**	**Total**	**Residential**	**Office**	**Retail**	**Hotel**	**Total**
Total Development		6,254 (D.U.)	5,185,400 (sf)	1,152,100 (sf)	504 (rooms)	----	6,676 (D.U.)	2,554,491 (sf)	668,024 (sf)	959 (rooms)	----	422 (D.U.)	(2,630,909) (sf)	(484,076) (sf)	455 (rooms)	----
Peak Hour Vehicle Trips																
Auto+Taxi+Truck	Weekday AM	643	1,095	166	60	1,964	690	544	100	117	1,451	47	-551	-66	57	-513
	Weekday MD	348	392	926	80	1,746	368	192	532	149	1,241	20	-200	-394	69	-505
	Weekday PM	711	1,249	470	74	2,504	759	613	264	139	1,775	48	-636	-206	65	-729
	Weekday Pre-Game	543	371	138	63	1,115	577	181	76	116	950	34	-190	-62	53	-165
	Weekday Post-Game	214	62	44	16	336	232	30	26	35	323	18	-32	-18	19	-13
	Saturday Pre-game	610	24	431	103	1,168	652	9	250	194	1,105	42	-15	-181	91	-63
	Saturday Post-Game	622	69	445	105	1,241	666	33	256	198	1,153	44	-36	-189	93	-88
Peak Hour Transit Trips																
Subway Trips	Weekday AM	3,309	7,159	878	36	11,382	3,532	3,527	510	69	7,638	223	-3,632	-368	33	-3,744
	Weekday PM	3,891	8,312	2,720	42	14,965	4,154	4,095	1,578	81	9,908	263	-4,217	-1,142	39	-5,057
	Weekday Pre-Game	3,018	2,426	850	37	6,331	3,221	1,195	494	70	4,980	203	-1,231	-356	33	-1,351
Bus Trips	Weekday AM	138	660	220	10	1,028	147	326	128	20	621	9	-334	-92	10	-407
	Weekday PM	162	767	680	12	1,621	173	378	394	24	969	11	-389	-286	12	-652
	Weekday Pre-Game	126	224	212	10	572	134	110	124	20	388	8	-114	-88	10	-184

Note: In addition to the residential, office, retail and hotel uses shown in the table, the FEIS No Build scenario accounted for travel demand from approximately 2.2 million sf of miscellaneous uses that do not fall into these categories, including academic, marina, rehearsal studio, theater and performing and visual arts space. As only 885,903 sf of such space is now planned for the 2010-2035 period, these uses are not expected to generate greater travel demand than was analyzed in the FEIS, and travel demand forecasts for these uses are not included in the table.

In addition to residential, office, retail and hotel uses, the FEIS No Build scenario accounted for travel demand from the development of approximately 2,244,615 square feet of miscellaneous uses that do not fall into these categories, including academic, marina, rehearsal studio, theater, and performing and visual arts space. By contrast, as shown in Table 3, it is now anticipated that a total of only 885,903 square feet of such space would be developed from 2010 through 2035. Given this decrease in projected development, it is not expected that these miscellaneous uses would generate greater travel demand than what was analyzed in the FEIS, and separate travel demand forecasts for these uses are not included in Table 4.

In summary, the analysis of future traffic conditions in the FEIS utilized a 2006 baseline condition that was increased by a total of approximately five percent to account for background growth through 2016 (0.5 percent per year) and to which was added travel demand from No Build developments. By contrast, 2008 ATR data indicate that weekday and Saturday traffic volumes on the primary arteries serving the Project site declined by 7 to 12 percent from 2005 to 2008, and more recent 2010 ATR data are consistent with a decline in traffic volumes in the vicinity of the Project site from the 2006 baseline for the FEIS traffic analysis. In addition, there would be from 513 to 729 fewer vehicle trips in the weekday AM, midday and PM peak hours generated by the No Build development now anticipated to occur by 2035, and from 13 to 165 fewer vehicle trips in the weekday and weekend pre- and post-game peak hours. In addition, there would be fewer vehicle trips from the reduction of approximately 1.3 million square feet of miscellaneous uses in the transportation study area. Therefore, the potential ten percent increase in study area background traffic associated with the Extended Build-Out Scenario (which assumes the conservative annual 0.5 percent background growth rate, reflecting the 2001 CEQR guidance), and the changes in anticipated No Build development now expected to occur during that time, would not be expected to result in total traffic volumes greater than what was analyzed in the FEIS for the 2016 Build year.

The Extended Build-Out Scenario is also not expected to result in a greater demand for off-street public parking in the vicinity of the Project site than was analyzed in the FEIS. Overall, the FEIS analysis assumed an approximately five percent increase in existing parking demand due to background growth from 2006 through 2016. However, as discussed above, ATR data collected in 2008 and 2010 indicate that weekday and Saturday traffic volumes on the primary arteries serving the Project site declined from 2005 to 2008 and remain below the 2006 baseline for the FEIS traffic analysis. Given these ATR data and the recent increase in unemployment city-wide, it is expected that parking demand in the vicinity of Downtown Brooklyn has also declined during this period. In addition, based on current data there would be a net decrease in new office space developed by 2035 compared to the development program assumed for the 2016 No Build analysis in the FEIS. Future office-related parking demand would therefore also be substantially lower than what was assumed in the FEIS. By contrast, the increase in residential development anticipated by 2035 compared to the 2016 scenario is not expected to substantially increase the demand for public parking. It is anticipated that residential parking demand would generally be accommodated in accessory parking, as zoning in the area typically imposes minimum parking requirements for new residential developments that are designed to accommodate the development's parking demand. As such, it is not expected that parking demand in the vicinity of the Project site in 2035 would be greater than what was analyzed in the FEIS for the 2016 Build year. In addition, it should be noted that the FEIS parking demand forecast for the 2016 future with the proposed Project showed that the parking study area would continue to operate with a surplus of between 624 and 2,919 off-street public parking spaces in the analyzed weekday AM, midday, evening and Saturday midday peak hours under both project variations (see Tables 12-27 and 12-38 in the FEIS). Therefore, even if there were to be a small increase in parking demand by 2035 compared to the levels forecast for 2016, sufficient off-street

public parking capacity would be expected to be available to accommodate this demand, and it would not result in new significant adverse parking impacts.

TRANSIT AND PEDESTRIANS

FEIS ANALYSIS

To establish a future baseline condition (the No Build condition) from which to assess the potential transit and pedestrian impacts of the proposed Project, the FEIS assumed that transit (subway and bus) and pedestrian demands in the study area would increase over the ten year build-out period (i.e., through 2016) due to long-term background growth as well as the development of new office/commercial, residential, cultural, community facility, court, and retail space in Downtown Brooklyn. To forecast this No Build demand, the principal land use study area development projects listed in Table 2-1 and shown in Figure 2-1 in Chapter 2, "Procedural and Analytical Framework," in the FEIS were considered, as were several large development projects that are located outside of the study area but that were expected to add trips to study area subway and bus routes by 2016, including all of the projected development sites for the Downtown Brooklyn Development project. Additional projects were also added as discrete No Build sites for the FEIS in response to agency and public comments on the DEIS. (A detailed discussion of all discrete No Build sites considered in the transportation analyses is provided in a technical memorandum entitled *Summary of No Build Sites Considered for the EIS Transportation Analyses* included in Appendix C of the FEIS.)

In addition to demand from new developments, an annual background growth rate of 0.5 percent per year was applied to existing transit and pedestrian demand for the 2006 through 2016 period (a total of approximately five percent). This background growth rate, recommended in the 2001 *CEQR Technical Manual* for projects in Downtown Brooklyn, was applied to account for smaller projects, as-of-right developments not reflected in the land uses analyses, and general increases in travel demand not attributable to specific development projects.

For the FEIS analyses of conditions in the 2016 future with the proposed Project, the transit and pedestrian demands generated by the full build-out of the proposed Project were added onto this No Build baseline condition. No significant adverse subway station or subway line haul impacts were identified; however, one bus route, and two crosswalks on the Project site were found to be significantly adversely impacted with full build-out of the proposed Project in 2016. Widening of the affected crosswalks was proposed to mitigate the project-related impacts. As standard practice, New York City Transit (NYCT) routinely conducts ridership counts and adjusts bus service frequency to meet its service criteria, within fiscal and operating constraints. Therefore, no mitigation was proposed for the Project's potential impact to bus service.

2009 TECHNICAL MEMORANDUM

The 2009 Technical Memorandum described changes to the Project's schedule and background conditions and assessed whether the Project as modified would result in any new or different significant adverse environmental impacts not previously identified in the FEIS. The 2009 Technical Memorandum included an analysis of a three-year extension to 2019 for the full build-out of the Project to determine whether there would be any effect on the conclusions of the FEIS, as well as an assessment of the potential effects of a delayed build-out due to prolonged adverse economic conditions based on a hypothetical delay of approximately five years, resulting for analytical purposes in a 2024 Build year.

Schedule Change to 2019

In order to determine future background conditions, the analyses in the 2009 Technical Memorandum employed the same methodology with respect to background growth (i.e., 0.5 percent per year) and identifying discrete No Build development sites as was used for the analyses in the FEIS described above. The list of potential No Build sites was updated to reflect conditions since issuance of the FEIS, with some development projects having been completed in the surrounding area; some put on hold due to changes in market conditions and financing availability; and some under development. The analysis identified a total of approximately 9,610 dwelling units; 2,554,491 sf of office space; 747,724 sf of retail space, 1,151 hotel rooms, and 850,000 sf of other space that could potentially be developed in Downtown Brooklyn and its vicinity by 2019.

Transit—Subway

The 2009 Technical Memorandum analyzed stairways and fare arrays at existing subway stations serving the Project site to determine their sensitivity to future increases in peak hour demand above what was assumed in the FEIS analyses. A shift in the Build year from 2016 to 2019 would potentially represent a 1.5 percent increase in background growth (based on the 0.5 percent/year growth rate recommended in the 2001 *CEQR Technical Manual*) compared to the level of background growth assumed in the FEIS for the 2006 through 2016 period. However, it was determined that future 2019 volumes at existing subway station stairways and fare arrays analyzed in the FEIS would have to increase by 39 percent or more compared to what was forecast for the 2016 Build with Mitigation condition in the FEIS before reaching capacity. It was also noted that as much of the demand at the new on-site entrance and associated circulation improvements planned for the Atlantic Avenue/Pacific Street subway station complex would be generated by the development on the Project site, these facilities would not be as sensitive to increases in general background growth (background growth would not apply to project-generated demand). In addition, the number of subway trips generated by No Build development through 2019 was expected to be less than what was forecast for 2016 in the analyzed weekday AM and PM peak hours, and comparable or only marginally more in the weekday pre-game peak hour. Therefore, the Technical Memorandum concluded that the potential changes in No Build subway demand resulting from a shift in the Build year from 2016 to 2019 would not be expected to result in new significant adverse subway station impacts.

Under 2001 *CEQR Technical Manual* criteria, projected increases in subway load levels from a No Build condition to a Build condition that exceed practical capacity may be considered significant impacts if a proposed action generates five or more additional passengers per car. As shown in Table 13-48 in the FEIS, with full build-out, the Project would generate an average of no more than 4.2 additional passengers per car in the peak direction on all subway lines serving the Project site. The Technical Memorandum therefore concluded that the Project would not result in significant adverse impacts to subway line haul conditions based on 2001 *CEQR Technical Manual* criteria, irrespective of any increase in background growth or demand from No Build site development.

Transit—Buses

As with subway demand, the shift in the Build year from 2016 to 2019 assessed in the 2009 Technical Memorandum would potentially represent a 1.5 percent increase in background growth (based on the 0.5 percent/year growth rate recommended in the 2001 *CEQR Technical Manual*) compared to the level of background growth assumed in the FEIS for the 2006 through

2016 period. By contrast, overall New York City Transit bus ridership was found to have actually increased by only 0.7 percent from 2006 to 2008, less than the 1.0 percent (0.5 percent per year) assumed in the FEIS, and MTA data from 2009 indicated that bus ridership had started to decline, with 1.2 percent fewer riders in February 2009 compared to February 2008. In addition, the number of bus trips generated by the residential, office, retail and hotel development expected through 2019 under the updated No Build development scenario was found to be less than what was forecast for 2016 in the analyzed weekday AM, PM and pre-game peak hours. It was noted, however, that some bus routes might experience localized increases in No Build demand due to background growth and new No Build projects located in their proximity and/or changes in the directional distribution of peak hour trips due to changes in programmed uses (e.g., from an office travel pattern to a residential one). It was therefore considered possible that one or more additional bus routes could experience over-capacity conditions under a 2019 Build scenario. As it is anticipated that the Project would generate from 2 to 38 new peak direction bus trips on any analyzed route—less than the 65-passenger capacity of a single bus—any new over-capacity condition that may occur would be fully addressed by the addition of a single peak direction bus in the affected peak hour. As noted above, NYCT routinely conducts—as standard practice—periodic ridership counts on its local bus routes and increases service where operationally warranted and fiscally feasible. Therefore, the 2009 Technical Memorandum concluded that no additional measures would need to be proposed to address any new over-capacity conditions on local bus service under the analyzed schedule change to 2019.

Pedestrians

Existing 2006 pedestrian volumes at the Project site were relatively low; and all sidewalks, corner areas, and crosswalks analyzed in the FEIS were expected to operate at good levels of service (LOS A or B) in all peak hours under 2016 No Build conditions. The shift in the Project's Build year from 2016 to 2019 assessed in the 2009 Technical Memorandum would potentially increase No Build volumes by approximately 1.5 percent (i.e., 0.5 percent/year). Given the low existing baseline volumes, this added background growth would result in no more than three additional pedestrians at any analyzed facility in the peak 15-minutes in any peak hour. It was therefore concluded that this small increase in volume compared to the volumes analyzed in the FEIS would not result in any new significant adverse impacts at any analyzed sidewalk, corner area or crosswalk. In addition, as discussed above, peak hour transit demand from discrete No Build sites in the vicinity of Downtown Brooklyn for a 2019 Build year was expected to be lower than was forecast for 2016 in the FEIS due to changes in anticipated No Build development since the FEIS analyses were conducted. Overall, this would be expected to result in somewhat fewer pedestrian trips at analyzed pedestrian elements than was originally forecast.

Delayed Build-Out (2024)

The 2009 Technical Memorandum also assessed the potential effects on the conclusions of the FEIS from a delayed build-out due to prolonged adverse economic conditions. A hypothetical delay of approximately five years was assumed, resulting for analytical purposes in a 2024 Build year. If the 0.5 percent annual growth factor were to be applied to a Build year of 2024, it would potentially represent an approximately four percent increase in background growth compared to the 2016 Build year analyzed in the FEIS. However, as was noted in the Technical Memorandum, under a scenario of prolonged adverse economic conditions that are assumed to delay development projects, the application of this level of background growth to the additional period of delay would not be appropriate. Such robust background growth is not consistent with

this scenario, under which there would be a reduced demand for housing and commercial space and delays in development projects in the study area.

The 2009 Technical Memorandum found that once adverse economic conditions begin to abate and the economy begins to recover, transportation demand in the study area would once again be expected to experience some level of background growth. New demand from discrete No Build sites in the area would also be generated as these developments once again begin to advance. Although the characteristics of specific No Build projects may have changed in the interim, it was determined that the inclusive list of No Build sites compiled for the 2019 No Build scenario provided a conservative basis for projecting the magnitude of future development that could be expected as conditions improve. Overall, the 2009 Technical Memorandum concluded that the anticipated transit and pedestrian demand from No Build development along with the potential four percent increase in study area background demand associated with a 2024 Build year would not be expected to result in total transit or pedestrian demand greater than what was analyzed in the FEIS for the 2016 Build year. Moreover, under a scenario of prolonged adverse economic conditions, it would be unrealistic to assume that housing and employment growth—the principal factors driving transportation demand—would continue to result in a 0.5 percent annual increase in background growth.

EXTENDED BUILD-OUT SCENARIO

The discussion below evaluates the potential for new significant adverse transit and pedestrian impacts not previously disclosed in the FEIS from the Extended Build-Out Scenario.

As discussed in Chapter 13, "Transit and Pedestrians," of the FEIS, a total of approximately five percent background growth (0.5 percent per year) was applied to 2006 existing baseline transit (subway and bus) and pedestrian volumes for the 2006 through 2016 period. This background growth rate, recommended in the 2001 *CEQR Technical Manual* for projects in Downtown Brooklyn, was applied to account for travel demand from smaller developments, as-of-right developments not reflected in the land use analyses, and general increases in travel demand not attributable to specific development projects. The Extended Build-Out Scenario would potentially represent an additional ten percent of background growth over 2016 levels (based on a background growth of 0.5 percent per year, in line with the 2001 CEQR guidance).

Transit—Subway

Analyzed stairways and fare arrays at the Atlantic Avenue/Pacific Street subway station complex, and the Bergen Street (2, 3), Fulton Street (G), and Lafayette Avenue (C) subway stations were assessed to determine their sensitivity to future increases in peak hour demand above what was assumed in the FEIS analyses. As noted previously and demonstrated in Tables 13-45 through 13-47 and Tables 19-9 and 19-10 in the FEIS, existing stairways and fare arrays that would be utilized by Project-generated demand are all projected to operate at no more than 61 percent of capacity under 2016 Build with Mitigation conditions. Therefore, under the Extended Build-Out Scenario, future volumes at these existing facilities would have to increase by 39 percent or more from what was forecast in the FEIS before reaching capacity conditions. In addition, much of the future demand at the proposed new on-site entrance and associated circulation improvements at the Atlantic Avenue/Pacific Street subway station complex is expected to be generated by the development on the Project site. These facilities would therefore not be as sensitive to increases in general background growth (background growth would not apply to project-generated demand).

In addition to background growth, the analyses of 2016 subway and bus conditions in the FEIS reflected the transit demand from No Build developments that were anticipated in Downtown Brooklyn and its vicinity by 2016 (see Table 3). Since issuance of the FEIS, some development projects have been completed in the surrounding area; some are now on hold, due to changes in market conditions and financing availability; and some new projects are under development. Overall, as shown in Table 3, development totaling approximately 3,596 dwelling units, 16,000 square feet of office space, 591,500 square feet of retail space, 694 hotel rooms and 934,700 square feet of courthouse and other space was completed by 2010. An additional 6,676 dwelling units; 2,554,491 sf of office space; 668,024 sf of retail space, 959 hotel rooms, and 885,903 sf of other space is now anticipated to be developed in Downtown Brooklyn and its vicinity. Of the approximately 5,185,400 square feet of office space considered in the 2016 No Build scenario for the transportation analyses in the FEIS, only 2,570,491 square feet has been developed or is now planned for development, a decrease of approximately 50 percent. Much of this office space has been or is projected to be developed as residential space, a use that typically generates a lower level of transit demand during the weekday AM, PM, and weekday pre-game peak hours analyzed in the FEIS.

Table 4 shows the estimated travel demand generated by the No Build residential, office, retail and hotel development assumed for the 2006 through 2016 period in the FEIS, and the estimated travel demand from such new development now anticipated to occur by 2035. As shown in Table 4, it is estimated that the residential, office, retail and hotel uses in the FEIS 2016 No Build development scenario would generate 11,382 subway trips in the weekday AM peak hour, 14,965 in the weekday PM peak hour and 6,331 in the weekday pre-game peak hour. For the FEIS subway analyses, the subway trips generated by No Build sites were added to the 2006 baseline network (along with a total of approximately five percent background growth) to forecast 2016 No Build conditions. By comparison, new residential, office, retail and hotel development now anticipated to occur by 2035 would generate an estimated 7,638, 9,908 and 4,980 new subway trips in the weekday AM, PM and pre-game peak hours, respectively. There would be 3,744 fewer subway trips generated in the weekday AM peak hour compared to the FEIS No Build development scenario, 5,057 fewer in the PM and 1,351 fewer trips in the weekday pre-game peak hour.

As noted previously, in addition to residential, office, retail and hotel uses, the FEIS No Build scenario accounted for travel demand from the development of approximately 2,244,615 square feet of miscellaneous uses that do not fall into these categories, including academic, marina, rehearsal studio, theater, and performing and visual arts space. By contrast, as shown in Table 3, it is now anticipated that a total of only 885,903 square feet of such space would be developed from 2010 through 2035. Given this decrease in projected development, these miscellaneous uses would generate lower subway demand than what was analyzed in the FEIS, and separate travel demand forecasts for these uses are not included in Table 4.

The analysis of future subway conditions in the FEIS utilized a 2006 baseline condition that was increased by a total of approximately five percent to account for background growth through 2016 (0.5 percent per year, in line with the 2001 CEQR guidance) and to which was added travel demand from No Build developments. It should be noted that average weekday ridership on the New York City Transit subway system actually increased by an average of roughly 1.5 percent per year from 2006 to 2009, more than the 0.5 percent per year rate assumed in the FEIS (likely due in part to the surge in gasoline prices that occurred during this period). However, it is assumed that ridership will not continue to grow at this rate in coming years given that the 2010 *CEQR Technical Manual* recommends that for transportation analyses in the vicinity of Downtown Brooklyn, an

annual background growth rate of 0.25 percent be applied for the first five years and an annual rate of 0.125 percent be applied for the sixth year and beyond.

In summary, under the Extended Build-Out Scenario there would be a potential ten percent increase in background growth (based on the 0.5 percent/year growth rate recommended in the 2001 *CEQR Technical Manual*) compared to the level of background growth assumed in the FEIS for the 2006 through 2016 period. However, future volumes at existing subway station stairways and fare arrays analyzed in the FEIS would have to increase by 39 percent or more compared to what was forecast for the 2016 Build with Mitigation condition in the FEIS before reaching capacity. In addition, the number of subway trips generated by No Build development now anticipated to occur by 2035 is expected to be substantially less than what was forecast for 2016 in all analyzed peak hours. Therefore, the potential changes in subway demand resulting from the Extended Build-Out Scenario are not expected to result in new significant adverse subway station impacts.

Under 2001 *CEQR Technical Manual* criteria, projected increases in subway load levels from a No Build condition to a Build condition that exceed practical capacity may be considered significant impacts if a proposed action generates five or more additional passengers per car. As shown in Table 13-48 in the FEIS, with full build-out, the Project would generate an average of no more than 4.2 additional passengers per car in the peak direction on all subway lines serving the Project site. The Project would therefore not result in significant adverse impacts to subway line haul conditions based on 2001 *CEQR Technical Manual* criteria, irrespective of any increase in background growth or demand from No Build development resulting from the Extended Build-Out Scenario.

Transit-Buses

As shown in Table 13-49 in the FEIS, the proposed Project would generate from 2 to 38 new peak direction trips on analyzed bus routes in either the AM or PM peak hour in the 2016 Build condition. As disclosed in the FEIS, under NYCT guidelines, this demand would result in a capacity shortfall of 14 spaces on westbound B38 buses in the AM peak hour, resulting in a significant adverse bus impact based on the current service frequency of B38 buses. As standard practice, NYCT routinely conducts ridership counts and adjusts bus service frequency to meet its service criteria, within fiscal and operating constraints. Therefore, no mitigation was proposed for this potential impact to westbound B38 bus service. Under the Extended Build-Out Scenario, there would be no change in the number of peak hour bus trips generated by the Project, and therefore, the incremental change in bus load levels resulting from the Project in 2035 would also remain unchanged from what was analyzed in the FEIS.

It is expected, however, that there would be changes in background growth and No Build site demand under the Extended Build-Out Scenario. The Extended Build-Out Scenario would potentially represent an approximately ten percent increase in background growth (based on the 0.5 percent/year growth rate recommended in the 2001 *CEQR Technical Manual*) compared to the level of background growth assumed in the FEIS for the 2006 through 2016 period. By contrast, overall New York City Transit bus ridership actually decreased by two percent (an average of 0.67 percent per year) from 2006 to 2009 compared to the 1.5 percent (0.5 percent per year) increase assumed for this period in the FEIS.

Table 4 shows the estimated travel demand generated by the No Build development assumed for the 2006 through 2016 period in the FEIS, and the estimated travel demand from new development now anticipated to occur by 2035. As shown in Table 4, it was estimated that the

residential, office, retail and hotel uses in the FEIS No Build scenario would generate 1,028 bus trips in the weekday AM peak hour, 1,621 in the weekday PM peak hour and 572 in the weekday pre-game peak hour. By comparison, new residential, office, retail and hotel development now anticipated to occur by 2035 would generate an estimated 621, 969 and 388 new bus trips in these peak hours, respectively. There would be 407 fewer bus trips generated in the weekday AM peak hour compared to the FEIS No Build development scenario, 652 fewer in the PM and 184 fewer in the weekday pre-game peak hour. Overall, the data in Table 4 indicate that the number of bus trips generated by No Build residential, office, retail and hotel development through 2035 is expected to be less than what was forecast for 2016 in the analyzed weekday AM, PM and pre-game peak hours. However, it should be noted (as it was in the 2009 Technical Memorandum) that some bus routes may experience localized increases in No Build demand due to background growth and new No Build projects located in their proximity, and/or changes in the directional distribution of peak hour trips due to changes in programmed uses (e.g., from an office travel pattern to a residential one).

It is therefore possible that one or more additional bus routes could experience over-capacity conditions under the Extended Build-Out Scenario. As it is anticipated that the proposed Project would generate from 2 to 38 new peak direction bus trips on any analyzed route—less than the 65-passenger capacity of a single bus—any new over-capacity condition that may occur would be fully addressed by the addition of a single peak direction bus in the affected peak hour. As previously noted, NYCT routinely conducts—as standard practice—periodic ridership counts on its local bus routes and increases service where operationally warranted and fiscally feasible. Therefore, no additional measures would need to be proposed to address any new over-capacity conditions on local bus service under the Extended Build-Out Scenario.

Pedestrians

As discussed in the FEIS, existing pedestrian volumes at the Project site are relatively low, and all analyzed sidewalks, corner areas, and crosswalks are expected to operate at good levels of service (LOS A or B) in all peak hours under 2016 No Build conditions. The Extended Build-Out Scenario would increase No Build volumes by approximately ten percent (i.e., 0.5 percent/year). Given the low existing baseline volumes, this added background growth would result in the addition of fewer than two persons per minute at any analyzed facility in any peak hour. This small increase in volume compared to the volumes analyzed in the FEIS is not expected to result in any new significant adverse impacts at any analyzed sidewalk, corner area or crosswalk.

As shown in Table 4 and discussed above, peak hour transit demand from discrete No Build sites in the vicinity of Downtown Brooklyn is generally expected to be lower than was forecast in the FEIS due to changes in anticipated No Build development since the FEIS analyses were conducted. Overall, this would be expected to result in somewhat fewer pedestrian trips at analyzed sidewalks, corner areas and crosswalks than was originally forecast. It should be noted, however, that one new development not previously analyzed in the FEIS—470 Vanderbilt Avenue—would add approximately 376 dwelling units, 1,091 square feet of office space, and 115,424 square feet of retail space in proximity to the intersection of Vanderbilt and Atlantic Avenues at the northeast corner of the Project site. As all analyzed sidewalks, corner areas, and crosswalks at this intersection were predicted in the FEIS to operate at high levels of service (LOS A or B) in all peak hours under 2016 Build conditions, the additional pedestrian demand from this one development, coupled with the additional background growth under the Extended Build-Out Scenario, is not expected to result in any new significant adverse pedestrian impacts.

AIR QUALITY

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to air quality. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not affect the proposed uses, their emissions, or traffic generated by those uses, which would remain the same as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP and 2006 Design Guidelines. As set forth in the Amended Memorandum of Environmental Commitments, the Project sponsors are obligated to implement measures to minimize air emissions. The stipulations in the Amended Memorandum of Environmental Commitments would not be affected by the Extended Build-Out Scenario. Thus, the Extended Build-Out Scenario would not result in any changes that would affect the air quality analysis as described in the FEIS. A discussion of impacts to air quality during the Extended Build-Out Scenario construction period is provided in Section E, "Construction Period Impacts," below.

NOISE

The Extended Build-Out Scenario would not result in significant adverse environmental impacts with respect to noise that were not addressed in the FEIS. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not affect the proposed uses, which would remain the same as described in the FEIS. Thus, the Extended Build-Out Scenario would not result in any changes that would affect the noise analysis as described in the FEIS. A discussion of impacts to noise during the Extended Build-Out Scenario construction period is provided in Section E, "Construction Period Impacts," below.

NEIGHBORHOOD CHARACTER

As presented in the FEIS, the Project would result in localized neighborhood character impacts to immediately adjacent lower density uses in the transitional areas to the south of the Project site, but would not result in significant adverse impacts to the overall neighborhood character of the study areas. Since Project planning progressed since the FEIS, the Project sponsors further developed the design of certain buildings and eliminated certain Project elements. The design development was described and analyzed in the 2009 Technical Memorandum and 2009 MGPP. As noted in the 2009 Technical Memorandum, the design development would not change the FEIS build program notably—the Project would still result in new development that would clearly and substantially alter neighborhood character on the Project site—and would not result in impacts different from those previously identified in the FEIS.

The Extended Build-Out Scenario would not change the FEIS conclusion that the completed Project would not result in significant adverse environmental impacts with respect to neighborhood character. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not affect the proposed uses, which would remain the same as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP and 2006 Design Guidelines. Thus, the Extended Build-Out Scenario would not result in any changes that would affect the neighborhood character analysis for the completed Project as described in the FEIS. A discussion of impacts to neighborhood character during the Extended Build-Out Scenario construction period is provided in Section E, "Construction Period Impacts," below.

PUBLIC HEALTH

The Extended Build-Out Scenario would not change the FEIS conclusion that the Project would not result in significant adverse environmental impacts with respect to public health. The Extended Build-Out Scenario would affect the timing of construction of the buildings but would not affect the proposed uses, which would remain the same as analyzed in the FEIS, 2009 Technical Memorandum, or as specified in the 2009 MGPP and 2006 Design Guidelines. Thus, the Extended Build-Out Scenario would not result in any changes that would affect the public health analysis as described in the FEIS.

E. CONSTRUCTION PERIOD IMPACTS

Potential construction impacts for the Project were analyzed in detail in the 2006 FEIS and further evaluated in the 2009 Technical Memorandum. The methodologies and findings of these analyses, along with an assessment of the potential construction impacts of the build-out of the Project under the Extended Build-Out Scenario, are discussed below.

2006 FEIS

The 2006 FEIS construction impact analysis examined the potential effects of Project construction on a number of technical areas, including land use, socioeconomic conditions, community facilities, open space, historic resources, hazardous materials, traffic and transportation, air quality, noise and vibration, infrastructure, and neighborhood character.

DESCRIPTION AND SEQUENCING

The FEIS assumed a schedule whereby construction would be completed over a 10-year period, between the 4th quarter of 2006 and the 4th quarter of 2016, as depicted in **Figure 2** [Figure 17-1 in FEIS]. Phase I was to begin with the reconstruction of the LIRR Vanderbilt Yard and the construction on Blocks 927, 1118, 1119, and 1127. Environmental remediation and demolition of existing buildings on all blocks would occur in Phase I. The arena and the subway entrance were expected to be open in October 2009, and the rest of the Phase I development would be completed by the 4th quarter of 2010. In general, the construction of the buildings was to move from west to east, starting on Blocks 1118, 1119, and 1127 (Arena, Urban Room, and Buildings 1 through 4) followed by Block 927 (Site 5). Also included in Phase I was the construction of the West Portal between the Vanderbilt Yard and Flatbush Avenue Terminal; MTA/NYCT connections; installation of major new sewer and water lines; and other utility lines, such as telecommunication facilities with capacity for the complete Project. During Phase I, the period with the greatest number of buildings simultaneously under construction was projected to be between late 2008 to early 2009 when the arena, the LIRR improvements, and five buildings were to be in various stages of construction. **Figure 3** [Figure 17-2 in FEIS] illustrates the activities that were assumed to occur during peak Phase I construction. The levels of construction activities before and after the Phase I peak were to be of lesser intensity. In Phase II, the construction activity would be less intense than during Phase I. From 2010 to 2014, the activity would be centered on Block 1120 with a peak projected to be between the end of 2011 and the beginning of 2012, as illustrated in **Figure 4** [Figure 17-3 in FEIS]. In 2014, the work would shift to Blocks 1121 and 1129 with a secondary peak in 2016. The buildings in Phase II could have proceeded in a different sequence but the effects would not have been materially different.

ASSESSMENT OF IMPACTS

As demonstrated in the summary of FEIS analyses below, the determination of significant adverse impacts during construction relies mainly on the intensity of construction activities and their potential effects on the environment. Since these activities would move through the development area as Project components are being constructed, they would not have prolonged effects on individual uses in the area. Therefore, most areas of environmental concern would be independent of the overall duration of Project construction under the Extended Build-Out Scenario.

To address the environmental concerns described below, the Project sponsors are obligated to incorporate various measures pursuant to the Memorandum of Environmental Commitments. These measures would be requirements of the construction contract documents. For construction, the Project sponsors must undertake, fund, and cooperate in procedures and mitigation measure implementation to minimize the effects of Project construction on traffic conditions, noise, and air quality in the surrounding area. The Memorandum was amended in accordance with the 2009 MGPP. These commitments are further described in detail for each technical category below under the discussion of the Extended Build-Out Scenario.

Land Use

The FEIS noted that construction activities would not occur on every Project block at the same time. Concurrent construction activities would be of varying intensities and construction parking and staging areas would be of similar industrial character as certain existing on-site and adjacent uses. No portion of the Project site would be subject to the full effects of the construction for the entire construction period. Although construction activities would be disruptive and concentrated on some blocks for an extended period of time, there would be measures in place to control noise, vibration, and dust on construction sites, to reduce views of construction sites, and to buffer noise emitted from construction activities. The FEIS, therefore, concluded that significant adverse impacts on land use are not anticipated.

Socioeconomic Conditions

The FEIS disclosed that construction activities associated with the Project would, in some instances, temporarily affect socioeconomic conditions in the vicinity of the Project site. However, access to businesses near the Project site would not be impeded, and most businesses were not expected to be significantly affected by a temporary reduction in the amount of pedestrian foot traffic that could occur as a result of construction activities. Furthermore, because the effects of construction would vary in levels, moving through the development area as different components of the Project get completed and not impeding nearby businesses over the long-term, the FEIS concluded that construction of the Project would not result in any significant adverse impacts on surrounding businesses.

Community Facilities

The FEIS found that none of the community facilities in the area would be affected by construction activities for an extended duration. All community facilities located in close proximity to the Project site are at the western end of the site and therefore would be affected only during the construction of the earlier Project components (i.e., the arena block). The construction sites would be surrounded by construction fencing and barriers that would limit the effects of construction on nearby facilities. Measures outlined in the Construction Protection Plan (CPP) and Maintenance and Protection of Traffic (MPT) Plan would ensure that lane

closures and sidewalk closures are kept to a minimum and that adequate pedestrian access is maintained to community facilities in the vicinity of the Project site. Construction of the Project would not block or restrict access to any facility in the area, and would not affect emergency response times significantly. NYPD and FDNY emergency services and response times would not be significantly affected due to the geographic distribution of the police and fire facilities and their respective coverage areas. The FEIS found that the only community facility that would experience a significant adverse impact is the Pacific Branch of the Brooklyn Public Library, from noise during the construction of the new arena. Although other community facilities in the area may be affected by construction noise, they would not experience significant adverse impacts.

Open Space

The FEIS noted that construction activities would not displace any existing open space resources. While certain existing and Project open spaces may be temporarily affected by noise from construction activities, access to these open spaces would not be impeded at any point during the construction period. The use of the proposed open spaces to be constructed as part of the Project would be temporarily affected by the construction of adjacent buildings. The FEIS, however, identified a significant adverse impact with respect to open space resources upon the completion of Phase I of the Project, due to the additional residents and commercial occupants of the Phase I period, and also identified noise-related impacts during construction on certain open space areas, as described below.

Cultural Resources

The FEIS indicated that the Landmarks Preservation Commission (LPC) and the New York State Office of Parks, Recreation and Historic Preservation (ORPHP) would be consulted regarding testing for historic period archaeological resources for five lots on the Project site west of 6th Avenue, and, if required, the implementation of mitigation measures. With regard to historic resources, demolition of the former LIRR Stables at 700 Atlantic Avenue and the former Ward Bread Bakery complex at 800 Pacific Street would be significant adverse impacts. Measures to partially mitigate these impacts were developed in consultation with OPRHP and are stipulated in a Letter of Agreement among ESDC, OPRHP, and the Project sponsor. It was further noted that the Project sponsors would prepare and implement a Construction Protection Plan (CPP) to avoid construction related impacts on historic resources within 90 feet of Project construction. For the Atlantic Avenue subway station, consultation with NYCT and OPRHP regarding the proposed finishes in the station where new construction would connect to the historic tiled platform walls would be undertaken, and an evaluation of the potential salvage and reuse potential of materials to be removed in the non-public areas would be conducted. Therefore, the FEIS concluded that the Atlantic Avenue Subway Station would not be adversely impacted.

Hazardous Materials

The potential for contamination in the subsurface (related primarily to localized current or former gas stations and historic fill) and inside buildings (primarily related to asbestos) was identified in the FEIS. However, with the implementation of asbestos removal in accordance with applicable regulations prior to building demolition and a variety of remediation and site-safety measures during excavation, no significant adverse impacts related to hazardous materials were expected to occur as a result of construction of the Project. These measures would include development and implementation of a CHASP, community air monitoring plan during

excavation, and regulatory oversight of petroleum-related spills by the NYSDEC, where applicable.

Traffic and Transportation

Since there would be different types and levels of construction activities at varying locations within and adjacent to the development area, the FEIS assessment focused on determining potential transportation-related impacts at illustrative points in time during which there would be the highest projected levels of construction activities and when roadway characteristics may be unique (i.e., during specific roadway closures or after permanent change in intersection configuration or street directions). As shown in **Figures 5, 6, and 7** [Appendix Exhibits F17a-31 to F17a-33 in FEIS] for Phases 1A, 1B, and 2B, respectively, different traffic study areas were selected to assess worst-case conditions during three separate time periods. Because construction activities during other phases or times of construction would be lower, any potential impacts would have been addressed in the aforementioned analyses. This methodology of impact determination, consistent with CEQR guidance, is not duration dependent but rather is keyed to the types and levels of construction activities while accounting for changing background conditions.

Traffic

The detailed construction traffic analysis in the FEIS concluded that significant adverse traffic impacts would occur at numerous locations throughout the construction period. However, these impacts would be attributable primarily to factors other than the added traffic from construction trucks and worker vehicles. The permanent closure of several streets within the Project site, the lane disruptions during utility installation and rail yard improvements, and the reconstruction of two bridges over the rail yard were determined to be the main reasons for changes in area travel patterns and traffic diversions. These traffic diversions, when combined with construction-generated traffic, would concentrate traffic at specific intersections near the Project site and result in the projected significant adverse traffic impacts.

Although construction traffic would be more dispersed away from the construction site, significant adverse traffic impacts were also identified for outlying intersections along Atlantic Avenue west of the Project site. Furthermore, as roadway disruptions associated with temporary lane and street closures would affect area intersections during construction peak hours, they would have similar effects on peak hour conditions when background and, following the completion of Phase I of the Project, operational traffic would be higher. Overall, significant adverse traffic impacts during construction were identified for 12 intersections in proximity to the Project site and seven outlying intersections.

Mitigation measures proposed to mitigate Project operational impacts were evaluated to determine the appropriate strategies for addressing traffic impacts during construction. While the proposed mitigation measures would be appropriate for early implementation, some significant adverse traffic impacts during construction, as with the operational conditions, would remain unmitigated.

Parking

Parking demand for construction workers at the site was anticipated during the peak year to average 733 construction worker vehicles arriving at the Project site during the 6 to 7 AM morning peak hour, and the total parking demand would be 916 construction-worker vehicles during the peak year. While some construction workers were expected to find nearby on-street

parking, the overall projected demand would exceed what would be available on-street. To avoid overtaxing nearby on- and off-street facilities, the Project sponsors would provide on-site (southern half of Block 1129) parking for construction workers at a fee that is comparable to other parking lots/garages in the area. By charging a fee and also limiting its parking capacity only to accommodate the anticipated demand, the on-site parking facility would help in minimizing the number of construction worker vehicles circulating for on-street parking in the area, while at the same time not encouraging the use of private automobiles as the means of travel to the Project site. Since all projected construction worker parking demand would be met, no parking shortfall was anticipated during any phase of construction at Atlantic Yards and the Project was not expected to result in any potential significant adverse parking impacts during construction.

Transit and Pedestrians

The FEIS found that construction workers who do not travel via auto would be distributed among the various subway and bus routes, station entrances, and bus stops near the Project site. Only nominal increases in transit demand would be experienced along each of these routes and at each of the transit access locations during hours outside of the typical commuter peak periods. Pedestrian trips generated by construction workers would similarly be made during off-peak hours and dispersed to various pedestrian routes. Furthermore, appropriate measures for maintaining temporary sidewalks and overhead protections would be provided throughout construction. Therefore, no significant adverse transit and pedestrian impacts were expected to occur for the entire duration of Project construction.

Air Quality

Construction activities have the potential to impact air quality as a consequence of emissions from on-site construction engines as well as emissions from on-road construction-related vehicles and their effects on traffic congestion. Among these, emissions from diesel engines, primarily from on-site construction equipment, is the major source of adverse effects to air quality. Hence, the determination of potential air quality impacts also hinges on the level of construction activities concurrently taking place at the Project site. The FEIS analysis predicted emission profiles for various pollutants to identify concentrations during various stages of peak construction. The analysis results showed that concentrations of carbon monoxide (CO), nitrogen dioxide (NO_2), and particles with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}) were not predicted to be significantly impacted by the construction of the Project in any phase of construction. Although concentrations of particles with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$) were found to increase to levels exceeding the City's interim 24-hour and annual average guidance thresholds in areas immediately adjacent to the construction activity, the $PM_{2.5}$ threshold exceedances were predicted to be limited in extent, duration, and severity. This low level of impact can be mostly attributed to the extensive measures incorporated into the Project construction program aimed at reducing $PM_{2.5}$ emissions. Therefore, no significant adverse impacts on air quality were predicted during the construction of the Project.

Noise and Vibration

Impacts on community noise levels during construction of the Project can result from noise and vibration associated with construction equipment operation and from construction vehicles and delivery vehicles traveling to and from the site. Noise and vibration levels at a given location are dependent on the kind and number of pieces of construction equipment being operated, the

acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating), the distance from the construction site, and any shielding effects (from structures such as buildings, walls, or barriers). Noise levels caused by construction activities would vary widely, depending on the phase of construction and the location of the construction relative to receptor locations. Absent blasting and/or rock removal (which is not anticipated for the Project), the most significant construction noise sources were expected to be equipment such as jackhammers, pile drivers, impact wrenches, and paving breakers, as well as the movements of trucks and cranes. As with the analysis of traffic and transportation and air quality, the determination of potential impacts is based on predicted escalation of noise and vibration levels, which are directly correlated with intensity of construction activities.

Noise

The Project sponsors are obligated to incorporate into the Project measures to reduce or avoid noise impacts due to Project construction activities. After implementation of these measures, there would still be locations where construction activities alone, and construction activities combined with Project-generated traffic, would result in predicted significant adverse noise impacts on the adjacent properties. The FEIS analysis results indicated that there would be three open space resources that would experience significant adverse noise impacts during some portion of the construction period: Brooklyn Bear's Community Garden, the Dean Playground, and South Oxford Park. Because of safety and aesthetic concerns, there was found to be no feasible and practicable mitigation that would eliminate Project impacts; however, with respect to the Dean Playground, the impact would be partially mitigated by the provision of an amenity to the park users. Construction noise mitigation measures for the Pacific Street Branch of the Brooklyn Public Library and the Temple of Restoration on Dean Street were developed.

Significant noise impacts were predicted to occur at the exterior of a number of residential locations during some portion of the construction periods. The majority of buildings near or adjacent to the Project site either have double glazed windows or storm windows. In addition, a large number of residences have some form of alternative ventilation, either window, through-the-wall (sleeve), or central air conditioning. At exterior locations where significant adverse noise impacts were predicted to occur, and where the residences do not contain both double-glazed or storm-windows and alternative ventilation (i.e., air conditioning), the Project sponsors would make these mitigation measures available, at no cost for purchase and installation to owners of residences. In addition, potential significant adverse noise impacts from construction were identified at the exterior of upper floors of certain residential buildings on the north side of Atlantic Avenue and potentially on streets north of Atlantic Avenue. Generally, all of the sites identified north of Atlantic Avenue already have double-glazed windows with sleeves for alternate ventilation. However, residents within the identified zone who do not have double-glazed or storm-windows and alternative ventilation and choose not to accept the mitigation measures made available, would experience significant adverse impacts from construction noise at these locations.

Vibration

The Project sponsors are obligated to implement a monitoring program to ensure that no architectural or structural damage to nearby historic buildings would occur due to vibration from construction activities.

Infrastructure

In order to construct the Project, several major water and sewer lines would have to be relocated, as well as many smaller utility lines. Water and sewer service lines would have to be connected to the new buildings. All relocations and replacements would meet the standards of DEP and would have to be approved by that agency. The department regularly repairs, relocates, and replaces water and sewer lines without disruption to service. Therefore, no significant adverse impacts on the infrastructure systems or to users were predicted in the FEIS. Construction-generated solid waste would be disposed of off-site at appropriate land fills through the use of private carters.

During construction, energy for the construction activities would be provided to the Project site through the grid power and, as necessary, on-site generators. The Project sponsors have met with Con Edison to ensure the early connection of grid power to the site for use during construction. This would ensure that grid power would be available on site prior to the peak construction period. The amount of electricity required for Project construction would not exceed the amount of electricity required to support the completed development. Relative to the capacity of the city's electric system, the increase in demand was found to be insignificant and there would be no significant adverse impact to the provision of energy to the site or the surrounding area.

Neighborhood Character

With regard to neighborhood character, construction activity associated with the Project was found to have significant adverse localized neighborhood character impacts in the immediate vicinity of the Project site during construction. The degree of this impact would depend on the type of construction activity being performed, the location and the length of time this disruption is expected to occur, and the character of the immediately adjacent neighborhoods. Construction would change the character of the Project site from an underutilized and blighted area to one of construction activity. The existing uses on the site do not contribute to a vibrant neighborhood character, and their replacement with construction activities, which are expected to cause localized impacts but not alter the character of the larger neighborhoods surrounding the Project site, would not result in significant adverse impacts on neighborhood character, except in the immediate vicinity of the Project site.

2009 TECHNICAL MEMORANDUM

As described above, the 2009 Technical Memorandum was prepared to address certain Project modifications and a change in Project completion schedule.

DESCRIPTION OF 2009 CHANGES

As affirmed, the 2009 MGPP allowed for the phased acquisition of property, with the first phase assumed to be completed toward the end of 2009, encompassing the arena block, including the Pacific Street streetbed between Vanderbilt and Carlton Avenues, Block 1129, and certain lots on Blocks 1120 and 1121. The second phase was anticipated to occur toward the end of 2011 and would encompass the remainder of the Project site. Thus, certain land that had been planned to be used for staging of materials would not be acquired; nor would it be available for the arena construction. Instead, part of the construction material staging for the arena would have to take place on the arena block, and the remainder of the staging area and construction parking would continue to be located on Block 1129.

In addition to the above changes in property acquisition, the modified design of the arena would be simpler than described in the FEIS and the modified arena would cover less ground area during construction, making available space for on-site staging of materials. The replacement of the 6th Avenue Bridge would no longer be necessary, and thus there would be fewer infrastructure improvements constructed.

The 2009 Technical Memorandum addressed two delay scenarios. First, it assessed how construction impacts would change if the schedule were simply shifted ahead by three years. Second, it considered the potential for additional impacts resulting from a further delay in construction. Due to delays in the commencement of construction on the arena block, the anticipated Phase I completion was extended from 2010 to 2014. For the same reason, completion of Phase II or the full build-out of the Project was extended from 2016 to 2019.

As detailed in **Table 5** below, the 2009 Technical Memorandum found that the duration of construction of most Project elements, would not change as a result of their modified start date within the overall construction schedule. Rather, with the exception of Project elements whose construction had already commenced, the schedule's overall timeline reflected a shift by approximately three years from what was presented in the FEIS. Under the schedule presented in the FEIS, in the fourth quarter of 2009 the construction of the arena would be completed and by the fourth quarter of 2010 the remaining arena block buildings—Buildings 1, 2, 3, and 4—would be completed. Under the revised schedule, completion of the arena construction would occur in the first quarter of 2012, and the reconstruction of the Carlton Avenue Bridge would be completed in time for the opening of the arena and would be compatible with LIRR rail yard operations and the new permanent yard, which was expected to be completed in 2013. The duration of the LIRR rail yard's construction—as well as the duration of construction for the site preparation and platforms on Blocks 1120, 1121, and 1128—would be longer than anticipated in the FEIS.

The 2009 Technical Memorandum found that no significant adverse impacts would result from shifting the start date forward by three years.

DELAYED BUILD-OUT

The 2009 Technical Memorandum also provided an assessment of potential delays to the build-out of the Project, using 2024 as a benchmark for the technical areas undergoing a quantitative analysis. The assumed delays would not affect the completion timing of the arena and Building 2, transit access improvements, construction of the new LIRR rail yard, or reconstruction of the Carlton Avenue Bridge. However, instead of having continuous construction of the platform over the rail yard in Phase II, the delayed build-out was assumed to involve platform construction in sections, with each of the corresponding buildings moved forward in development. In Appendix A of the 2009 Technical Memorandum, potential effects of completion delay of Building 1 from 2013 to 2017 was addressed, as noted in **Table 5** above.

Table 5
FEIS and 2009 Technical Memorandum Construction Phasing

Project Component	FEIS		2009 Technical Memorandum	
	Duration	*Time Period*	*Duration*	*Time Period*
Phase I				
LIRR Rail Yard*	42 months	2006-2010	79 months	2007-2013
Arena**	32 months	2007-2009	29 months	2009-2012
Building 1***	41 months	2007-2010	35 months	2010-2013
Building 2	22 months	2008-2009	22 months	2010-2012
Building 3	32 months	2008-2010	32 months	2010-2013
Building 4	36 months	2008-2010	36 months	2011-2014
Site 5	41 months	2007-2010	37 months	2011-2014
Phase II				
Platform Block 1120	23 months	2009-2011	29 months	2011-2014
Building 5	24 months	2011-2012	24 months	2013-2015
Building 6	21 months	2011-2012	21 months	2014-2016
Building 7	30 months	2011-2013	32 months	2014-2017
Site Preparation Blocks 1121 & 1129	71 months	2006-2012	107 months	2007-2014
Platform Block 1121	20 months	2011-2012	20 months	2014-2015
Building 8	18 months	2012-2014	18 months	2015-2017
Building 9	21 months	2014-2015	21 months	2017-2018
Building 10	20 months	2015-2016	20 months	2018-2019
Building 11	18 months	2015-2016	18 months	2018-2019
Building 12	21 months	2015-2016	20 months	2018-2019
Building 13	18 months	2014-2015	18 months	2017-2018
Building 14	15 months	2012-2013	15 months	2015-2016
Building 15	31 months	2010-2012	32 months	2012-2015

Notes: *Extended schedule reflects periodic suspensions of construction activity since commencement of the temporary yard in 2007.
**Includes excavation
*** Potential for further delay in the completion of Building 1 was assessed in Appendix A to the 2009 Technical Memorandum.

ASSESSMENT OF IMPACTS

The FEIS construction analysis examined the potential effects of Project construction on a number of technical areas. However, not all of these areas would be affected by the changes addressed in the 2009 Technical Memorandum. Therefore, this Memorandum's construction impact analysis focused only on those technical areas that could be affected by the GPP modifications, design development, and schedule change. Conclusions made in the 2006 FEIS on potential impacts during construction for land use, socioeconomic conditions, community facilities, open space, historic resources, hazardous materials, and infrastructure would remain unchanged and were not further discussed. Comparisons to the findings presented in the 2006 FEIS with respect to traffic and transportation, air quality, and noise were made in the 2009 Technical Memorandum and are summarized below.

Traffic and Transportation

As illustrated in **Figure 8** [Figure 7 in 2009 Technical Memorandum], compared to the construction schedule analyzed in the FEIS, the revised construction schedule was found to result in maximum construction activities shifting from 2008-2009 to 2012, with fewer deliveries and approximately 40 percent fewer estimated daily workers. However, peak construction under the revised schedule would take place after the completion of the arena and

Building 2, whereas peak construction under the FEIS schedule was projected to occur prior to completion of any building. Hence, prior to any buildings having been completed, the revised schedule would generate less peak construction traffic than analyzed in the FEIS. For the new construction peak in 2012, projected construction traffic levels would be comparable to those projected for the FEIS Phase II peak construction analysis. In that analysis, the entire arena block (the arena and Buildings 1, 2, 3, and 4) was assumed to be completed, whereas for the new construction peak in 2012, only the arena and Building 2 would be completed. Therefore, operational traffic attributed to the completed components of the arena block would be less with the Project modifications. Overall, the cumulative peak conditions resulting from the revised construction schedule was found to fall within the maximum envelopes analyzed in the FEIS.

Furthermore, since peak construction activities under the revised construction schedule would take place after the completion of the arena, roadway improvements, traffic mitigation measures, traffic circulation plans, and updated curbside parking regulations described in the FEIS would already be in place to accommodate operational traffic from the arena and other to be completed buildings. Hence, the magnitude of temporary significant adverse traffic impacts generated by the construction activities under the revised construction schedule was expected to be similar to or lower than estimated in the FEIS. Therefore, the 2009 Technical Memorandum found that the revised construction schedule would not be expected to result in additional or new significant adverse construction traffic impacts or required mitigation measures or additional parking resources that were not identified in the FEIS. With overall lower levels of construction worker trips, there would also not be a potential for significant adverse transit and pedestrian impacts during construction. The 2009 Technical Memorandum found that if there is a delay in build-out beyond 2019, the build-out of buildings would be more spread out, resulting in a lower intensity of construction activities and therefore lower or similar impacts.

Air Quality

The construction air quality analysis in the FEIS was revisited to determine if the revised construction schedule would have the potential to cause new significant adverse impacts not identified in the FEIS. The general means and methods used for construction, as presented in the FEIS, were not expected to change as a result of the revised construction schedule. In order to assess the potential change in the impact on air pollutant concentrations associated with the revised schedule, the emissions assumptions prepared for the FEIS were applied to the revised schedule, resulting in new estimates ('emissions profiles') of 24-hour and annual average fine particulate matter ($PM_{2.5}$) emissions throughout the duration of construction. These emissions profiles were then compared with the profiles presented in the FEIS. The new 24-hour and annual average ground-level emissions profiles with the revised construction schedule, together with the previous profiles presented in the FEIS, were presented in Figures 8 and 9 in 2009 Technical Memorandum, respectively. Ground-level emissions are emissions from activities that do not occur at elevated locations in the constructed buildings. Since most emissions would be near ground level, and the nearest receptors are at ground level, the highest impacts were predicted to be at ground level and are affected mostly by emissions at or near ground level.

As presented in the figures, the level of intensity during the peak construction period with the revised schedule would be lower than that analyzed in the FEIS. With the revised schedule, a peak in 24-hour average ground-level emissions of 5.1 pounds per day (lb/day) was predicted, whereas a peak of 7.4 lb/day was predicted in the FEIS. Similarly, the peak annual average ground-level emission with the revised schedule was predicted to be 2.3 lb/day, whereas an annual peak of 2.8 lb/day was predicted in the FEIS. The 2009 Technical Memorandum,

therefore, found that the revised schedule would therefore result in lower peak emission levels than those predicted in the FEIS, and would therefore generally result in lower concentration increments. Furthermore, since the FEIS was published, additional information regarding emissions controls had become available, indicating that the diesel particle filters (DPFs)—the central component of the emissions reduction program being applied for the construction of the Project—reduce emissions significantly more than was assumed in the analysis. In the FEIS, DPFs were assumed to reduce diesel particulate matter (DPM) by 85 percent. The latest information indicates that almost all DPFs reduce DPM emissions by at least 92 percent, and most are in the range of 95 to 98 percent. Several large construction projects analyzed more recently under the City Environmental Quality Review program have applied an assumption of 90 percent reduction. Applying this assumption would result in overall emission increments that are at least 1/3 lower than presented in the FEIS, and in all likelihood closer to 2/3 lower. Therefore, the revised construction schedule was expected to yield lower emissions than what was disclosed in the FEIS and, as with the FEIS findings, would not result in any significant adverse impacts on air quality during construction. If there is a delay in build-out beyond 2019, completion of Project buildings would be more spread out, requiring fewer pieces of construction equipment to be used simultaneously, thereby resulting in even lower projected emission increments.

Noise

The construction noise analysis presented in the FEIS was also reviewed to determine if the revised construction schedule would have the potential to cause new significant adverse impacts not identified in the FEIS. The construction noise analysis presented in the FEIS concluded that at a number of specific locations near the Project site, for specific periods of time, significant adverse noise impacts would occur as a result of the construction of the approved Project. In addition, the FEIS identified measures, some of which the Project sponsors have already implemented, to mitigate these impacts.

The revised construction schedule, when compared to the construction schedule presented in the FEIS, was found to contain comparable construction activities. There were two primary differences identified between the FEIS construction schedule and the revised construction schedule. The first difference was that with the revised construction schedule, certain construction activities would occur at a later date. The second difference concerned the number of pieces of construction equipment simultaneously operating at the Project site at any time period. In peak periods the number of pieces of construction equipment simultaneously operating on the Project site at any time period with the revised construction schedule extending beyond 2019 would be fewer than was assumed at a comparable period of construction for the FEIS construction analysis. Therefore, with a delayed build-out to 2024, noise levels produced by construction activities would be expected to be comparable to or less than the noise levels predicted to occur with the FEIS construction schedule, and are unlikely to result in any significant impacts not identified in the FEIS.

With regard to vibration, the Project sponsors would continue to implement a monitoring program to ensure that vibration levels at buildings within an affected area are kept below the 0.50 inches/second PPV limit and no architectural or structural damage would be expected to occur. Consequently, no significant noise or vibration impacts would be expected to occur that were not already identified previously in the FEIS.

Neighborhood Character

As described in the FEIS, construction activity associated with the Project would have significant adverse localized neighborhood character impacts in the immediate vicinity of the Project site during construction. The Project site and the immediately surrounding area would be subject to added traffic from construction trucks and worker vehicles, partial and complete street closures, and bridge reconstruction, resulting in changes in area travel patterns and the resultant significant adverse traffic impacts. Construction traffic and noise would change the quiet character of Dean Street and Pacific Street in the immediate vicinity of the Project site. With the revised construction schedule set forth in the Technical Memorandum, there would be an additional five years during which portions of the Project site would be an active construction area. Therefore, the localized, significant adverse neighborhood character impacts at Dean and Pacific Streets would continue through the construction period.

The Technical Memorandum further found that if the build-out of the Project is delayed to 2024, there would likely be lower intensities of construction worker and truck delivery traffic, pollutant emissions, and construction noise and vibration than would occur in a more concentrated construction timeframe. Although the duration of the effects would be prolonged, the effects were found likely to be even more localized, as buildings become completed and occupied by their permanent intended uses.

ADDITIONAL COMMITMENTS

As part of the approval process for the 2009 Technical Memorandum, further commitments were made, though not for construction impacts, resulting in an Amended Memorandum of Environmental Commitments. This update or amended memorandum contains essentially the same construction-related commitments as those made on the 2006 FEIS, with certain specifications, including:

- For traffic, maintain on-site designated staging areas throughout the construction period to store materials and to accommodate construction vehicles that require early arrival and marshalling for immediate material delivery to high-demand construction areas; provide on-site parking for construction workers at levels appropriate in light of the number of workers employed at the site during different stages of construction, to a maximum of 800 spaces and no more than 1,100 surface parking spaces in the aggregate on Block 1129 to accommodate parking demand from the arena and other Project buildings; equip interim construction staging and parking areas with directional lighting angled to limit light intrusion beyond the site and provide screening for the interim surface parking lot on Block 1129;
- For noise, provide a minimum 8-foot high perimeter barrier (constructed of ¾-inch thick plywood), with a 16-foot high barrier (of ¾-inch thick plywood) adjacent to sensitive locations and operate noisy delivery trucks, such as concrete trucks, behind the barriers; make available double-glazed or storm windows and alternative ventilation for those residential locations where the FEIS identified significant noise impacts and such windows and air conditioning are not currently installed, work with the Parks Department to supplement its planned improvements to the Dean Playground with a comfort station open to the general public; and implement a monitoring program to ensure that vibration levels at the Swedish Baptist Church and the town houses along Dean Street immediately adjacent to the Project's Building 15 site are kept below 0.50 inches/second.
- For air quality, ensure sufficient grid power is available to each site as early as practicable.

EXTENDED BUILD-OUT SCENARIO

Should there be a prolonged delay in completion of the Project that extends beyond 2024, the program and use for the Project are not expected to change from that approved in 2009. Development of this Project—regardless of the completion year—would need to be consistent with the approved 2009 MGPP, the 2006 Design Guidelines, and the Amended Memorandum of Environmental Commitments (December 2009). Any future modifications to those documents would be subject to review under SEQRA.

The scheduling of construction activities for a major project is an exceedingly complex endeavor, with conceptual schedules for construction made early on in project planning evolving over the course of the design and development process. Accordingly, construction sequencing plans can be prepared to assess environmental impacts, but those plans can be expected to change as the Project proceeds. In order to assess whether significant construction-related impacts not previously addressed in the FEIS and 2009 Technical Memorandum would result from a hypothetical delay in Project construction extending beyond 2024, an illustrative "Extended Build-Out Scenario" assuming Project completion in 2035 has been prepared. That scenario has been designed to illustrate the general sequence that could be followed in implementing the Project over an extended period. However, it does not identify a specific schedule with fixed years for each Project element given the market-related and other uncertainties inherent in making long-term predictions concerning a construction schedule under the Extended Build-Out Scenario. Moreover, the Project sponsors have not developed a date-specific schedule for individual Project elements under the Extended Build-Out Scenario because it is obligated to use commercially reasonable efforts to construct the Project on an expedited schedule. In order to undertake an analysis presented in the discussion below, AKRF developed a hypothetical schedule consistent with the Extended Build-Out Scenario based on the staging figures discussed below. The sequence of development assumed for this Extended Build-Out Scenario accounts for certain constraints that have been put into place since the 2009 Technical Memorandum was prepared. As discussed previously, subsequent to the preparation of the 2009 Technical Memorandum, the MTA agreements were executed. Those agreements stipulate that air space acquisition and platform construction on Blocks 1120 and 1121 cannot begin until improvements to the permanent MTA/LIRR rail yard are completed. They also provide that platform construction may be undertaken in up to three contiguous phases with the minimum size of any phase being a complete building site. Building construction on these blocks can proceed as corresponding portions of the platforms are completed. Another constraint imposed on Project sequencing is a requirement appearing in the Development Agreement that a building on Block 1129 be initiated by 2020. The construction of a building on Block 1129 would start the transformation of that block from an interim surface parking lot and staging area to permanent use. A description is provided below of how Project construction could proceed, in light of contractual constraints, in the Extended Build-Out Scenario.

ENVIRONMENTAL COMMITMENTS

As Project construction proceeds, a number of measures must be implemented pursuant to an Amended Memorandum of Environmental Commitments. The specific measures for construction traffic, air quality, and noise are summarized generally below. In addition to those technical areas, the Amended Memorandum of Environmental Commitments includes measures in other areas that would affect the construction. As discussed earlier in this analysis, a CPP approved by LPC and ORPHP would be developed and implemented to prevent impacts on historic resources within 90 feet of any construction. One aspect of the CPP is to limit vibrations

to protect the historic structures, which are found along Dean Street and the nearby Swedish Baptist Church. To prevent potential impacts related to hazardous materials, a CHASP would be developed and implemented. In addition, a community air monitoring plan would be implemented during any excavation. Construction contracts would include provisions for a rodent (mouse and rat) control program. Prior to the start of construction, the contractor would engage the services of a professional abater who would survey and bait the appropriate areas and provide for proper site sanitation.

ESDC has the right under its agreements with the Project sponsors to enter the Project site at reasonable times to monitor the contractors' compliance with the terms of the commitments. ESDC has retained a technical consultant to assist it in assuring that the Project sponsors comply with such commitments. The environmental monitor reviews all submittals to determine if they meet the requirements of the environmental commitments. If the requirements are not met, ESDC has the right to disapprove the submittal and require re-submittal.

CONSTRUCTION TECHNIQUES

The methods used during the Extended Build-Out Scenario would follow those discussed in the FEIS. Construction activities would generally take place Monday through Friday. In accordance with city laws and regulations, construction work would generally begin at 7 AM on weekdays, with some workers arriving to prepare work areas between 6 AM and 7 AM. Normally, work would end at 3:30 PM, but the workday would be extended for specific trades to complete some specific tasks to 6:00 PM. Night and weekend work would occur on occassion, if permitted by the City under certain circumstances. Because of the presence of the large equipment and the type of work, access to the construction sites would be tightly controlled. The work area would be fenced off and limited access points for workers and trucks would be provided. Security guards and flaggers would be posted and all persons and trucks would have to pass through security points. After work hours, the gates would be closed and locked. Security guards would patrol the construction sites after work hours and over the weekends to prevent unauthorized access.

The first step for construction would be disconnection of existing utilities and demolition of the existing buildings to clear the sites. Demolition of buildings on one block could occur while construction of buildings is underway on other blocks. Asbestos abatement would be the first part of demolition. These specialty tasks are strictly regulated in New York City to protect the health and safety of the construction workers and the public, nearby residents and workers.

Construction of each of the buildings would generally follow the same sequence of construction activities. After excavation, where necessary, the foundations would be poured for buildings not located on a platform. Buildings 3, 4, 5, 6, 7, 11, 12, 13, 14, and 15 and the building on Site 5 will include below-grade parking structures; these structures will be built in connection with the building foundations. For the most part, Buildings 5 through 10 would be built on platforms and would not require the foundation activity but would require footings and support columns. Then the superstructure and floors would be erected for the concrete buildings, and the cladding would be attached to the superstructure. Finally, the interior finishing would be the last activity in constructing a building. The construction periods for individual residential buildings would be expected to range from 15 to 36 months, depending on their size.

SEQUENCING OF CONSTRUCTION

In the event that the Project is delayed beyond 2024, it is likely that construction would proceed generally on a parcel-by-parcel basis, with each building being individually designed, financed, and constructed. During certain periods more than one building could be under construction simultaneously, so the Extended Build-Out Scenario accounts for that potential circumstance as well. Such a sequence would be consistent with the Sponsor's Agreement with the MTA, because the construction of the platform during each "Platform Construction Phase" can be sequenced to go forward in up to three sections, with each section supporting one or more buildings. The illustrative sequencing of building construction described below, one of any number of possible scenarios, is also consistent with the general approach of developing the Project from west to east, with more buildings completed in the early stages. In the Extended Build-Out Scenario, there would likely be more flexibility in the order of which buildings would be completed ahead of others. These variations, however, are not expected to result in material differences in the overall assessment of potential impacts under the Extended Build-Out Scenario.

Figures 9 though 15 illustrate how the Project site would change over time based on the construction sequencing that is assumed for the Extended Build-Out Scenario. These 7 "Stages" are snapshots-in-time that show what would be completed, what would be under construction, and what would not have been started. The timing of the start of a building's construction would be dependent on market conditions, but the sequencing of the buildings, the permanent rail yard, and the platform is assumed for the purposes of this analysis to be as shown in the accompanying figures. Rather than providing a narrative description of site conditions upon completion of each building, "Stages" 1 through 7 are used to describe how the Project site would appear at certain points in time as construction progresses. The construction work for each Stage would likely take several years under the Extended Build-Out Scenario. Currently, the arena is under construction. Upon the completion and opening of the arena in 2012, Building 2 would be under construction and expected to be completed shortly thereafter, as depicted in Figure 9 (Stage 1). It is anticipated that staging areas for materials, supplies, and equipment would generally be on the building site itself. The Phase II building sites have spacious footprints for construction in New York City. However, the building sites on the arena block are more constrained and it is likely that some staging would be done outside of these building sites if space is available elsewhere on the Project site. Also under construction would be the MTA/LIRR permanent rail yard, which is scheduled for completion between 2013 and 2016. Materials for the permanent rail yard cannot be staged in the active areas of the rail yard. Part of Block 1120 would be used for staging of materials to be used in the rail yard and there would be direct access to the below grade rail yard from the Block 1120 staging area and from the existing ramp at Pacific Street, near 6th Avenue. Materials for the arena block that cannot be staged on that block would be staged on a portion of the site of the future Building 15 (west end of Block 1128) and on a portion of the northeast corner of Block 1129. Also on Block 1129, the existing building at 752 Pacific Street would be used for construction field offices. After construction of the temporary parking facility and associated screening, the remainder of Block 1129 would be used to accommodate parking for a portion of the construction workers during the work day and patrons attending events at the arena during the evenings and weekends.

On the arena block, at Stage 1 of construction completion, the future site for Building 4 would be open to the rail yard but protected by a perimeter wall that would include, as stipulated by DOT, a 42-inch high knee wall and fence. This element has been approved by the City's Public Design Commission. At Stage 1, the sites for future Buildings 1 and 3 would be converted into

temporary plazas. The plaza at the future Building 1 site, with a new subway entrance to the MTA/LIRR Atlantic Terminal station, would provide an urban plaza with a mix of uses at the front entry of the arena (see **Figure 16**). This urban plaza would create a significant public amenity and include landscaping in planters; retail kiosks to provide food, beverages, and other items; public art; seating; access to the new station entrance; and a large flexible program space for outdoor functions. Similar green space and public amenities would be provided on the temporary plaza with bicycle parking at the site of Building 3 (see **Figure 17)**. Hence, in the first few years of arena operations, the immediate area surrounding the arena block would consist of a mix of completed structures, temporary public plazas, and active construction areas.

Figure 10 provides an illustration of the Project site at Stage 2 when Buildings 3 and 4, as well as Site 5 and the MTA/LIRR rail yard, are completed. By this time, all infrastructure work and roadway improvements are also expected to be in place. All of the buildings on Block 1129 and the building on site 15 would have been demolished. The perimeter fence around the Building 4 site would have been deconstructed. Construction staging would be accommodated on Block 1129, the future site of Building 15, and staging on Block 1120 would continue. Block 1129 would accommodate parking for a portion of the construction workers during the workday and patrons attending events at the arena during the evenings and weekends. As in Stage 1, parking for 24 police vehicle parking would be provided on the site of Building 15 and Block 1129.

In Stage 3 as shown in Figure 11, Building 1 would be open for occupancy, and all of the Project west of 6th Avenue would be completed. The platform over the permanent rail yard would commence in this stage, and the platform section for Buildings 5 and 6 would be completed while the platform for Building 7 would still be under construction. The platform for Buildings 7 and 8 is expected to be built continuously, and although Figure 11 does not show construction of the platform for Building 8 on Block 1121, that part of the platform would be completed before Stage 4. Buildings 5 and 6 on the Block 1120 platform would be completed along with Building 15. In the Extended Build-Out Scenario, the construction of these buildings would be sequential with each building completed and occupied as construction goes along. As each building is completed, the associated open space would also become available, further reducing areas of construction. Also depicted in Figure 11 is the start of construction for Building 14 on Block 1129, which would be consistent with the Development Agreement's requirement that a building on Block 1129 must be started by 2020. The remainder of Block 1129 would continue as surface parking and construction staging areas. Since all properties on Block 1129 have been acquired by the Project sponsor, it is possible that Buildings 11, 12, 13, and 14 may progress ahead of the others east of 6th Avenue should construction and operational logistics permit. Again, these buildings would be constructed in sequence, with each building being individually constructed, completed, and occupied.

As shown in Figure 12 (Stage 4), Buildings 7 and 14 are expected to be completed. The platform for Building 8 would also be nearing completion. The completion of buildings and associated permanent open space on Block 1129, beginning with Building 14, would start to transform this block from an interim surface parking lot and staging area to permanent use. The bed of Pacific Street would have temporary landscaped streetscape, which would be publicly accessible and would continue to accommodate limited and controlled truck traffic from the staging area. Because the building sites are large for an urban area, it is expected that most of the construction staging would be done on the individual building sites. While the platform over Block 1121 is being constructed, direct access between the construction area and the staging area would be available. Therefore, trucks traversing the temporary landscaped streetscape on Building 14 are expected to be minimal.

Figure 13 shows Stage 5 with Building 8 construction completed, and work beginning on Building 13. This would further reduce the use of Block 1129 for surface parking and construction staging.

At Stage 6 (Figure 14) construction of the platform for Buildings 9 and 10 would have begun. Building 13 on Block 1129 would have been completed. The remaining portion of the block would be used for surface parking and construction staging.

Stage 7 is shown in Figure 15, and Buildings 11 and 12, accompanied by their respective permanent open space and below-grade parking, would be completed one at a time. As each building is completed, the associated open space would also become available, further reducing areas of construction.

With build-out of the Project extending out to 2035, the presence of construction activities would be prolonged. However, construction duration and requirements for individual development components would be similar to those of the Project analyzed in the FEIS. As noted above, as each of the buildings is completed, adjacent landscaped open space would be provided in conformance with the 2006 Design Guidelines.

Temporary Use of Block 1129

Parking

Prior to the time when construction on Block 1129 is completed, the surface parking lot there would provide varying numbers of parking spaces to accommodate parking needs of construction workers during the workday and arena event traffic during the evenings and weekends. In addition, parking for police vehicles would be provided until permanent parking for those vehicles is available. When necessary, stackers would be in use to allow for the parking of up to two cars per space and a total surface lot capacity of up to the 1,100 cars. Consistent with the Project plan for permanent underground parking for over 2,000 cars on Block 1129, the temporary surface parking would also be accessible from Carlton Avenue, Dean Street, and Vanderbilt Avenue to facilitate efficient circulation. Within the lot, queuing and circulation space would be provided, and valet operations would be in place to accommodate periods of high demand (i.e., during pre- and post-arena events). Under the Extended Build-Out Scenario, it is likely that buildings would be completed and occupied in a sequential manner, instead of concurrent construction and completion of several buildings at a time. The sequential construction would result in the need for fewer parking spaces to accommodate construction workers and a smaller area for construction staging. In addition, as noted above, the building sites are large for an urban area, and much of the material staging for the construction of each building is expected to be accomplished on the individual building site. Temporary surface parking would be sequentially reduced and eliminated, and replaced by permanent below-grade parking, which would also come on line incrementally.

ASSESSMENT OF IMPACTS

For the Extended Build-Out Scenario, general construction practices, equipment, staging, maintenance and protection of traffic, and work hours would be similar to those described in the FEIS and the 2009 Technical Memorandum. Construction activities for individual buildings would be unchanged. However, with the prolonged schedule, there would be less overlap of these activities for different buildings, resulting in overall lower intensity in construction activities on the Project site. The FEIS analysis examined the potential effects of Project construction on a number of technical areas, including land use; socioeconomic conditions;

community facilities; open space; historic resources; hazardous materials; traffic and transportation; air quality; noise and vibration; infrastructure; and neighborhood character. However, not all of these areas would be affected by the prolonged construction under the Extended Build-Out Scenario. The conclusions on socioeconomic conditions, community facilities, historic resources, hazardous materials, and infrastructure would remain unchanged since construction-related effects would be similar for these technical areas irrespective of the length of construction. Therefore, this technical analysis focuses only on those technical areas that could be affected by the construction activities under the Extended Build-Out Scenario. Comparisons to the conclusions presented in the 2006 FEIS with respect to open space, land use and urban design; traffic and transportation, air quality, noise, and neighborhood character are discussed below.

Open Space

A key component of the Project is the provision of 8 acres of publicly accessible open space, which would be developed incrementally during Phase II as buildings during this phase are completed. The FEIS identified a temporary significant adverse open space impact in the non-residential (¼-mile) study area between the completion of Phase I and the completion of Phase II. As was noted in the FEIS, although the quantitative analysis found that active and combined passive open space ratios for the residential (½-mile) study area would remain below the levels recommended by the Department of City Planning, the qualitative assessment concluded that the open space elements and public amenities not included in the quantitative analysis, including the private open space, the publicly accessible plaza and interim open areas to be potentially developed as part of the Project in Phase I—and the availability of large nearby open spaces (e.g., Prospect Park and Fort Greene Park), would help alleviate the burden on this study area's open spaces. The Extended Build-Out Scenario would not result in significant adverse environmental impacts with respect to open space that were not addressed in the FEIS. The Extended Build-Out Scenario would affect the timing of the open space development but not the ultimate layout of the 8 acres of publicly accessible open space or the Project's population, which would remain the same as described in the FEIS.

With the Extended Build-Out Scenario, the temporary impact identified in the FEIS would extend longer, but would continue to be addressed by the incremental completion of the Phase II open space. As each of the Phase II buildings is completed, the adjacent open space would be provided in conformance with the 2006 Design Guidelines, thereby offsetting some of this temporary open space impact.

Land Use and Urban Design

With the Extended Build-Out Scenario, the schedule for the overall completion of the Project would be delayed with fewer buildings being constructed simultaneously. However, as described above, as each building is completed, irrespective of its actual sequencing, it must conform with the 2006 Design Guidelines for that site and provide the necessary permanent facilities such as public access, open space, below-grade parking, infrastructure retention/detention capacity, and other commitments. As the site is developed from west to east, it would be transformed into the new urban design form of the Project as contemplated in the 2006 Design Guidelines and 2009 MGPP, and analyzed in the FEIS. The discussion of urban design, consistent with CEQR guidance, focuses on the considerations of the pedestrian experience in a public space such as streets and public open space. This section assesses whether the Extended Build-Out Scenario

would result in any new significant adverse impacts on urban design that were not previously disclosed in the FEIS.

The FEIS characterized the Project site as an area with uses and building forms that differed from much of the surrounding area, defined primarily by lower-rise residential, commercial, and warehouse buildings, many of which were vacant and in disrepair, vacant lots, gas stations, and an active below-grade open rail yard. At the time that the FEIS was published, the Project site itself reflected its early industrial character and was characterized by blighted conditions on the edge of the stable surrounding residential neighborhoods. The open rail yard, spanning three blocks, comprises a significant area of the Project site. Since the date of preparation of the FEIS, most of the buildings at the Project site (including all buildings on Blocks 1118, 1119 and 1127 and most of the buildings on Block 1129) have been removed to make way for the Project; all but one of the remaining buildings and structures on Blocks 1129 and 1121 are scheduled to be removed in the near future.

While the Extended Build-Out Scenario would prolong the completion of the Project to 2035, there would be an incremental realization of the Project as buildings are completed in a sequential manner. Each building is expected to be individually financed and built; thus, each site would be expected to proceed with construction through to completion and occupancy. Sites not under active construction would be maintained under their existing conditions or would have interim uses such as temporary public plazas or other amenities, parking and/or construction staging areas.

Stage 1

At Stage 1, Site 5 would remain unchanged and would continue to be occupied by existing retail uses. However, the transformation of the Project site would have begun with the completion and opening of the arena, as well as the ongoing construction of Building 2. Construction of Buildings 1 and 3 would not have started and those sites would be occupied by temporary public open space as illustratively shown on Figures 16 and 17. The site of Building 4 would continue to remain a below-grade, open rail yard with a perimeter wall and fencing. Additionally, a small southwest corner portion of Block 1128 would be used for construction staging, arena support, or police parking.

The delay in the construction of Building 3 in the Extended Build-Out Scenario would make the arena building a more prominent visual element on Dean Street between Flatbush and 6th Avenues. This temporary condition, which would be eliminated in Stage 2 when Buildings 3 and 4 would be constructed, would be partially addressed by the interim open space at the Building 3 site. The delay in the construction of Building 3 would result in a delay in the buffer to the adjacent residential area south and east of the arena. This effect would be partially off-set by Building 2 and the interim open space on the Building 3 site.

Blocks 1120 and 1121 would be under construction as improvements to the permanent MTA/LIRR rail yard are underway. From an urban design perspective, this activity would be minimally noticeable since work would occur within the below-grade rail yard. A portion of the at-grade site on Block 1120 would be used as a rail yard construction staging and storage area but this use would not be significantly different from its historical use as a LIRR bus storage area.

When the arena opens in 2012, the majority of Block 1129 would be used to provide 1,100 surface parking spaces for arena patrons in a temporary condition until they are located below-grade in conjunction with the build-out of the Project buildings on Block 1129. One area of

Block 1129, at the northeast corner of the block at the corner of Pacific Street and Vanderbilt Avenue, would be set aside for construction staging in connection with the work on the adjacent rail yard. One building on Block 1129 (752 Pacific Street) would continue to be used as temporary office space for the construction contractors. The surface parking lot would be available to construction workers during the workday to reduce construction worker parking on local streets.

The temporary surface parking lot and construction staging area on Block 1129 would be screened and landscaped around its perimeter (see **Figure 18**). The design of the fence along with the landscaping would provide a visual buffer for pedestrians and residents of the adjacent neighborhood. An illustrative rendering is shown in **Figure 19**. As shown in Figure 19, the perimeter of the parking lot and construction staging area on Block 1129 would include an approximately 10-foot tall fence that will be set back a minimum of four feet from the property line to allow for a landscaping zone: the fence would be built with metal, stone, treated concrete block, or a combination of these materials. The fence would allow for some pedestrian visibility into the parking facility from the sidewalk and would be a backdrop and support for climbing plants. Ground cover and evergreens would also be located in the landscape buffer to provide a soft edge and layers of screening. The fence and landscaping design would be coordinated to achieve a balance of screening, measures of both visibility and more solid areas, and would be designed and maintained to seek to ensure that in any season, the landscaping, fencing and lighting would work together to create a safe environment for pedestrians and an unobtrusive environment for nearby residents. The directional lighting planned for the site would illuminate different parts of the interior of Block 1129 while minimizing off-site light intrusion onto the upper floor residences in the immediate area as well as the surrounding neighborhood.

Stage 2

At Stage 2, construction of Buildings 2, 3 and 4 would be occupied by their intended permanent residential and ground-floor retail uses, in keeping with the transformation of the Project site and consistent with 2009 MGPP and 2006 Design Guidelines. Site 5 would also be completed. The site of Building 1 would continue to be occupied by the urban plaza. The permanent MTA/LIRR rail yard would be completed and still be below grade, and its appearance would be similar to its historic and existing condition, except that the below-grade railroad cut on Block 1119 would no longer exist, because the arena and Building 4 would be built at-grade at that location. The site of Building 15 and the at-grade portion of Block 1120 would continue to serve as construction staging areas or temporary surface parking facilities. As described above, Block 1129 would continue as an interim surface parking for arena events and construction workers and, on the northeast corner of the block, as a construction staging area. In addition, the building at 752 Pacific Street would be demolished. The screening and landscaping around the parking lot would continue to provide a visual buffer to the pedestrians and surrounding neighborhood. The interim surface parking lot would be utilized the most during the early stages of construction (Stages 1 and 2). In subsequent stages, development would be underway on Block 1129 and the surface parking lot would be incrementally reduced as the parking spaces would be relocated under the new buildings on the block.

Stages 3 through 5

By Stage 3, Buildings 5 and 6 on Block 1120 would have been completed and occupied with Building 7 under construction. Buildings 1 and 15 would also be completed, which would represent half of the Project's buildings and completing the development of the western end of the Project site with their urban design form as stipulated in the 2006 Design Guidelines and the

2009 MGPP. As noted previously, construction of at least one of the buildings on Block 1129 would need to be initiated by 2020. This would start the transformation of the interim surface parking lot into its permanent program. Block 1121 would continue to be an open rail yard and would not be notably different from its historic and existing conditions. Construction of Building 8 would start by Stage 4, after Building 14 has been completed. Building 13 on Block 1129 would be under construction. With the completion of Building 14 and construction of Building 13, the surface lot would have decreased in size and in use as interim parking. At this point, approximately 2/3 of the Project area would be realized in its final urban design form.

Stages 6 though 7

At completion of Stage 5, 75 percent of the Project would have been realized along with its final urban design elements. Stages 6 through 7 represent the final build-out of Blocks 1121 and 1129. Construction would take place in a north-south pattern with the incremental reduction of the interim surface lot on Block 1129. This represents the last four of the Project's 17 buildings.

The Extended Build-Out Scenario would not result in significant adverse urban design impacts not identified in the FEIS. The FEIS assessed the urban design impact of the Project on the surrounding neighborhood in the areas of street connections, building massings and design, street level uses, open space, and effects on nearby visual resources. As noted above, the FEIS discussion of urban design was consistent with CEQR guidance, which focuses on the considerations of the pedestrian experience in a public space such as from the public street and public open space. The FEIS determined that the proposed Project would obscure views of the Williamsburgh Savings Bank Building from certain vantage points south of the Project site along the Flatbush Avenue corridor and from certain other vantage points, which would be a significant adverse historic resources impact. The reduction in height of Building 1, as modified in the 2009 MGPP would somewhat lessen the Project's effect on urban design and visual resources. The extended construction would not change this impact.

While the Extended Build-Out Scenario would result in a delay of the completion of all the Project's elements, it would not change any of the Project's urban design elements or the Project's conformance with the 2006 Design Guidelines or the 2009 MGPP. Under the Extended Build-Out Scenario, the building site would either remain in their current condition, be used as interim public space, or, for identified sites, construction staging and temporary parking. The Project sponsors are obligated under the 2009 MGPP and the Amended Environmental Commitments Memorandum to maintain the sites in a clean and secure manner, and where practicable, to provide temporary public amenities at locations not being used for active construction activities. Further, there are constraints that obligate the Project sponsors to move forward with development of sites within prescribed timeframes. Since each site is expected to be individually financed and built, each site would be expected to proceed with construction through to completion and occupancy. There would be an incremental realization of the Project as buildings are completed and these uses during construction would not differ from that assumed in the FEIS and would be much like other construction sites around the city. Thus, the Extended Build-Out Scenario would not result in any new significant adverse impacts on urban design not previously disclosed in the FEIS.

Traffic and Transportation

Under the Extended Build-Out Scenario, with the completion of buildings occurring in a more sequential manner, the intensity of construction activities would be less than that assessed in the FEIS or the 2009 Technical Memorandum. As detailed below, the numbers of construction

workers and truck deliveries during all stages of the Project would be lower than those estimated for the FEIS analyses. Furthermore, because the prolonged construction would result in fewer components of the Project under construction at any given time, there would also be fewer temporary lane and sidewalk closures throughout the Project site at one time. Since the demand of construction workers on parking resources, transit services, and the area's pedestrian elements would also be lower than those assessed in the FEIS, which concluded that there would not be any potential significant adverse impacts, the Extended Build-Out Scenario would similarly not result in significant adverse impacts on these environmental categories. The discussion below, therefore, focuses on variations in traffic circulation, construction-generated traffic, and potential impacts during the seven stages of construction described above, as compared to those identified in the FEIS for Phase I and Phase II construction.

Stage 1

The on-going Stage 1 construction, which includes construction activities on the arena block and the MTA/LIRR rail yard, as well as improvements to the area's roadways and infrastructure, is similar to Phase 1A analyzed in the FEIS. Both encompass the use of Block 1129 (with access along Carlton Avenue, Dean Street, and Vanderbilt Avenue) as a staging and construction worker parking area and require the closure of the Carlton Avenue Bridge during construction of that portion of the rail yard. Reopening of Carlton Avenue between Pacific Street and Atlantic Avenue would take place with the opening of the arena. Portions of Block 1120 (with access along Atlantic Avenue) and Block 1128 (with access along 6th Avenue and Dean Street) would also be used for construction staging. The smaller Block 1128 staging area is expected to be used for construction offices and trailers, while those areas on Blocks 1120 and 1129 would primarily serve the rail yard construction efforts. During arena construction, Block 1129 could also provide storage of trucks waiting to make deliveries to the arena block via Pacific Street. This activity is expected to reduce substantially after the arena is completed because of the fewer deliveries required for the construction of the other Project components. When the construction of Building 2 begins, most of its staging is expected to be accommodated on site.

Due to the delay in constructing other buildings on the arena block and the development at Site 5, this construction stage would yield substantially lower numbers of construction workers and truck deliveries than the FEIS's Phase 1A construction. And at the end of this construction stage, with Carlton Avenue reopened and the closure of 6th Avenue during the FEIS's Phase 1B construction no longer required, the surrounding roadway network would resemble closely what was expected at the end of Phase I, when all buildings, including the arena, other buildings on the arena block, and Site 5 were expected to be completed, and improvements would be in place for the surrounding roadway network.

In comparison, peak Stage 1 construction worker and truck deliveries would be approximately 25 and 20 percent of those used in the FEIS Phase 1A and Phase 1B peak construction analyses, respectively. These FEIS analyses identified certain significant adverse traffic impacts at nearby intersections, which were largely attributable to the temporary closure of the Carlton Avenue Bridge and the permanent closures of 5th Avenue and the two segments of Pacific Street within the Project's development area. With the permanent closure of 5th Avenue between Flatbush and Atlantic Avenues, Pacific Street between Flatbush and 6th Avenues, and Pacific Street between Carlton and Vanderbilt Avenues, background traffic would be diverted regardless of whether there would be on-going construction at the Project site. The assessment of potential traffic impacts during construction, as well as for operational conditions of the Project's build-out, accounted for the effects of this traffic diversion. Traffic circulation under this roadway network

during Stage 1 construction would encompass construction worker vehicles accessing the temporary surface parking lot on Block 1129 at driveway locations on Carlton Avenue, Dean Street, and Vanderbilt Avenue. Truck deliveries would be made to the arena block, the rail yard on Blocks 1120 and 1121, and the three staging areas described above. The use of Block 1129 for delivery storage to serve the construction of the arena would likely be intermittent on an as needed basis and the need to use Pacific Street to transport materials would not likely occur during the construction peak hours (6-7 AM and 3-4 PM on a typical weekday). Because Stage 1 would yield substantially fewer construction workers and truck deliveries than Phase 1A or Phase 1B, it is expected that the projected traffic impacts in the FEIS would be at lower magnitudes or not occur at all during peak Stage 1 construction, and as with the FEIS analysis results, some of these impacts could be mitigated with the measures previously identified and implemented, as stipulated in the Project's Amended Memorandum of Environmental Commitments, and others would be partially mitigated or would remain unmitigated. Some of the measures expected to be put in place during Stage 1 construction include coordination with the DOT Office of Construction and Mitigation Coordination (OCMC) to develop, implement, and fund the appropriate maintenance and protection of traffic (MPT) —to address specific and primarily localized conditions during construction and provide for the adequate and safe flow of vehicles and pedestrians—based on specific conditions at the time of construction, implementation of other roadway operational measures, on-site vehicular access management, truck delivery scheduling and staging, provision of construction worker parking, NYCT coordination on temporary bus stop relocations, implementing certain turn prohibitions, and providing temporary turn lanes for traffic detours and added capacity.

Further, although several buildings that were projected to be completed at the end of Phase 1 in the FEIS would not be completed at the end of Stage 1 construction, the resulting roadway network, with both Carlton and 6th Avenue open to traffic and other roadway improvements in place, would be similar to the roadway network anticipated for the FEIS's Phase II development. This roadway network would incorporate various traffic improvements, including the physical reconfiguration of the Atlantic Avenue/Flatbush Avenue/4th Avenue intersection, conversion of Pacific Street between Flatbush Avenue and 4th Avenue to one-way eastbound, and provision of new turn bays or intersection daylighting. In fact, the roadway network at this point would have "matured" and be similar throughout the remaining stages of construction, and is reflective of that considered in the FEIS's Phase 2B peak construction analysis.

Stage 2

During Stage 2 construction, the arena would have opened for operation and construction of Building 2 and the permanent rail yard would continue. Buildings 3 and 4, as well as the development on Site 5 would follow; however, they are likely to progress in a more sequential fashion than assumed in the FEIS. As such, MPT requirements for each of the buildings would be localized and affecting fewer street frontages at any given time and would be typical of other single-building construction projects throughout the City. For example, temporary curb lane closure and sidewalk protection may move in a counter clockwise direction from Building 2 to Building 3 and then finally to Building 4, as these buildings are constructed. Vehicle access and circulation would not be restricted, similar to conditions during Phase 2B construction, since the surrounded roadway network would have matured with all the planned improvements in place. Construction worker parking would continue to be accommodated at Building 1129 via access along Carlton Avenue, Dean Street, and Vanderbilt Avenue. Truck deliveries would similarly access each construction site, via NYCDOT designated truck routes. By this time, the entire site of future Building 15 is expected to be also available for the staging of building construction on

the arena block. Staging for the future construction of the platform over the MTA/LIRR rail yard would be available on Blocks 1120, and limited staging areas would continue to be available on the north side of Block 1129, accessible from the closed portion of Pacific Street between Carlton and Vanderbilt Avenues.

The FEIS analyses projected Phase 2B peak construction activities to be less than 60 percent of those in the Project's overall construction peak during Phase 1B. A comparison of the projected peak worker and truck deliveries during Stage 2 construction shows that they would be similar but slightly lower than those projected for the FEIS's Phase 2B peak construction analysis. Operational traffic due to completed components of the Project during Stage 2 construction would also be lower even toward the end of Stage 2 than those assumed under the Phase 2B peak construction analysis (Building 1 and likely Building 4 not yet generating operational traffic in Stage 2 construction). With cumulative operational and construction traffic during Stage 2 construction less than that from Phase 2B construction, the projected traffic impacts in the FEIS for Phase 2B would be at lower magnitudes during peak Stage 2 construction, and as with the FEIS analysis results, some of these impacts could be mitigated with the measures previously identified and implemented and others would be partially mitigated or would remain unmitigated.

Stage 3

During Stage 3, the last building on the arena block, Building 1, would be constructed, along with Buildings 5, 6, and 15. Platform construction would start at the footprint of Buildings 5 and 6 then continue eastward to facilitate the start of Building 7 construction. As mandated by the Development Agreement, Building 14 would also begin construction in Stage 3, with a start date of no later than 2020. East of 6th Avenue, Buildings 5 and 6 would be constructed in sequence after the platform below is completed. Construction of Building 15 on Block 1128 would take place anytime during Stage 3 and construction of Buildings 7 and 14 would commence toward the end of this stage. MPT on the arena block would be isolated at the Building 1 construction site, which to this point was programmed to be a temporary open space plaza. Since the construction of Buildings 5, 6, and 15 in Stage 3 would be similar in time frame as that in Phase 2, their respective MPT would be similar as well. Equipment staging is expected to be mostly accommodated on each construction site with Block 1129 providing for additional staging if needed. Permanent parking on Block 1129 would begin to become available upon completion of Building 14. Hence, construction worker and arena parking on Block 1129 may be accommodated, toward the end of Stage 3, by a combination of permanent and temporary surface parking. All vehicular access and circulation would be comparable to that described for Stage 2 and Phase 2B construction, as well as to the Project's final build-out. This condition is expected to continue throughout the remainder of the Project's construction.

A comparison of the projected peak worker and truck deliveries during Stage 3 construction shows that they would be just over half of those projected for the FEIS's Phase 2B peak construction analysis. With the extended rolling out of completed buildings, operational traffic due to completed components of the Project during Stage 3 construction would also be lower than those assumed under the Phase 2B peak construction analysis Therefore, the projected traffic impacts in the FEIS for Phase 2B would be at lower magnitudes during peak Stage 2 construction, and as with the FEIS analysis results, some of these impacts could be mitigated with the measures previously identified and implemented and others would be partially mitigated or would remain unmitigated.

Stage 4

Stage 4 construction pertains to the completion of Buildings 7 and 14 and the on-going construction of Building 8. At this point in time, almost the entirety of Project development west of Carlton Avenue would have been completed and occupied, and the adjacent open space on that block provided. As construction moves to the easternmost blocks of 1121 and 1129, construction activities are expected to become even more localized and contained. Since available staging area on Block 1129 would be immediately adjacent to the Stage 4 construction sites, curb lane and sidewalk closures for staging purposes are likely to be kept to a minimum. Much of Pacific Street between Carlton and Vanderbilt Avenues would continue to provide access to the construction staging area of Block 1129. Upon completion of the permanent below-grade parking in Building 14, there would be a combination of underground and temporary surface parking on Block 1129 to accommodate construction worker and arena parking.

A comparison of the projected peak worker and truck deliveries during Stage 4 construction shows that they would be less than 40 percent of those projected for the FEIS's Phase 2B peak construction analysis. At the end of this stage, more than half of the 15 buildings programmed to be developed would have been completed and occupied, making the entire development area more of a new neighborhood rather than an undeveloped construction site. The area's traffic from completed buildings would gradually overshadow the reduced construction traffic. Cumulatively, the anticipated traffic impacts and required mitigation measures during Stage 4 construction are expected to be of lower magnitudes than those identified in the FEIS. Similar to conclusions made for the previous construction stages, some of the construction impacts could be mitigated and others would be partially mitigated or would remain unmitigated.

Stage 5

In Stage 5, construction would continue west to east and north to south on Blocks 1121 and 1129. Building 8 would be completed and construction of Building 13 would commence. Similar to Stage 4, construction staging is expected to be mostly contained within these blocks with minimal curb lane and sidewalk closures and parking on Block 1129 would be accommodated by a combination of permanent underground and temporary surface parking. A comparison of the projected peak worker and truck deliveries during Stage 5 construction shows that they would be approximately 25 percent of those projected for the FEIS's Phase 2B peak construction analysis. Similar to conclusions made for the previous construction stages, some of the construction impacts could be mitigated and others would be partially mitigated or would remain unmitigated.

Stage 6

In Stage 6, Building 13 and the platform on Block 1121 would be completed, and construction of Buildings 9 and 10 would commence. Similar to Stages 4 and 5, construction staging is expected to be mostly contained within these blocks with minimal curb lane and sidewalk closures and parking on Block 1129 would be accommodated by a combination of permanent underground and temporary surface parking. A comparison of the projected peak worker and truck deliveries during Stage 6 construction shows that they would be less than 40 percent of those projected for the FEIS's Phase 2B peak construction analysis. Similar to conclusions made for the previous construction stages, some of the construction impacts could be mitigated and others would be partially mitigated or would remain unmitigated.

Stage 7

In Stage 7, construction of the remaining buildings (Buildings 9, 10, 11, and 12) and their permanent open space would be sequentially completed. Throughout this final stage of construction, activities on Blocks 1121 and 1129 would be similar to typical construction of single buildings with construction staging primarily contained on site and conditions resembling closely to the Project's final build-out. Peak worker and truck deliveries during Stage 7 would be approximately 40 percent of those projected for the FEIS's Phase 2B peak construction analysis. Similar to conclusions made for the previous construction stages, some of the construction impacts could be mitigated and others would be partially mitigated or would remain unmitigated.

Air Quality

The construction air quality analysis in the FEIS was revisited to determine if the Extended Build-Out Scenario would have the potential to cause significant adverse impacts not identified in the FEIS. Overall, the construction means and methods, as presented in the FEIS, are not expected to change as a result of the revised construction schedule. In the FEIS, the air quality analysis of the construction phases included a detailed quantified modeling study of the most intensive construction periods determined through a review of a site-wide $PM_{2.5}$ emissions profile. $PM_{2.5}$ was selected as the worst-case pollutant, based on the fact that $PM_{2.5}$ was identified as having the highest ratio of emissions to impact criteria when compared with other pollutants of concern—(CO, NO_2). Two short-term periods and three annual periods were selected for modeling during Phase I of construction; one short-term period and one annual period were selected for modeling during Phase II of construction.

As described in the FEIS, concentrations of CO, NO_2, and PM_{10} were not predicted to be significantly impacted by the construction of the Project in any phase of construction. $PM_{2.5}$ concentrations were predicted to possibly increase in areas immediately adjacent to the construction area by more than the applicable 24-hour and annual average guidance thresholds, and annual average $PM_{2.5}$ concentrations were predicted to possibly exceed the guidance threshold at some ground-floor residential locations immediately adjacent to the construction activity. However, the predicted $PM_{2.5}$ threshold exceedances were limited in extent, duration, and severity: The increments in excess of interim guidance thresholds were predicted to be highly localized, i.e., almost entirely due to construction activity in close proximity to the affected location and not due to cumulative impacts from the larger Project site. Due to the extensive measures incorporated in the Project's construction program aimed at reducing $PM_{2.5}$ emissions, this low level of impact would be lower than increments predicted for many standard small-scale construction operations and would be much lower than impacts of standard construction operations of a similar size. For these reasons, as concluded in the FEIS, no significant adverse impacts on air quality are predicted during the construction of the Project.

In order to assess whether significant construction-related air quality impacts not previously addressed in the FEIS would result from a delay in Project Construction extending beyond 2024, an illustrative Extended Build-Out Scenario assuming Project completion in 2035 was prepared, and is analyzed below for its potential impact on air quality, based on the detailed analysis presented in the FEIS and on the differences between the reasonable worst- case construction schedule assumed in the FEIS and the Extended Build-Out Scenario.

The Extended Build-Out Scenario would have a longer construction schedule whereby each building or construction task would be completed under the same schedule duration analyzed in the FEIS, but there would be less simultaneous work on multiple sites and buildings and more

time in between the start of each building's construction activities. The number of units of construction equipment simultaneously operating on the Project site at any time would be expected to be less (throughout all Project areas) than that which was assumed during a comparable period of construction for the FEIS analysis. Therefore, the resulting concentration levels for the Extended Build-Out Scenario would be less than that analyzed in the FEIS. Under both SEQRA and CEQR, the determination of the significance of impacts is based on an assessment of the predicted intensity, duration, geographic extent, and the number of people who would be affected by the predicted impacts. With less intense construction activities, the number of exceedances predicted in the Extended Build-Out Scenario would be less than that reported in the FEIS. In addition, with fewer overlaps and more time in between construction activities, the predicted annual concentrations in the Extended Build-Out Scenario would also be less than those reported in the FEIS. At individual receptor locations, concentrations of potential concern are almost entirely due to intensive construction equipment emission sources located in close proximity to the receptor location. The Extended Build-Out Scenario—although prolonging the overall duration of construction across the 22 acre site—would not increase the duration of intense construction operations near individual receptor locations, since a prolonged construction schedule would not increase the duration of the construction work on individual project elements. Accordingly, a prolonged construction schedule would not be expected to increase the frequency, duration or intensity of elevated concentrations at individual receptor locations.

Although the potential for dust would continue in the general vicinity of the construction area for a longer duration since the Extended Build-Out Scenario would have a longer construction schedule, concentrations would not persist in any particular location because the activities generating dust would not occur continuously at any single location throughout construction. In addition, since there would be less simultaneous work on multiple sites and buildings and more time in between the start of each building's construction activities, the overall dust emissions at any period in the Extended Build-Out Scenario would be expected to be less than that analyzed in the FEIS. Furthermore, to minimize the effects of dust generating activities, the Project sponsors are obligated to incorporate comprehensive dust control measures as part of the Amended Memorandum of Environmental Commitments. These commitments include limiting on-site speed, watering equipment/trucks and construction/unpaved surfaces, covering or water-misting stockpiled materials, and inspecting departing trucks for proper sealing or covering of loose materials. In addition, a community air monitoring plan will be implemented during any excavation. Air monitoring stations would be established at the perimeter upwind of the work activities and at the downwind perimeter of the work zone. Monitoring at the upwind and downwind stations would be conducted when soil is disturbed. Therefore, there would be no new significant adverse impacts due to dust emissions in the Extended Build-Out Scenario.

The Amended Environmental Commitments Memorandum also requires a diesel emissions reduction program to minimize the use of diesel engines, maximize the use of electric engines, require the use of the grid for electricity instead of portable generators where possible; limit unnecessary idling of vehicles and non-road engines; require the use of ultra-low sulfur diesel fuel and best available tailpipe emissions reduction technologies; and require placement of stationary engines at a minimum of 50 feet from sensitive locations.

Since the FEIS was published, additional information regarding emissions controls has become available, indicating that the diesel particle filters (DPFs)—the central component of the emissions reduction program being applied for the construction of the Project as required by the Amended Memorandum of Environmental Commitments—reduce emissions significantly more than was assumed in the analysis. In the FEIS, DPFs were assumed to reduce diesel particulate

matter (DPM) by 85 percent. The latest information indicates that almost all DPFs reduce DPM emissions by at least 92 percent, and most are in the range of 95 to 98 percent. Several large construction projects analyzed more recently under CEQR have applied an assumption of 90 percent reduction. Therefore, the Extended Build-Out Scenario is expected to yield much lower concentrations than disclosed in the FEIS (emissions would be at least 1/3 to 2/3 less) and, as with the FEIS findings, would not result in any significant adverse impacts on air quality during construction.

Stages 1 through 7 are used to describe how the Project site would appear at certain points in time as construction progresses. For each Stage, a comparison of construction activity under the FEIS and the Extended Build-Out Scenarios, including the possible concurrent construction activities at various sites, is presented and analyzed in terms of potential construction related emissions, concurrent operational and mobile-source emissions, and the ensuing potential air quality effects.

Stage 1

As described in the "Extended Build-Out Scenario" section above, the arena, the MTA/LIRR permanent rail yard, and Building 2 would be under construction up to the completion of Stage 1 (the opening of the arena in 2012). Activities leading up to Stage 1 are similar to the worst-case Phase I short-term and annual scenarios analyzed in the FEIS. However, construction activities at Site 5 and Building 15 were also included in the FEIS worst-case periods, but would not be under construction leading up to Stage 1 of the Extended Build-Out Scenario. As reported in the FEIS, during Phase I of construction, there is a slight chance that the $PM_{2.5}$ 24-hour increments may exceed the threshold on a single day on the sidewalk and at ground-floor residential windows near the intersection of Dean Street and 6th Avenue. Annual average $PM_{2.5}$ increments may also exceed the threshold for one year on the sidewalk and at ground-floor residential locations along the south side of Pacific Street between 4th Avenue and Flatbush Avenue, and for one year at the ground floor of the building immediately adjacent to construction on Block 1128. Since construction activities would be less intense leading up to Stage 1 of the Extended Build-Out Scenario as compared to the FEIS, the predicted concentrations would be less and the potential short-term impacts at these receptor locations are even less likely to occur under the Extended Build-Out Scenario. In addition, with more time in between construction activities, even though the construction duration is longer, the predicted annual concentrations would be less in the Extended Build-Out Scenario since the level of construction activities occurring during this period of time would be much less than those analyzed in the FEIS.

Therefore, since the level of construction activities would be less leading up to Stage 1 than those analyzed in the FEIS, no new significant adverse impacts on air quality would be predicted leading up to this stage of the Extended Build-Out Scenario.

Stage 2

Upon completion of Stage 2, Buildings 2, 3 and 4, as well as Site 5 and the MTA/LIRR rail yard, would be completed. The sequence for the construction activities at these locations in the Extended Build-Out Scenario is similar to the sequence in the FEIS. In the FEIS, these activities did not represent a peak construction period during Phase I (the scenarios analyzed in the FEIS represent periods with peak emissions and also account for other considerations like the proximity of sensitive receptors). Generally, construction would result in lower concentration increments during periods with lower construction emissions. Emissions during non-peak periods would often be much lower than the peak emissions. However, since the worst-case

short-term results may often be indicative of very local impacts (i.e., sidewalks next to construction, or a single location across the street from specific engines), similar maximum local impacts may occur at any stage at various locations, but would not persist in any single location since emissions sources would not be located continuously at any single location throughout construction. Equipment would move throughout the site as construction progresses.

Since this stage was not a peak period in the FEIS, it would not represent a peak period in the Extended Build-Out Scenario, and the resulting air pollutant concentrations would be less than the ones predicted leading up to Stage 1. Therefore, since no new significant adverse impacts on air quality would be predicted leading up to Stage 1, no new significant adverse impacts on air quality would be predicted leading up to Stage 2 of the Extended Build-Out Scenario.

Stage 3

Upon completion of Stage 3, Building 1 would be opened for occupancy. FEIS Phase II buildings, including Buildings 5, 6, and 7 on the Block 1120 platform and Buildings 14, and 15 would also have advanced. Activities leading up to this stage are similar to the FEIS Phase II peak period, with the exception that the construction activities for Building 1 would most likely occur concurrently with Buildings 5 and 6 during the peak period whereas the FEIS Phase II included construction of Building 7 concurrent with Buildings 5 and 6. Buildings 5, 6 and 7 are located on the same block. The increments in excess of interim guidance thresholds predicted in the FEIS were highly localized, i.e., almost entirely due to construction activity in close proximity to the affected location (the building under construction immediately adjacent to the receptor location) and not due to cumulative impacts from the construction of other building further away. Since Building 1 is not in the vicinity of Buildings 5 and 6, as Building 7 was in the FEIS analysis, the resulting concentration levels leading up to this stage would be less than those analyzed in the FEIS Phase II peak periods. Therefore, since no significant adverse impacts on air quality were predicted in the FEIS Phase II peak periods, no new significant adverse impacts on air quality would be predicted leading up to Stage 3 of the Extended Build-Out Scenario.

Stage 4

Upon completion of Stage 4, construction activities would occur at the rail yard platform on the western portion of Block 1121, along with Buildings 7, 8, and 14. In the FEIS, these activities would be less intense than the peak construction period during Phase II (the scenarios analyzed in the FEIS represent periods with peak emissions and also account for other considerations such as the proximity of sensitive receptors). In addition, in the Extended Build-Out Scenario, there would be less simultaneous work and more time in between the start of each building's construction activities. The number of construction equipment simultaneously operating on the Project site at any time would be expected to be less than that assumed for a comparable period of construction as analyzed in the FEIS analysis. Therefore, the resulting concentration levels leading up to Stage 4 for the Extended Build-Out Scenario would be less than the levels in the FEIS. Since construction activities are less intense in the Extended Build-Out Scenario and the FEIS Phase II peak periods were modeled with receptors on completed Phase I elements adjacent to the construction, there would be no new Project impacts that were not identified in the FEIS Phase II peak periods analyses. Therefore, no new significant adverse impacts on air quality would be predicted leading up to Stage 4 of the Extended Build-Out Scenario.

Stage 5

Upon completion of Stage 5, construction would take place at Buildings 8 and 13. Similar to Stage 4, these activities would be less intense than the peak construction period during FEIS Phase II. Therefore, no new significant adverse impacts on air quality would be predicted leading up to Stage 5 of the Extended Build-Out Scenario.

Stage 6

Upon completion of Stage 6, Building 13 and the rail yard platform on Block 1121 would be completed and construction would proceed on Buildings 9 and 10. Similar to Stages 4 and 5, these activities would be less intense than the peak construction period during FEIS Phase II. Therefore, no new significant adverse impacts on air quality would be predicted leading up to Stage 6 of the Extended Build-Out Scenario.

Stage 7

Upon completion of Stage 7, Buildings 9, 10, 11, and 12 would be completed. Similar to Stages 4, 5 and 6, these activities would be less intense than the peak construction period during FEIS Phase II. Therefore, no new significant adverse impacts on air quality would be predicted leading up to Stage 7 of the Extended Build-Out Scenario.

Noise

The construction noise analysis presented in the FEIS examined the potential noise impacts of construction of the Project with a compressed schedule wherein several buildings would be simultaneously constructed. The Extended Build-Out Scenario would have a longer construction schedule whereby each building or construction task could be completed in the same amount of time, but there would be less overlap in construction of buildings and more time in between various construction activities. With this hypothetical construction schedule, the number of pieces of construction equipment simultaneously operating on the Project site at any time would be either the same or less than that assumed for a comparable period of construction as analyzed in the FEIS. As a result, in general, it would be expected that noise levels produced by construction activities with the Extended Build-Out Scenario construction schedule would be comparable to or less than the noise levels predicted to occur with the FEIS construction schedule, and impacts would be expected to be of comparable or lesser intensity with the Extended Build-Out Scenario construction schedule.

In order to establish an assessment of the duration and magnitude of noise levels, and of the locations where significant impacts would be likely to occur with the Extended Build-Out Scenario, the construction noise analysis results presented in the FEIS were revisited, and various stages of the Extended Build-Out Scenario were examined in comparison to the FEIS construction analysis results. Based upon this examination, an assessment was made of when and where significant noise impacts would be expected to occur for each stage of the Extended Build-Out Scenario. The results of this assessment are presented below.

Evaluation Approach

The approach for identifying the significant construction noise impacts expected to occur under the Extended Build-Out Scenario consisted of associating the significant impacts identified in the FEIS construction noise analysis at specific sensitive receptors (shown in **Figure 20**) with specific buildings or construction tasks and examining which stages of the Extended Build-Out Scenario construction schedule would include construction of those buildings or those

construction tasks in order to assess the magnitude and duration of construction related increases in noise levels and to determine whether each stage would result in significant impacts at specific receptor locations.

The construction noise analysis in the FEIS was based on a detailed construction schedule showing the specific construction activities, the number of workers on the site, the amount and type of construction equipment on the site, and the number of construction deliveries on a quarterly basis. The specific locations of construction equipment and activities were also accounted for on a quarterly basis. Detailed construction noise modeling using the CadnaA software, a computerized model developed for noise prediction and assessment, identified significant impacts at several nearby sensitive receptors over the course of the 10-year construction schedule.

Significant noise level increases primarily resulted from localized on-site construction equipment operating in very close proximity to the receptor. Consequently, the duration of the impacts at a given receptor closely followed the construction schedule of the Project elements immediately adjacent to it, and construction noise impacts moved through the Project site with the most intense construction activities as the schedule progressed.

Given the correlation between the locations of predicted noise level increases and on-site construction activities and equipment, the significant impacts identified in the FEIS at specific sensitive receptors can be attributed to specific buildings or construction tasks (e.g., Building 7, permanent railroad yard construction). Therefore, at each sensitive receptor during each stage, the potential for significant impact can be identified based on which buildings are under construction and which construction tasks are undertaken during that stage.

The magnitude of the construction noise related impacts with the Extended Build-Out Scenario are expected to be the same as or less than those described in the FEIS, because the magnitude of the impacts generally depend on the specific construction activities and type of equipment being used nearest the receptor, rather than the simultaneous activity on the entire site, and the specific construction activities occurring at each construction parcel would not change substantially under the Extended Build-Out Scenario. The significant noise level increases predicted in the FEIS ranged from 3 dBA (the threshold of perception and the significance according to CEQR) to the upper teens of dBA (a readily noticeable increase). The range of magnitudes in the noise level increase is partially due to difference between the specific conditions at the sensitive receptors, but the construction related noise levels also vary over the construction period based on the different activities that occur as part of construction and the nature of the process of constructing a building. Some construction tasks are much more intensive and may result in the large noise level increases (e.g., excavation, foundation work), while other tasks are much less noisy (e.g., interior fit-out, finishing). In addition, as the building shell is completed, more of the construction work takes place inside the building, shielding it from the nearby sensitive receptors. As a result, the greatest noise level increases occur only over a limited duration of the construction process.

As mentioned above, the existing noise levels at each sensitive receptor affect the magnitude of the construction related noise level increases. Locations that have higher existing noise levels will experience smaller noise level increases as a result of construction generated noise. Consequently, some sensitive receptors that are located adjacent to heavily trafficked roadways and have high existing noise levels will experience fewer and smaller significant noise level increases or no significant noise level increases at all, while other sensitive receptors located

along less-trafficked side streets may experience substantially larger and more significant noise level increases during the most intensive construction activities.

While significant adverse noise impacts are predicted to occur at a large number of locations, particularly residential locations adjacent to the Project site, because of the construction noise mitigation measures that have been incorporated into the Project and committed to by the Project sponsors, the magnitude of the noise levels produced by construction activities for this Project are below those typically produced by major construction projects in New York City. Typical construction activities for major construction projects produce noise levels ranging from the high 70s to about 90 dBA with an uncontrolled average of about 85 dBA. With the insight from the detailed analyses performed and the subsequent incorporation of noise reduction methods in the Project, normal weekday construction activities for the Project are expected to produce noise levels at nearby receptor locations generally ranging from about 57 to 78 dBA, with an average in the low 70s dBA range; 2nd shift weekday nighttime construction activities, on those occasions when they occur, are expected to produce noise levels at nearby receptor locations generally ranging from about 56 to 75 dBA, with an average in the mid 60s dBA range; weekend daytime construction activities, on those occasions when they occur, are expected to produce noise levels at nearby receptor locations generally ranging from 57 to 75 dBA, with an average about 70 dBA.

In general, even during construction, L_{10} noise levels would generally be in the high 60 to high 70 dBA range and would be in the *CEQR Technical Manual*'s "marginally acceptable" to "marginally unacceptable" categories. One location where an exception to this statement would occur would be at receptor 7, located on Atlantic Avenue between Clermont and Carlton Avenues, because of the noise produced by high traffic volumes on Atlantic Avenue and the noise produced by nearby on-site construction activities, L_{10} noise levels at this location would be in the low 80 dBA range, for approximately one year during construction, and would be in the "clearly unacceptable" category. Other years, when a high level of construction activity is not taking place adjacent to this receptor, L_{10} noise levels would be lower, in the high 70 dBA range, and would be in the "marginally unacceptable" category. (Noise levels in many areas of New York City are in the "marginally unacceptable" range.)

While construction activities would be noticeable and intrusive to receptors near the project element under construction, the noise levels produced by construction activities with the incorporated noise reduction measures would be relatively low for construction of a project of this magnitude.

As part of the approval process, the Project sponsors have committed to incorporating measures to reduce or avoid the impacts due to construction activities. These measures include: the use of quieter construction equipment, scheduling deliveries during weekday daytime hours, early electrification of equipment where and when practicable, situating noisier equipment away from sensitive receptors where and when practicable, a minimum 8-foot high perimeter plywood barrier surrounding the construction site with a 16-foot high adjacent to sensitive receptors, and noise curtains and equipment enclosures where and when practicable. In addition, most sensitive receptors that have the potential for significant impact already include double-glazed windows and an alternate means of ventilation (i.e., air conditioning). At potentially impacted sensitive receptors that do not have one or both of these measures, the Project sponsors have made offers to provide double-glazed windows or interior windows and/or alternative means of ventilation, as noise mitigation in conformance with the Amended Memorandum of Environmental Commitments.

The sensitive receptors that have the potential for significant construction noise impacts during each stage of the Extended Build-Out Scenario construction schedule are described below.

Stage 1

Construction activity up to the completion of Stage 1 includes construction of the arena, Building 1 temporary plaza area, Building 2, Building 3 temporary plaza area, and the permanent railroad yards. These activities would result in the potential for significant construction noise impacts at noise receptor sites 2, 3, 4, 9b, 9c, 10, 10a, 10b, 10c, 12, 13, 14, 16, and 17. Each of these receptors is expected to experience significant impacts primarily during construction of their immediately adjacent the project elements. Depending on the construction schedule of each project element, this may or may not last the entire duration of the construction stage. At some of these sites, the significant impacts would be expected to occur only for a portion of this construction stage.

At most of these locations residential uses already include double-glazed windows and an alternate means of ventilation (i.e., air conditioning). At potentially impacted sensitive receptors that do not have one or both of these measures, the Project sponsors are obligated to make available, prior to the start of construction, double-glazed windows or interior windows and/or alternative means of ventilation, as noise mitigation, as set forth in the Amended Memorandum of Environmental Commitments. The double-glazed windows or interior windows and alternative ventilation at these structures would result in interior noise levels during most of the time that are below 45 dBA $L_{10(1)}$ (the CEQR acceptable interior noise level criteria). However, as described in the FEIS, even though these structures would have double-glazed windows and alternative ventilation, during some limited time periods, certain construction activities located closest to the receptors may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for residential uses.

Stage 2

Construction activity up to the completion of Stage 2 includes construction of Building 2, Building 3, Building 4, Site 5, and the permanent rail yard. These activities would result in the potential for significant construction noise impacts at noise receptor sites 1, 2, 3, 4, 9b, 9c, 10, 10a, 10b, 10c, 11, 12, 13, 14, 16, and 17. Each of these receptors is expected to experience significant impacts primarily during construction of project elements in the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

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Stage 3

Construction activity up to the completion of Stage 3 includes construction of Building 1, Building 5, Building 6, Building 7, Building 14, Building 15, LIRR Platform 1, and LIRR Platform 2. These activities would result in the potential for significant construction noise impacts at noise receptor sites 3, 4, 5, 6, 10, 10a, 10b, 10c, 10d, 12, and 14. Each of these receptors is expected to experience significant impacts primarily during construction of project elements in the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

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Stage 4

Construction activity up to the completion of Stage 4 includes construction of Building 7, Building 8, Building 14, and LIRR Platform 2. These activities would result in the potential for significant construction noise impacts at noise receptor sites 4, 5, 6, 10, 10a, 10b, 10c, 10d, and 14. Each of these receptors is expected to experience significant impacts primarily during construction of project elements in the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

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Stage 5

Construction activity up to the completion of Stage 5 includes construction of Building 8 and Building 13. These activities would result in the potential for significant construction noise impacts at noise receptor sites 5, 6, 10, 10a, 10b, 10c, and 14. Each of these receptors is expected to experience significant impacts primarily during construction of project elements in the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

At most of these locations residential uses already include double-glazed windows and an alternate means of ventilation (i.e., air conditioning). At potentially impacted sensitive receptors that do not have one or both of these measures, the Project sponsors are obligated to make available, prior to the start of construction, double-glazed windows or interior windows and/or alternative means of ventilation, as noise mitigation, as set forth in the Amended Memorandum of Environmental Commitments. The double-glazed windows or interior windows and alternative ventilation at these structures would result in interior noise levels during most of the time that are below 45 dBA $L_{10(1)}$ (the CEQR acceptable interior noise level criteria). However, as described in the FEIS, even though these structures would have double-glazed windows and alternative ventilation, during some limited time periods, certain construction activities located closest to the receptors may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for residential uses.

Stage 6

Construction activity up to the completion of Stage 6 includes construction of Building 9, Building 10, Building 13, and LIRR Platform 3. These activities would result in the potential for significant construction noise impacts at noise receptor sites 5 and 6. At most of these locations residential uses already include double-glazed windows and an alternate means of ventilation (i.e., air conditioning). Each of these receptors is expected to experience significant impacts primarily during construction of project elements in the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

At potentially impacted sensitive receptors that do not have one or both of these measures, the Project sponsors are obligated to make available, prior to the start of construction, double-glazed windows or interior windows and/or alternative means of ventilation, as noise mitigation, as set forth in the Amended Memorandum of Environmental Commitments. The double-glazed windows or interior windows and alternative ventilation at these structures would result in interior noise levels during most of the time that are below 45 dBA $L_{10(1)}$ (the CEQR acceptable interior noise level criteria). However, as described in the FEIS, even though these structures would have double-glazed windows and alternative ventilation, during some limited time periods, certain construction activities located closest to the receptors may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for residential uses.

Stage 7

Construction activity up to the completion of Stage 7 includes construction of Building 9, Building 10, Building 11, and Building 12. These activities would result in the potential for significant construction noise impacts at noise receptor sites 5 and 6. Each of these receptors is expected to experience significant impacts primarily during construction of project elements in

the area immediately adjacent to these receptors. Depending on the construction schedule of each project element, the impacts on a particular receptor may not last the entire duration of this hypothetical construction stage and the significant impacts would be expected to occur only for a portion of this construction stage.

At most of these locations residential uses already include double-glazed windows and an alternate means of ventilation (i.e., air conditioning). At potentially impacted sensitive receptors that do not have one or both of these measures, the Project sponsors are obligated to make available, prior to the start of construction, double-glazed windows or interior windows and/or alternative means of ventilation, as noise mitigation, as set forth in the Amended Memorandum of Environmental Commitments. The double-glazed windows or interior windows and alternative ventilation at these structures would result in interior noise levels during most of the time that are below 45 dBA $L_{10(1)}$ (the CEQR acceptable interior noise level criteria). However, as described in the FEIS, even though these structures would have double-glazed windows and alternative ventilation, during some limited time periods, certain construction activities located closest to the receptors may result in interior noise levels that would be above the 45 dBA $L_{10(1)}$ noise level recommended by CEQR for residential uses.

Each of the noise receptor locations identified above as experiencing significant adverse noise impacts during the construction period were also identified in the FEIS construction analysis as receptor locations that would experience significant adverse noise impacts during the construction period. The mitigation measures identified in the FEIS to avoid or mimimize these impacts would continue to address impacts in the Extended Build-Out Scenario.

Neighborhood Character

As described above, at the time that the FEIS was published, the Project site still largely reflected its early industrial character and stood in stark contrast to the character of much of the surrounding area, which includes uses more typical of viable urban neighborhoods, including residential and commercial development. The open rail yard, spanning three blocks, comprises a significant area of the Project site. The FEIS concluded that construction activity associated with the Project would have significant adverse localized neighborhood character impacts in the immediate vicinity of the Project site during construction. Construction traffic and noise would change the quiet character of Dean Street and Pacific Street in the immediate vicinity of the Project site. The impacts would be localized and would not alter the character of the larger neighborhoods surrounding the Project site. The FEIS identified a number of mitigation measures to reduce the construction impacts; these measures were subsequently imposed in the SEQRA Findings Statement and the Amended Memorandum of Environmental Commitments.

For the Extended Build-Out Scenario, there would be continued localized adverse impacts on Dean and Pacific Streets; however, impacts associated with construction activity would be less intense because there would be less simultaneous activity on the site. As each building is completed, it would be occupied by its permanent intended uses. The amount of time and effort required to complete each Project component would be similar regardless of whether several buildings are constructed concurrently or they are sequenced one at a time. There would be an incremental realization of the Project as buildings are completed in a sequential manner. Sites not under active construction would be maintained in their existing condition (as in the case of Site 5) or would have interim uses such as temporary public plazas or other amenities, interim surface parking and/or construction staging areas.

Although the length of time where the temporary surface parking and staging area on Block 1129 would be prolonged with the Extended Build-Out Scenario, it would not be occupied by a 1,100-car surface parking lot for the entire construction duration. As sites are developed on Block 1129, the above-ground interim parking lot would be reduced as parking is provided below-grade. Furthermore, construction of at least one of the four buildings on Block 1129 would be started by 2020. Although the entire Project would be prolonged in the Extended Build-Out Scenario, 2020 represents an outside date for when the interim surface parking and staging areas on Block 1129 would start its incremental transformation into completed and occupied permanent uses, including public open space and below-grade permanent parking.

Therefore, the impacts of the Project's construction on neighborhood character with the Extended Build-Out Scenario would remain localized and be comparable to those described in the FEIS and the 2009 Technical Memorandum. As in the FEIS scenario, the construction activity associated with the Project would have significant adverse neighborhood character impacts in the immediate vicinity of the Project site during construction, but these impacts would be localized and would not alter the character of the larger neighborhoods surrounding the Project site. The following analysis assesses the potential impacts on neighborhood character during each of the illustrative construction stages.

Stage 1

The presence of cranes, earth moving and loading equipment, and other heavy equipment used from the construction during Stage 1 for the development on the arena block would result in a temporary localized neighborhood character impact on the immediate area to the south and west of the arena site. The residents along Dean Street directly south of the arena block would experience localized neighborhood character impacts from the construction activities, but given the less intensive pace of construction on that block, the neighborhood character effects would be expected to be less than those disclosed in the FEIS. Moreover, with the activities focused on the arena block, the eastern end of the Project site would experience less neighborhood character effects from the construction activities. Construction of Buildings 1 and 3 would not have started and those sites would be occupied by temporary public open space (see Figures 16 and 17). The site of Building 4 would continue to remain a below-grade, open rail yard with a perimeter wall and fencing and would represent no change on neighborhood character.

Improvements to the permanent MTA/LIRR rail yard on Block 1120 and 1121 would be underway, but these activities would not have significant adverse impacts on neighborhood character since work would occur within the below-grade rail yard. A portion of the at-grade site on Block 1120 would be used as a rail yard construction staging and storage area but this use would not be significantly different from its historical use as a LIRR bus storage area and would have no materially different effect on neighborhood character.

The area immediately adjacent to Block 1129, which is closest to the residential neighborhood of Prospect Heights to the south, would experience increases in pedestrian and vehicular activities along Dean Street linking Block 1129 and the arena (i.e., between Vanderbilt and 6th Avenues), primarily during the pre-game and post-game peak periods at the arena; however, the pedestrian and vehicular traffic would be at the same (or reduced) level as in the permanent condition upon Project completion, and as analyzed in the FEIS and the 2009 Technical Memorandum. (Upon Project completion, Block 1129 will have 2070 below-grade parking spaces; thus, vehicular traffic associated with the interim surface parking lot of 1100 spaces is expected to be less than analyzed in the permanent condition in the FEIS.) The operations of the surface parking lot serving the arena patrons would remain unchanged from that analyzed in the FEIS, although operations of the interim

surface lot would extend over a longer period of time under this Extended Build-Out Scenario. As previously described, when necessary, stackers would be used that allow two cars per space to provide a capacity for up to the 1,100 cars. Consistent with the Project plan for permanent underground parking on Block 1129, the temporary surface parking would be accessible from Carlton Avenue, Dean Street, and Vanderbilt Avenue to facilitate efficient circulation. Within the lot, queuing and circulation space would be provided, and valet operations would be in place to accommodate periods of high demand (i.e., during pre- and post-arena events).

The temporary surface parking lot would be screened and landscaped around its perimeter. The landscaping, fencing and lighting would work together to create a safe environment for pedestrians and a less obtrusive effect on nearby residents. The directional lighting planned for the site would illuminate different parts of the interior space while minimizing off-site light intrusion onto the upper floor residences in the immediate area of Vanderbilt Avenue and Dean Street as well as the surrounding neighborhood. As in the FEIS Scenario, the upper floor residences immediately across from the parking lot (i.e., upper floor residences on the eastern edge of Block 1128, the south side of Dean Street between Carlton and Vanderbilt Avenues and, to a lesser extent, the eastern side of Vanderbilt Avenue between Dean and Pacific Streets) will see the screening (which will be 10' in height), but because of their elevation will also see over the screening into the surface parking lot; this would be a change in their views from the pre-Project condition in which Block 1129 was characterized by a mix of abandoned industrial buildings, occupied residential and commercial buildings, a homeless shelter and much smaller surface parking lots. That change in views would not constitute a significant adverse impact to neighborhood character. During off-peak times when the lot would not be actively used for parking, the lot would also include some low lighting to safely light the site. The vertical screening, landscaping, and directional lighting will minimize the effects of this use on adjacent residences, but as in the permanent condition, the surface parking lot will result in significant traffic impacts that would affect the local area.

Once the arena is complete and opened, the construction staging area on Block 1129 would be located in a discrete area of the northeast corner of the block, at the corner of Pacific Street and Vanderbilt Avenue, adjacent to the rail yard. This location is more distant from the residences on Carlton Avenue and Dean Street and is separated from the residences on the eastern side of Vanderbilt Avenue by Vanderbilt Avenue, which is a wide street. The construction staging area will also be screened as described above.

Stage 2

At Stage 2 of construction completion, construction would continue on the arena block with the sequential construction (with some potential overlap) of Buildings 2, 3, and 4. Site 5 (Block 927) construction would also be completed in Stage 2. Below-grade parking would also be complete under Buildings 3 and 4 and Site 5. Construction would also proceed to the east on Blocks 1120 and 1121 with the permanent rail yard completed in Stage 2 and platform construction and staging ongoing on Block 1120. There would be no change in use between Stages 1 and 2 on Block 1129, as it would continue to be used for surface parking, and, in the northeastern corner, for construction staging.

Similar to conditions in Stage 1, the presence of cranes, earth moving and loading equipment, and other heavy equipment used between Stages 1 and 2 for the development on the arena block and platform construction on Blocks 1120 and 1121 would result in a temporarily localized neighborhood character impact on the areas immediately adjacent to the Project site. However, over half of the arena block would be completed with three buildings occupied by its permanent

intended uses. Neighborhood character effects of the construction activity would be less in the area at the eastern end of the Project site, because the buildings under construction would be west of Sixth Avenue. As construction is completed for the permanent rail yard, it is anticipated that construction staging activities would lessen on Block 1129, reducing its effects. Block 1129 would continue to operate as a construction staging area as well as interim surface parking for arena events as described in Stage 1. The screening and landscaping around the parking lot would continue to provide a visual buffer to the pedestrians and surrounding neighborhood. The interim surface parking lot would be utilized the most during the very early stages of construction (Stages 1 and 2). In subsequent stages, development would be underway on Block 1129 and the surface parking lot would be incrementally reduced as the parking spaces would be relocated under the new buildings on the block.

Stages 3 though 5

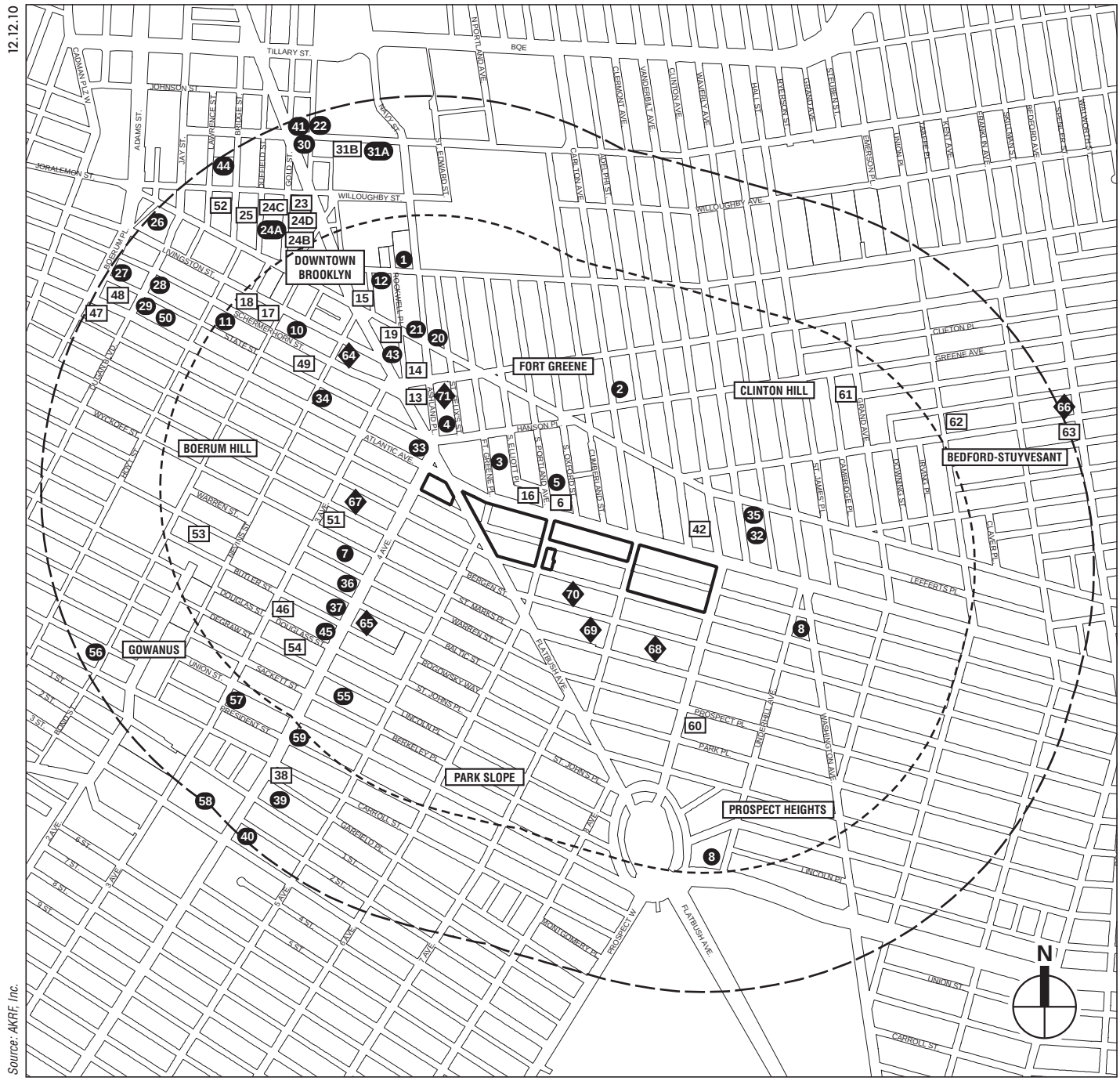
Construction would be completed on the arena block by Stage 3—the arena and Buildings 1 through 4 and the indoor open space area in the Urban Room at Building 1 would have been constructed sequentially, and be occupied with their permanent intended uses. There would be no construction occurring at the eastern end of the Project site, as Buildings 15, 5 and 6 and their associated open space areas (Buildings 5 and 6) and below-grade parking would be occupied with their permanent intended uses. At this point, half of the approximately 22-acre area site would be developed with its permanent intended uses. Construction would be ongoing on the eastern portion of Block 1120 and western portion of Block 1121 for the construction of Buildings 7 and 8, respectively, and on the western portion of Block 1129 for Building 14, with the completion of both Buildings 7 and 14 at Stage 4. Surface parking would continue to occupy the eastern portion of Block 1129, and the screening described above would remain in place in that area. Similar to previous stages, the entire Project site would be in use. However, during this time, the entire western portion of the site would be completed and occupied with its permanent intended uses and less of the site would be under construction than during the previous stage.

Development of Buildings 7 and 14 and their associated below-grade parking and open space areas as well as the start of construction on Buildings 8 would result in a temporarily localized neighborhood character impact on the immediately adjacent area. However, since construction is primarily occurring to the east of Carlton Avenue, it is anticipated that the residential neighborhoods to the south and to the north (west of Carlton Avenue) and the commercial district to the north of the Project site would not experience localized neighborhood character impacts at this time. Building 13 on Block 1129 would be under construction in Stage 5. With the completion of Building 14 and construction of Building 13 and their associated open space areas, the surface lot would have decreased in size and in use as a parking facility. At this point, approximately 2/3 of the Project would be developed with its permanent intended uses.

Stages 6 and 7

These periods represent the final build-out of Blocks 1121 and 1129 with sequential construction of each of the last four of the 17 Project buildings. At this point, 75 percent of the Project would have been completed and occupied with their permanent intended uses and associated open space areas and below-grade parking.

There would be temporarily localized neighborhood character impact on the areas immediately adjacent to the construction activity. Similar to previous conditions, it is anticipated that the residential neighborhoods west of Carlton Avenue or the commercial district to the north of the Project site would not experience localized neighborhood character impacts at this time. ✷

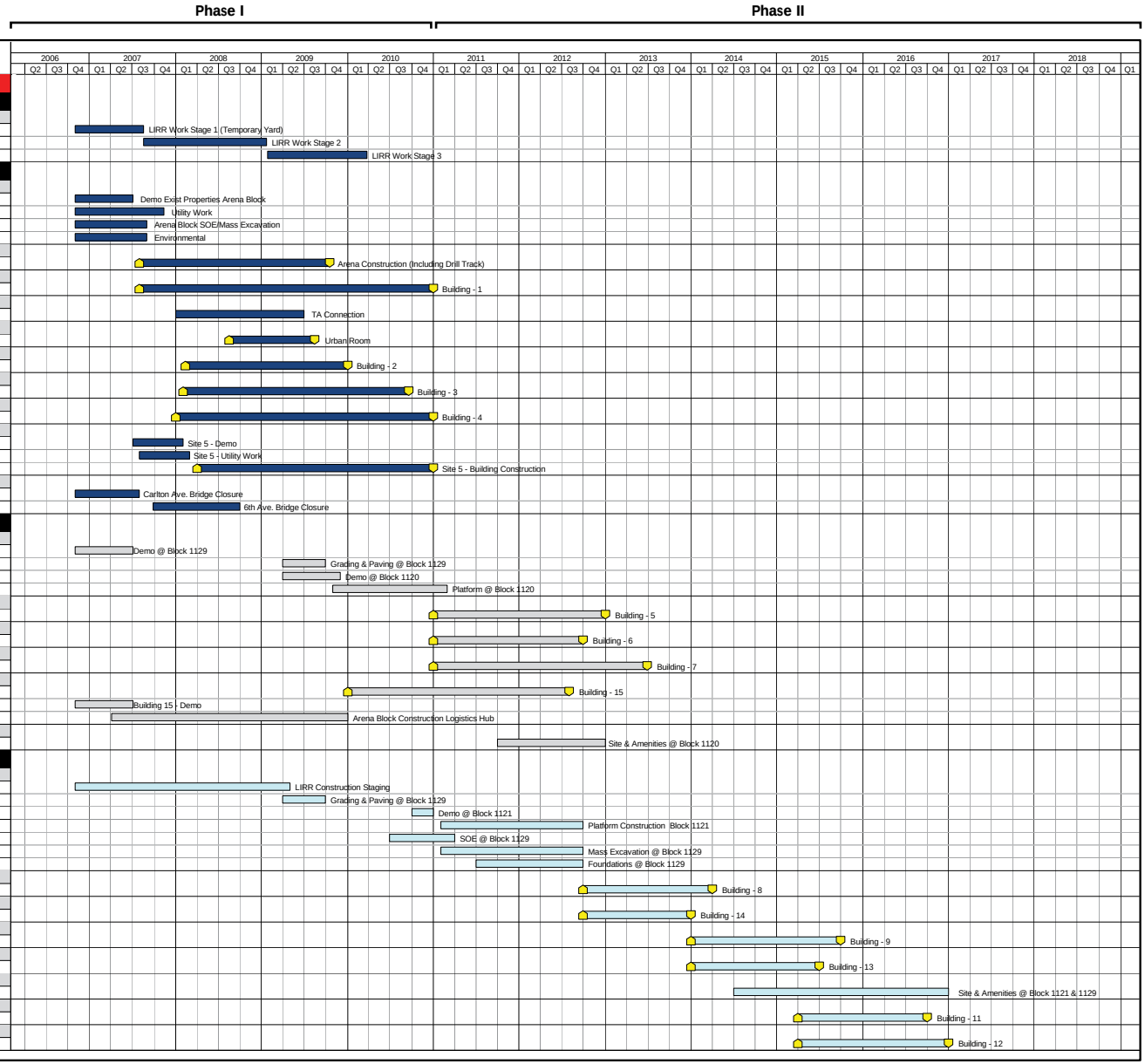


Recently Completed and No Build Project Locations

Figure 1

TECHNICAL MEMORANDUM | **Atlantic Yards Arena and Redevelopment Project**

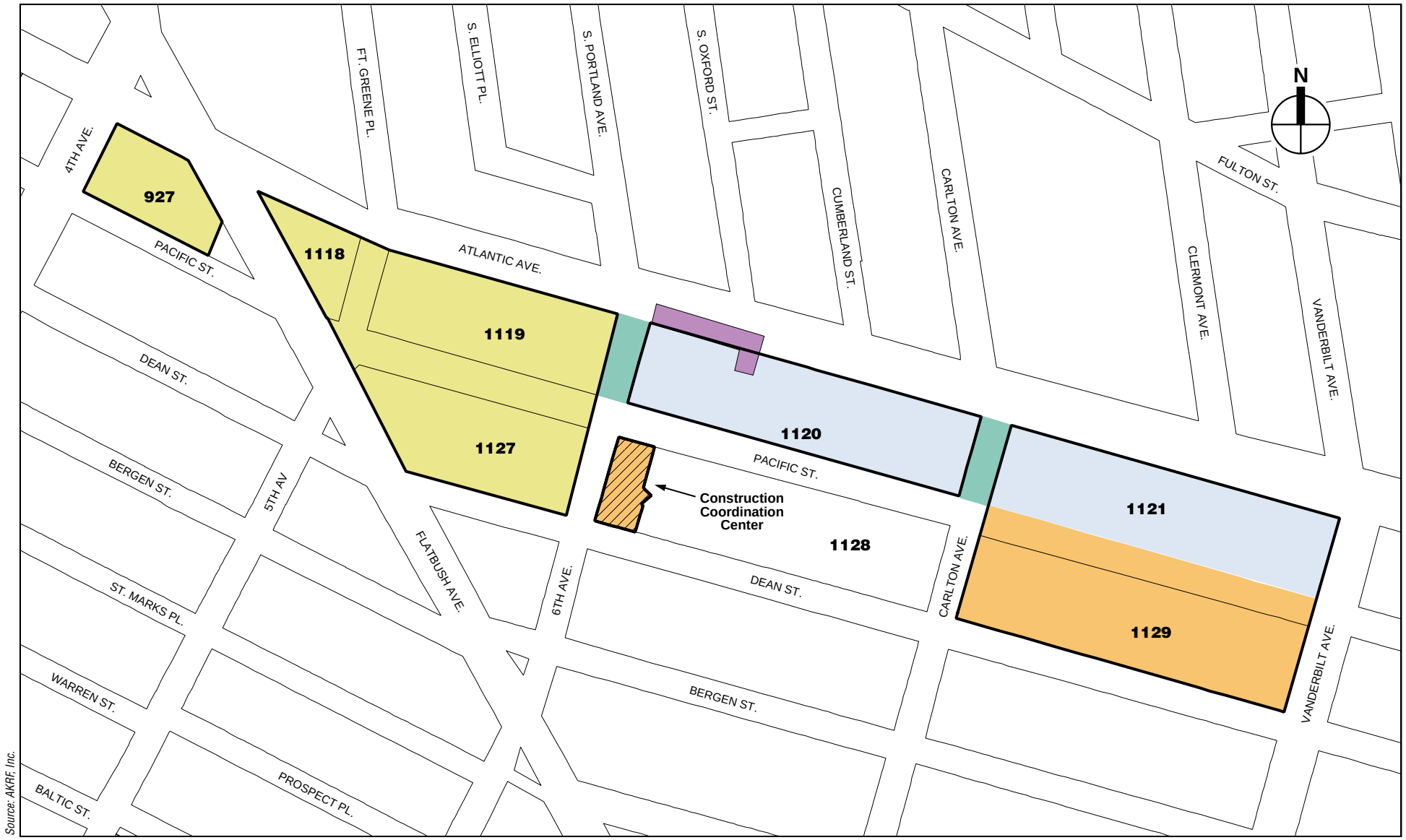
Activity ID	Description	Months	Start	Finish
ATLANTIC YARDS - MASTER PLAN				
LIRR Block 1119, 1120, 1121				
LIRR WORKS				
ES2080	LIRR Work Stage 1 (Temporary Yard)	10 Months	11-01-06*	08-17-07
ES2100	LIRR Work Stage 2	18 Months	08-20-07	01-23-09
ES2120	LIRR Work Stage 3	14 Months	01-26-09	03-24-10
Arena Block 118, 119, 1127				
DEMO WORKS				
ES2000	Demo Exist Properties Arena Block	8 Months	11-01-06*	07-02-07
ES2020	Utility Work	12 Months	11-01-06*	11-14-07
ES2040	Arena Block SOE/Mass Excavation	10 Months	11-01-06*	08-31-07
ES2060	Environmental	10 Months	11-01-06*	08-31-07
ARENA				
ES2140	Arena Construction (Including Drill Track)	26 Months	08-01-07*	10-15-09
BUILDING - 1				
ES2360	Building - 1	41 Months	08-01-07*	12-30-10
TA CONNECTION				
ES2480	TA Connection	18 Months	01-02-08*	06-30-09
URBAN ROOM				
ES2500	Urban Room	12 Months	08-15-08*	08-14-09
BUILDING - 2				
ES2520	Building - 2	22 Months	02-14-08*	12-31-09
BUILDING - 3				
ES2660	Building - 3	32 Months	02-01-08*	09-16-10
BUILDING - 4				
ES2800	Building - 4	36 Months	01-02-08*	12-30-10
PARKING/SITE WORK				
ES2950	Site 5 - Demo	8 Months	07-02-07*	01-31-08
ES2960	Site 5 - Utility Work	7 Months	08-01-07*	02-28-08
ES3000	Site 5 - Building Construction	33 Months	04-01-08*	12-30-10
BRIDGE CLOSURE				
ES3020	Carlton Ave. Bridge Closure	9 Months	11-01-06*	07-31-07
ES3440	6th Ave. Bridge Closure	12 Months	09-28-07*	09-30-08
Block 1120, 1128, 1129				
PLATFORM/DEMO				
ES5080	Demo @ Block 1129	8 Months	11-01-06*	07-02-07
ES5090	Grading & Paving @ Block 1129	6 Months	04-01-09*	09-30-09
ES5095	Demo @ Block 1120	8 Months	04-01-09	11-30-09
ES5100	Platform @ Block 1120	16 Months	11-02-09*	02-28-11
BUILDING - 5				
ES1210	Building - 5	24 Months	01-03-11*	12-31-12
BUILDING - 6				
ES1220	Building - 6	21 Months	01-03-11	09-28-12
BUILDING - 7				
ES1230	Building - 7	30 Months	01-03-11	06-28-13
BUILDING - 15				
ES1240	Building - 15	31 Months	01-04-10*	07-31-12
ES5230	Building 15 - Demo	8 Months	11-01-06*	07-02-07
ES5235	Arena Block Construction Logistics Hub	30 Months	04-02-07*	12-31-09
SITE & AMENITIES				
ES1250	Site & Amenities @ Block 1120	15 Months	10-03-11*	12-31-12
Block 1121, 1129				
DEMO/PLATFORM/PARKING				
ES1263	LIRR Construction Staging	30 Months	11-01-06*	04-30-09
ES1265	Grading & Paving @ Block 1129	6 Months	04-01-09	09-30-09
ES1267	Demo @ Block 1121	3 Months	10-01-10*	12-30-10
ES1270	Platform Construction Block 1121	20 Months	02-01-11*	09-28-12
ES1275	SOE @ Block 1129	9 Months	07-01-10*	03-31-11
ES1280	Mass Excavation @ Block 1129	20 Months	02-01-11	09-28-12
ES1370	Foundations @ Block 1129	15 Months	07-01-11*	09-28-12
BUILDING - 8				
ES1290	Building - 8	18 Months	10-01-12	03-31-14
BUILDING - 14				
ES1300	Building - 14	15 Months	10-01-12	12-31-13
BUILDING - 9				
ES1310	Building - 9	21 Months	01-02-14	09-30-15
BUILDING - 13				
ES1320	Building - 13	18 Months	01-02-14	06-30-15
SITE/AMENITIES				
ES1330	Site & Amenities @ Block 1121 & 1129	30 Months	07-01-14*	12-30-16
BUILDING - 11				
ES1350	Building - 11	18 Months	04-01-15	09-30-16
BUILDING - 12				
ES1360	Building - 12	21 Months	04-01-15	12-30-16



Source: Turner Construction Company

FEIS Construction Schedule
Figure 2

12.12.10

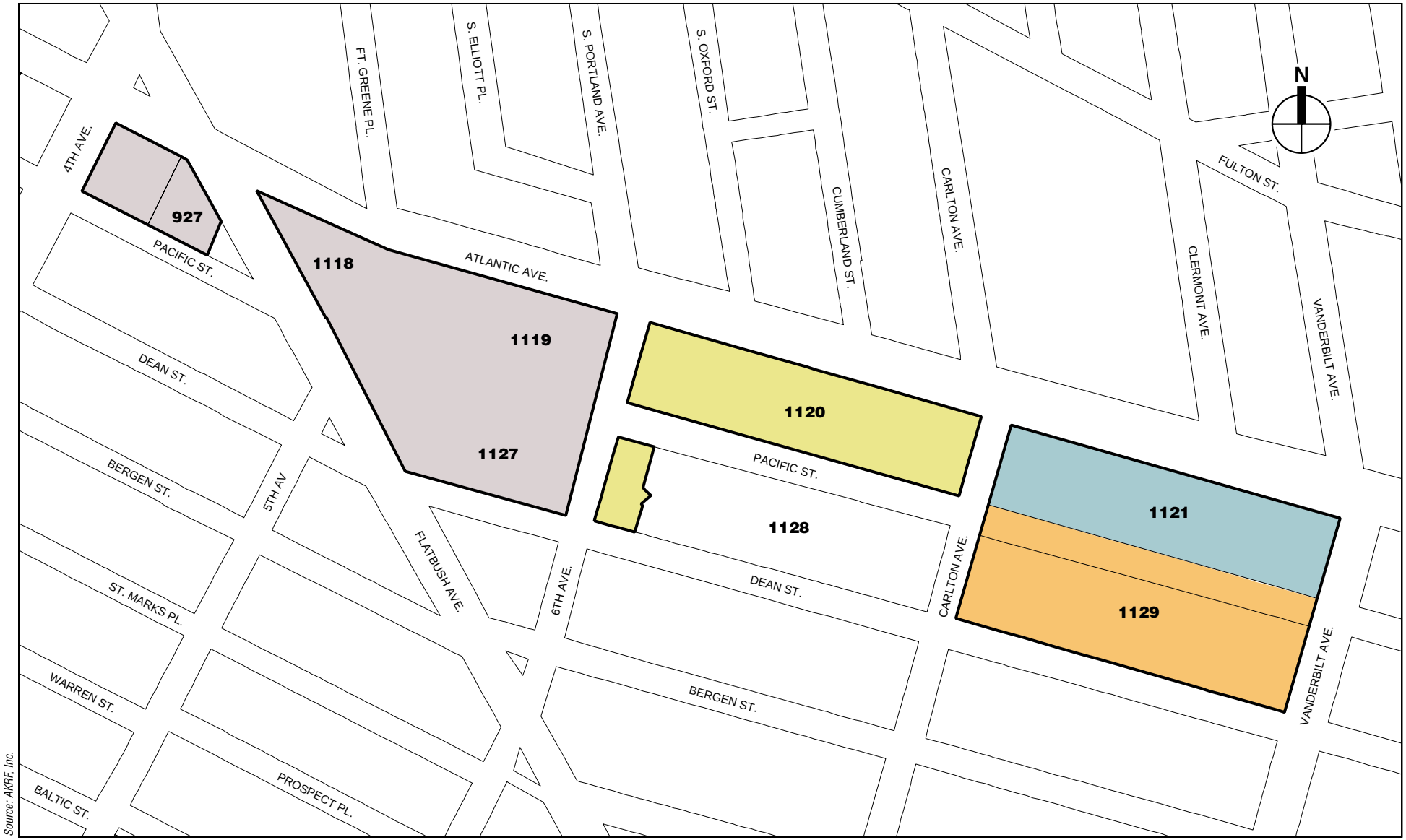


Source: AKRF, Inc.

TECHNICAL MEMORANDUM | Atlantic Yards Arena and Redevelopment Project

FEIS Peak Phase I Construction
Figure 3

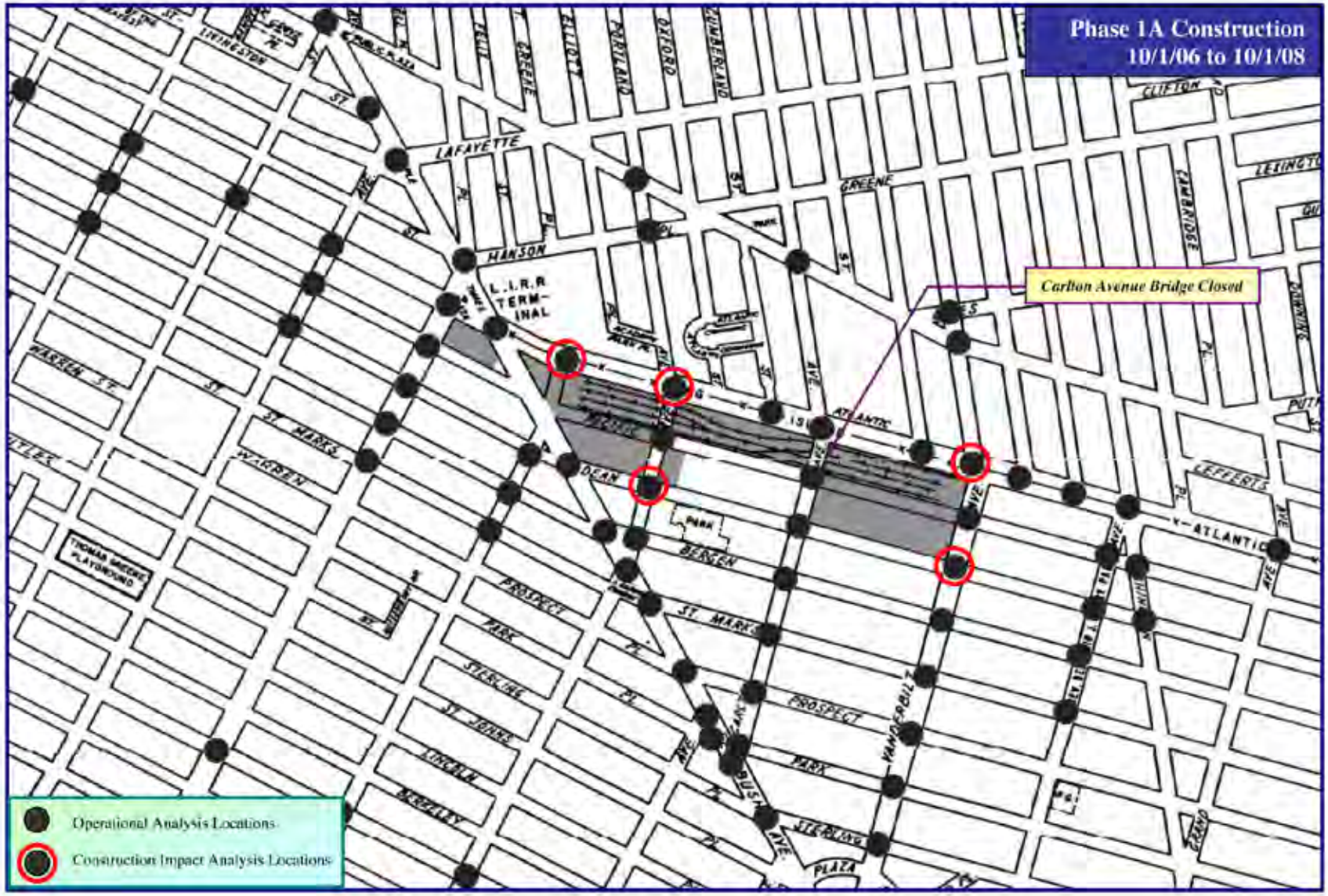
12.12.10



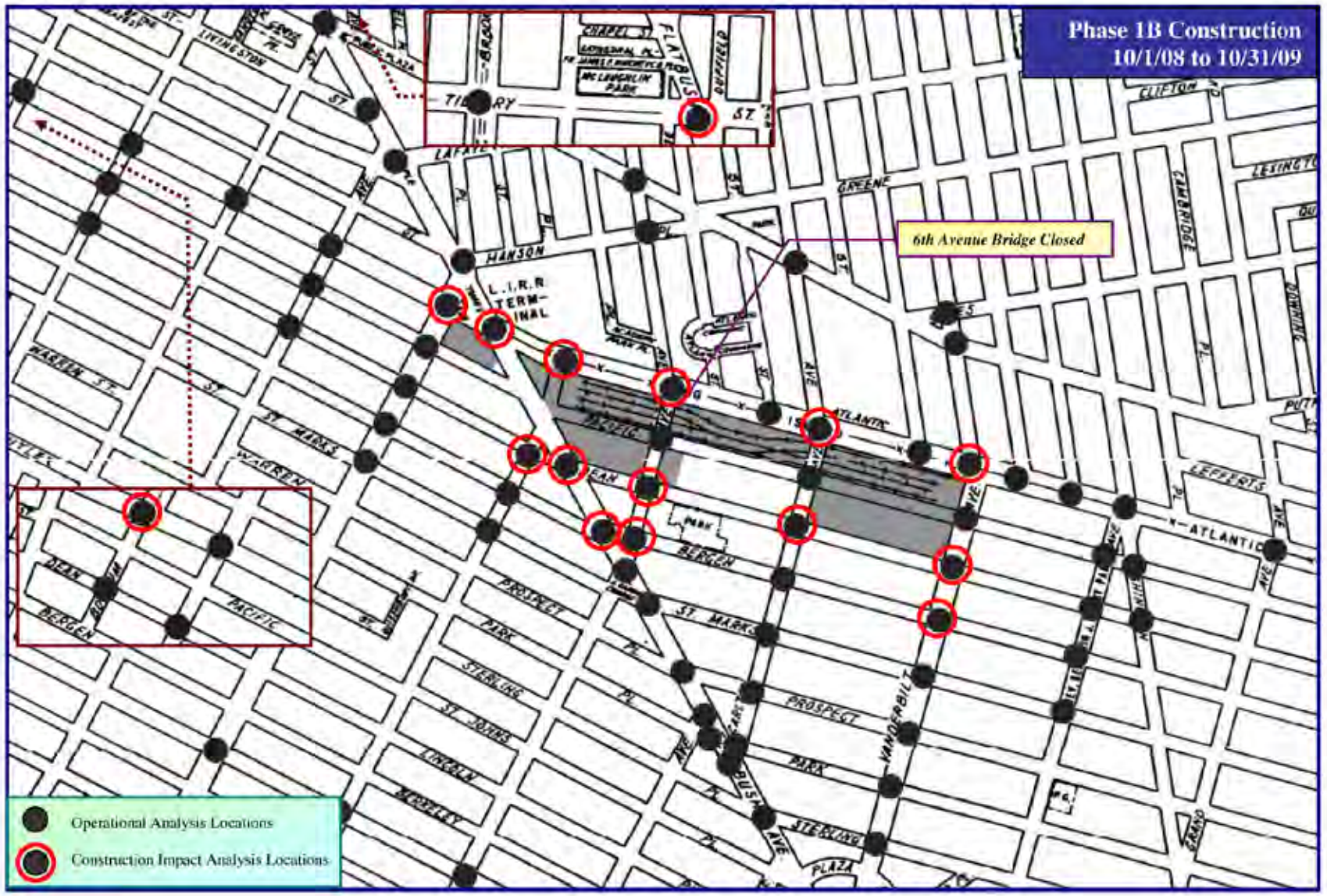
TECHNICAL MEMORANDUM | Atlantic Yards Arena and Redevelopment Project

FEIS Peak Phase II Construction

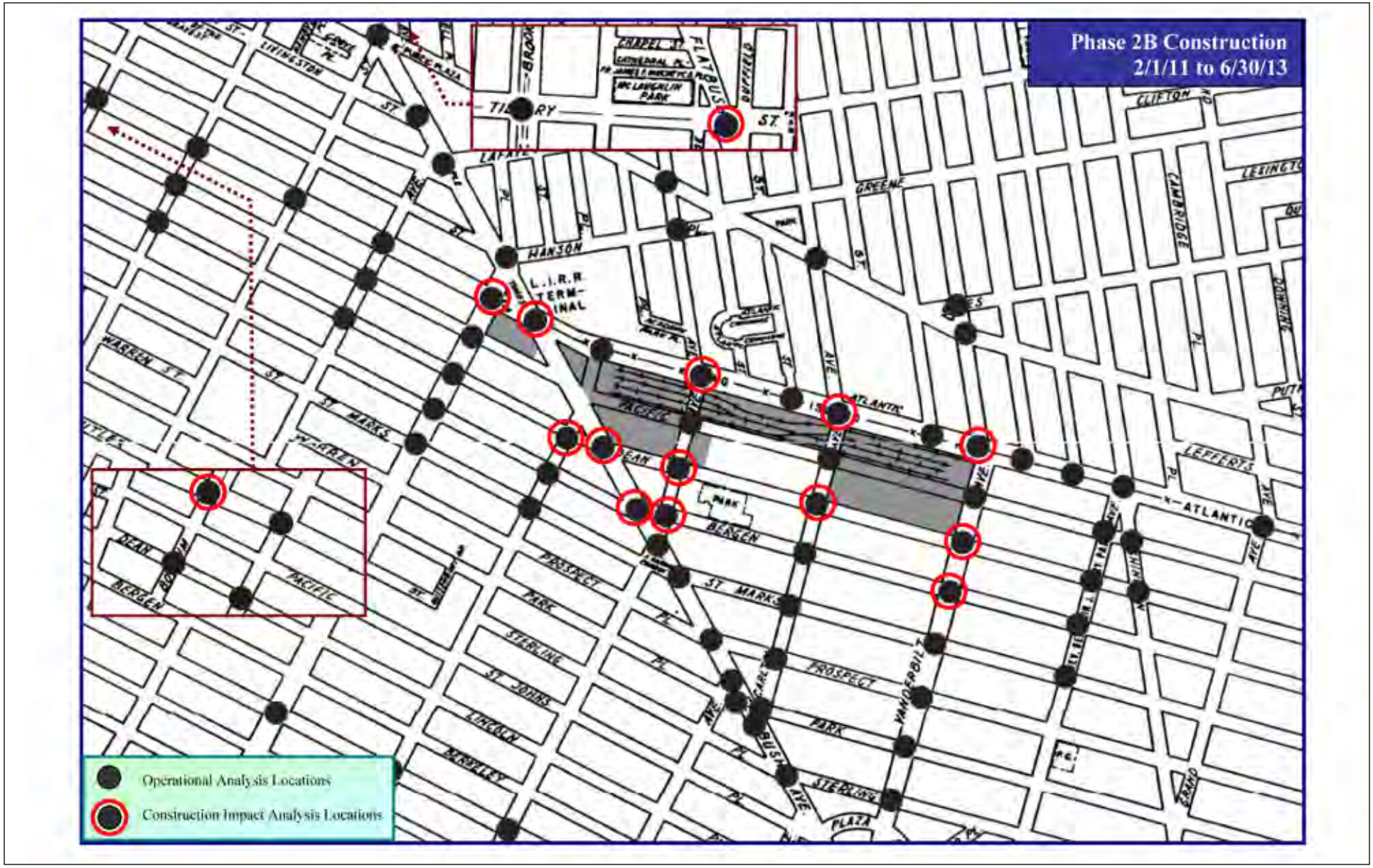
Figure 4



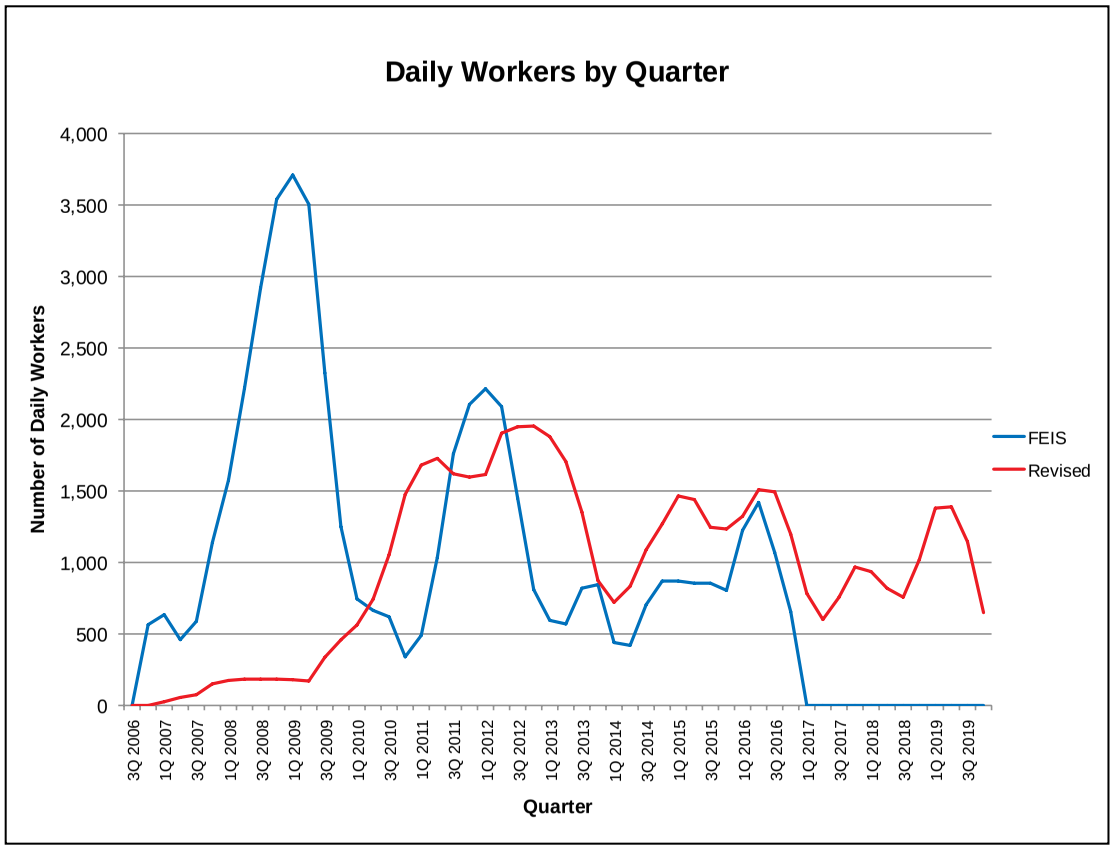
FEIS Construction Traffic Study Area - Phase 1A
Figure 5

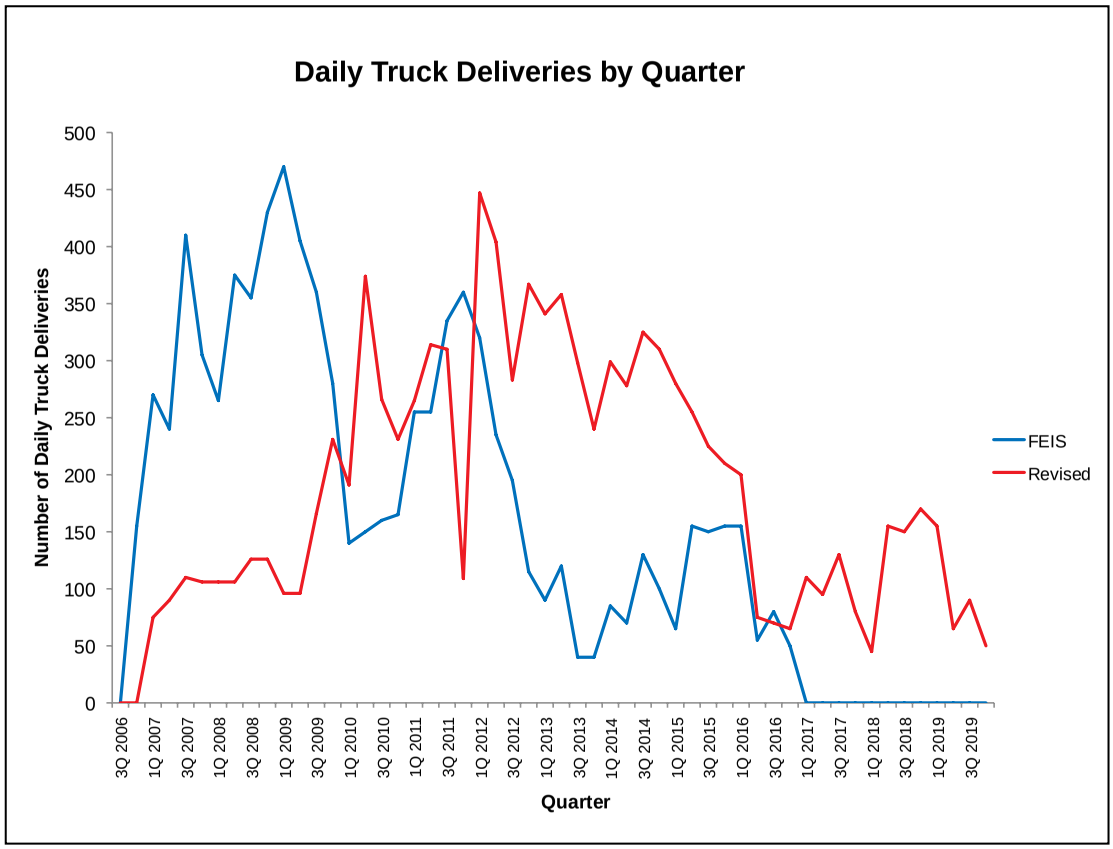


FEIS Construction Traffic Study Area - Phase 1B
Figure 6



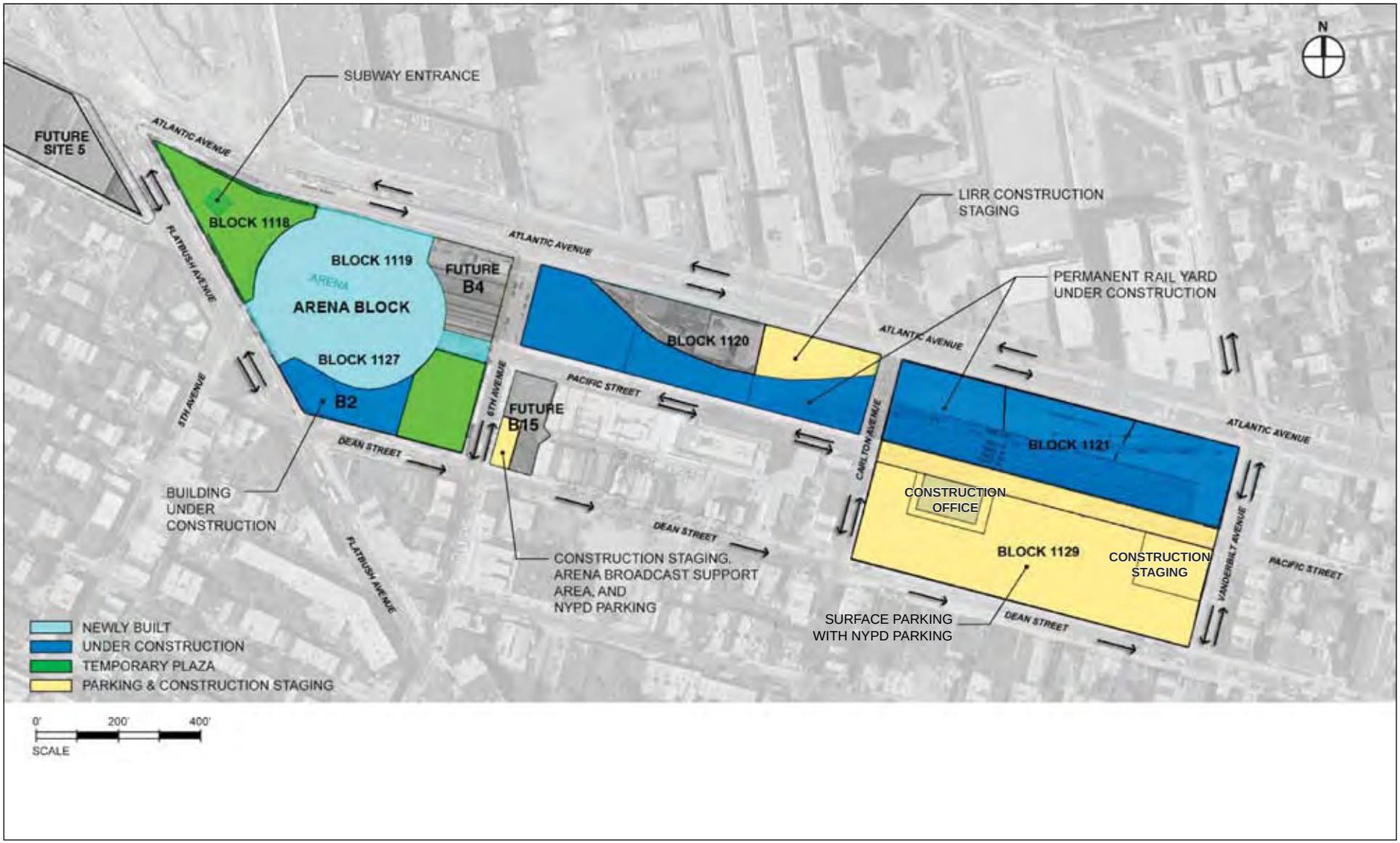
FEIS Construction Traffic Study Area - Phase 2B
Figure 7





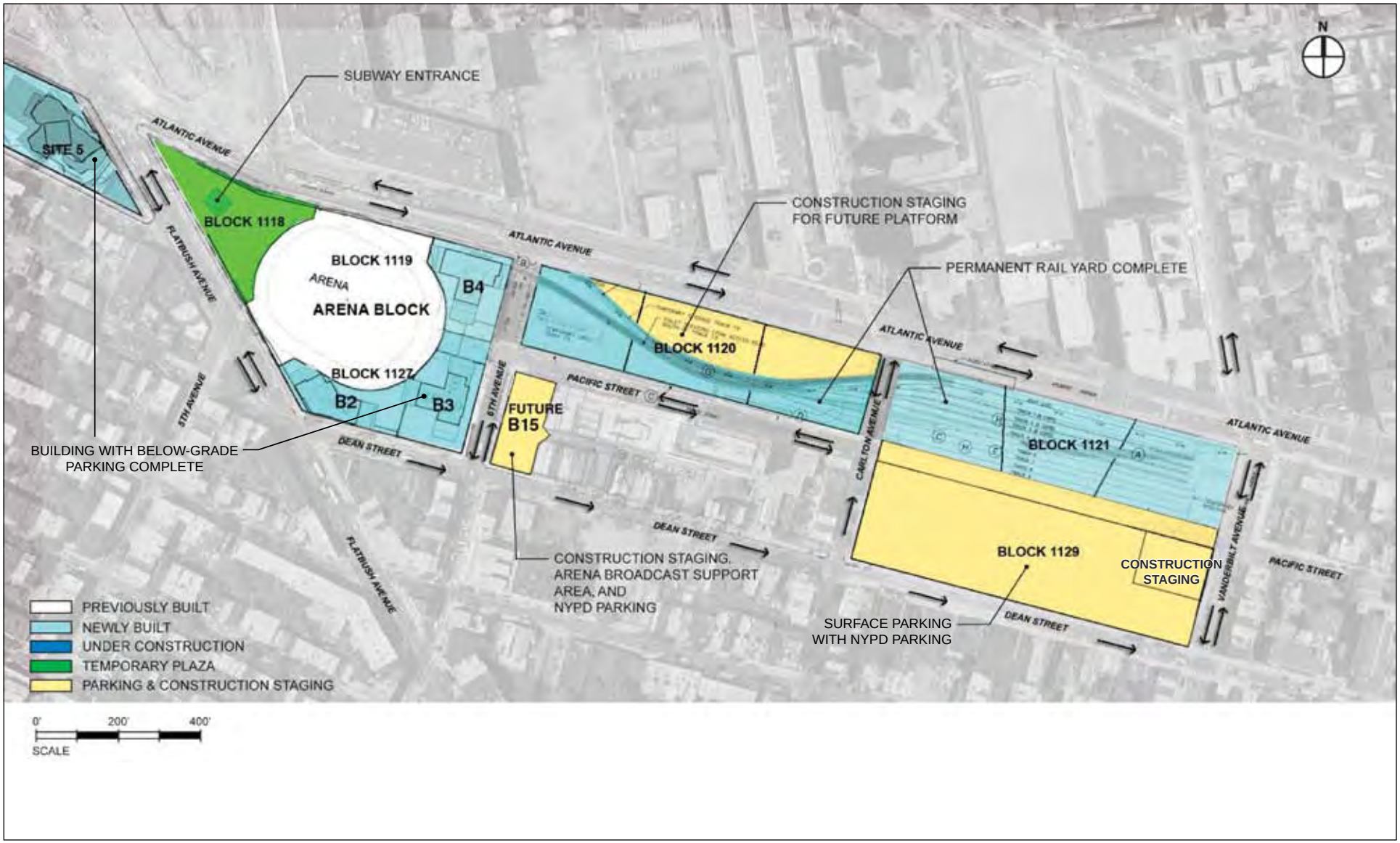
Comparison of FEIS and Tech Memo Worker and Delivery Projections

Figure 8



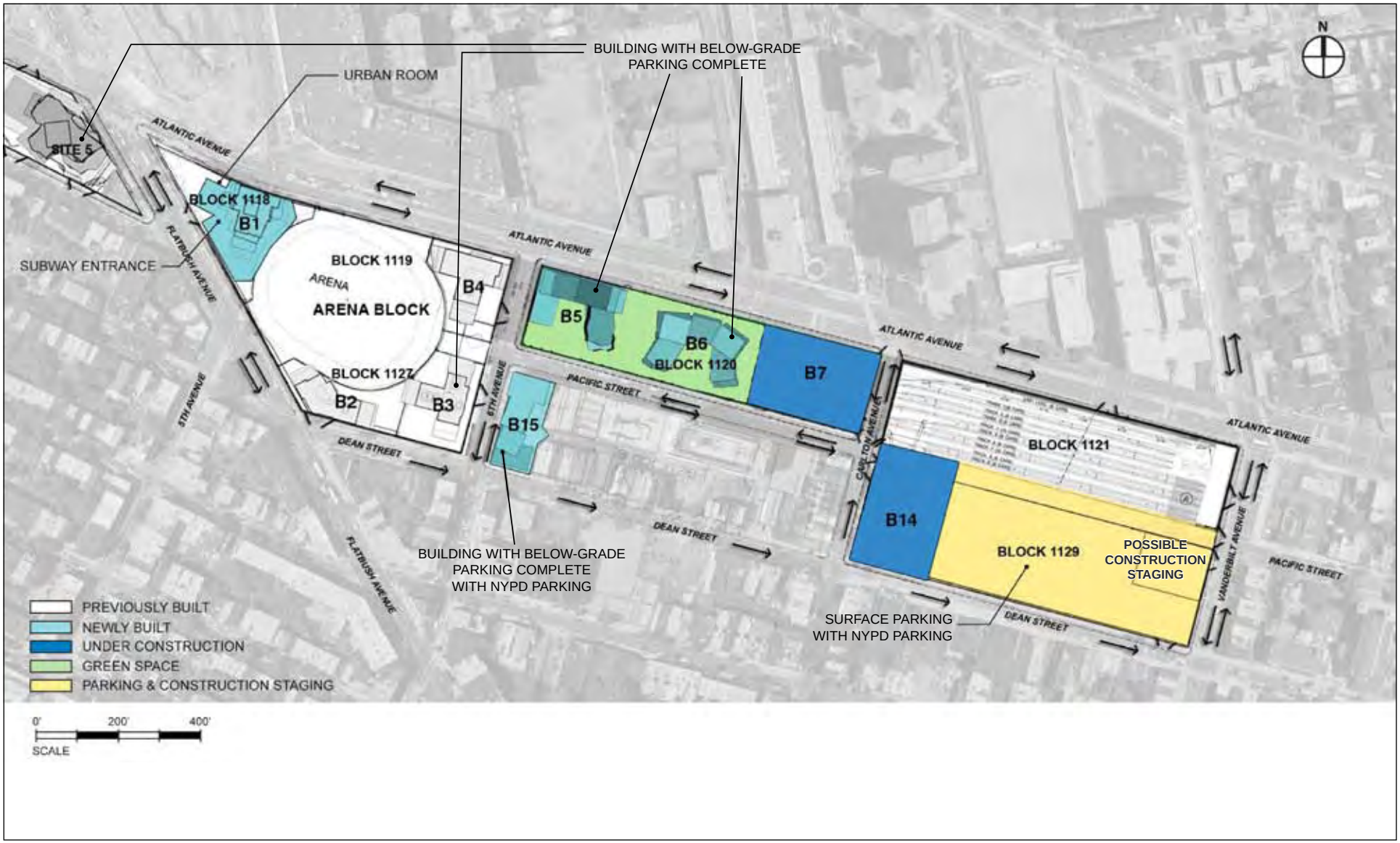
SOURCE: Stantec 12/2010

Illustrative Extended Build-Out Scenario:
Stage 1
Arena Opening
Figure 9



SOURCE: Stantec 12/2010

Illustrative Extended Build-Out Scenario:
Stage 2
LIRR Permanent Yard Complete
Figure 10



SOURCE: Stantec 12/2010

Extended Build-Out Scenario:
Stage 3
Platform Partially Complete Over Block 1120
Figure 11